Factors

Fibrin glue in coronary artery bypass grafting operations: casting out the Devil with Beelzebub?.

Authors: Lamm P, Adelhard K, Juchem G, Weitkunat R, Milz S, Kilger E, Gotz A, Reichart B

Publication Date: 2007

Abstract:

OBJECTIVE: Fibrin sealants are frequently used in aortocoronary bypass operations. Although they are considered to be clinically safe, we performed a retrospective analysis of our data to examine the possible side effects of Tissucol fibrin sealant, namely the acute thrombosis of grafts and native coronary arteries resulting in severe myocardial damage and patient deaths. METHODS: The data of 2716 patients (2001 male, 715 female) who received an aortocoronary bypass operation from November 1995 to December 1999 were studied retrospectively. Two groups (group 1: received Tissucol, group 2: no sealant used) were compared with respect to an a priori selected set of demographic and clinical variables and with respect to their effect on the outcome using bivariate tabulation. Multiple exploratory assessments of factors possibly related to fatal outcome were done by multiple logistic regression. RESULTS: Nine hundred ninety patients (group 1) received Tissucol, 1726 patients (group 2) did not receive it. Mean patient age was 64+/-9.1 years. Group 1 had a higher risk of death (7.8% vs 2.8%, $p<0.001$). The peak values of creatine kinase >500 and creatine kinase-myocardial band >50 were higher in group 1 than in group 2, $p<0.001$. Adjusted odds ratios for the risk of fatal outcome were: 2.01 for the use of Tissucol, 2.71 for patient age >70 years, 2.02 for aortic cross clamp time >90 min, 3.95 for postoperative ventricular fibrillation, 6.35 for postoperative cardiopulmonary resuscitation, 4.55 for postoperative aortocoronary reoperation. CONCLUSION: In our analysis an increased risk of myocardial injury or even death was found in coronary artery bypass grafting patients when Tissucol fibrin sealant was used intraoperatively.

Full Text:

Not Available

Evaluation of the topical hemostatic efficacy and safety of TISSEEL VH S/D fibrin sealant compared with currently licensed TISSEEL VH in patients undergoing cardiac surgery: a phase 3, randomized, double-blind clinical study.

Authors: Lowe J, Luber J, Levitsky S, Hantak E, Montgomery J, Schiestl N, Schofield N, Marra S, TISSEEL Clinical Study Group

Publication Date: 2007

Abstract:

AIM: TISSEEL VH is the only commercially available fibrin sealant indicated as an adjunct to conventional methods of hemostasis during cardiac surgery. A next generation fibrin sealant (TISSEEL VH S/D) has been developed in frozen, ready-to-use form with an added virus inactivation step (solvent/detergent [S/D] treatment) to provide added safety and convenience to the currently licensed product. This study was performed to compare efficacy and safety of the two products. METHODS: Phase 3, prospective, randomized, double-blind, multicenter study to compare TISSEEL VH S/D to TISSEEL VH during cardiac surgery. The primary efficacy endpoint was the proportion of patients who achieved hemostasis at the primary treatment site within 5 min, and maintained hemostasis until surgical closure. RESULTS: The proportion of patients who achieved hemostasis at the primary treatment site within 5 min, and maintained hemostasis until surgical closure was 88.2% for TISSEEL VH S/D and 89.6% for TISSEEL VH in the intent-to-treat population. The difference in proportions, TISSEEL VH S/D minus TISSEEL VH, was 1.4% with a standard error of 3.70%. The lower 97.5% confidence bound of this difference was 8.6%, which is above the predefined noninferiority margin of 15%. Therefore, TISSEEL VH S/D is at least as efficacious as TISSEEL VH. The safety profile of TISSEEL VH S/D was very similar to that of currently licensed TISSEEL VH as assessed by the safety endpoints. CONCLUSION: TISSEEL VH S/D is safe and effective for use as an adjunct to hemostasis in patients undergoing cardiac surgery.

Full Text:

Not Available

Fibrin sealant, aprotinin, and immune response in children undergoing operations for congenital heart disease.

Authors: Scheule AM, Beierlein W, Wendel HP, Eckstein FS, Heinemann MK, Ziemer G

Publication Date: 1998

Abstract:

OBJECTIVE: Most commercially available fibrin sealants contain aprotinin in doses of 1500 kallikrein inactivator units per milliliter. They are used in many operative disciplines. An elevated risk of hypersensitivity reactions exists at reexposure to aprotinin. Our aim was to examine the immunogenic potency of aprotinin as a fibrin sealant content. METHODS: We investigated 49 children with operatively treated congenital heart disease. All patients received aprotinin only topically as contained in fibrin sealant. Serum samples were drawn preoperatively, 1 week, 2 weeks, 6 weeks, and approximately 1 year after operation. They were analyzed for aprotinin-specific immunoglobulin G antibodies with a standard enzyme-linked immunosorbent assay and a fluorescence enzyme immunoassay for aprotinin-specific immunoglobulin E antibodies. RESULTS: At 1 week, 2 weeks, 6 weeks, and 1 year, we found prevalences of 8% (2 of 26), 8% (2 of 24), 6% (3 of 49), and 0% for aprotinin-specific Immunoglobulin E, and for aprotinin-specific immunoglobulin G 8% (2 of 26), 17% (4

of 24), 39% (19 of 49), and 12% (5 of 41). The doses of aprotinin given did not differ significantly in antibody-negative and antibody-positive patients; no significant factors could predict the immune response. CONCLUSIONS: Our findings show the existence of a subgroup of patients who had aprotinin-specific antibodies develop after topical aprotinin application. Any use of aprotinin must be carefully documented. If aprotinin use is planned in patients who previously underwent a surgical procedure, preexposure to aprotinin in any form must be sought to avoid unexpected anaphylactic reactions. The necessity itself and alternatives for aprotinin as a stabilizing agent in fibrin sealants merit consideration.

Full Text:

Not Available

Comparative study of biological glues: cryoprecipitate glue, two-component fibrin sealant, and "French" glue.

Authors: Basu S, Marini CP, Bauman FG, Shirazian D, Damiani P, Robertazzi R, Jacobowitz IJ, Acinapura A, Cunningham JN Jr

Publication Date: 1995

Abstract:

BACKGROUND: Although biological glues have been used clinically in cardiovascular operations, there are no comprehensive comparative studies to help clinicians select one glue over another. In this study we determined the efficacy in controlling suture line and surface bleeding and the biophysical properties of cryoprecipitate glue, two-component fibrin sealant, and "French" glue containing gelatin-resorcinol-formaldehyde-glutaraldehyde (GRFG). METHODS: Twenty-four dogs underwent a standardized atriotomy and aortotomy; the incisions were closed with interrupted 3-0 polypropylene sutures placed 3 mm apart. All dogs had a 3- by 3-cm area of the anterior wall of the right ventricle abraded until bleeding occurred. The animals were randomly allocated into four groups: in group 1 (n = 6) bleeding from the suture lines and from the epicardium was treated with cryoprecipitate glue; in group 2 (n = 6) bleeding was treated with two-component fibrin sealant; group 3 (n = 6) was treated with GRFG glue; group 4 (n = 6) was the untreated control group. The glues were also evaluated with regard to histomorphology, tensile strength, and virology. RESULTS: The cryoprecipitate glue and the two-component fibrin sealant glue were equally effective in controlling bleeding from the aortic and atrial suture lines. Although the GRFG glue slowed bleeding significantly at both sites compared to baseline, it did not provide total control. The control group required additional sutures to control bleeding. The cryoprecipitate glue and the two-component fibrin sealant provided a satisfactory clot in 3 to 4 seconds on the epicardium, whereas the GRFG glue generated a poor clot. There were minimal adhesions in the subpericardial space in the cryoprecipitate and the two-component fibrin sealant groups, whereas moderate-to-dense adhesions were present in the GRFG glue group at 6 weeks. The two-component fibrin sealant was completely reabsorbed by 10 days, but cryoprecipitate and GRFG glues were still present. On histologic examination, both fibrin glues exhibited minimal tissue reaction; in contrast, extensive fibroblastic proliferation was caused by the GRFG glue. The two-component and GRFG glues had outstanding adhesive property; in contrast, the cryoprecipitate glue did not show any adhesive power. The GRFG glue had a significantly greater tensile strength than the two-component

fibrin sealant. Random samples from both cryoprecipitate and the two-component fibrin glue were free of hepatitis and retrovirus. CONCLUSIONS: The GRFG glue should be used as a tissue reinforcer; the two-component fibrin sealer is preferable when hemostatic action must be accompanied with mechanical barrier; and finally, the cryoprecipitate glue can be used when hemostatic action is the only requirement.

Full Text:

Not Available

Fibrin sealant for early repair of acquired ventricular septal defect.

Authors: Seguin JR, Frapier JM, Colson P, Chaptal PA

Publication Date: 1992

Abstract:

The trend toward early operation for acquired ventricular septal defects exposes the patient to major perioperative bleeding and residual shunt because of the fragility of the recently necrosed myocardium. To reduce these complications we have used a fibrin sealant to reinforce the cardiac tissues in addition to the usual closure of the defect with a Dacron patch through a left ventricular septum around the defect, area. During cardiac arrest fibrin sealant is applied on the ventricular septum around the defect, between the septum and the patch, and on the edges of the ventriculotomy. This technique was used in three patients (mean age 68.2 years) operated on for an acquired ventricular septal defect within 4 days of the infarction and within 24 hours of the occurrence of the defect. Low postoperative bleeding, absence of recurrent shunt, and good ventricular function indicated satisfactory surgical result in all three patients. We suggest that the use of fibrin sealant during operations for acquired ventricular septal defects, by reinforcing the necrotic and fragile tissues, may reduce perioperative bleeding and assure a more solid implantation of the patch.

Full Text:

Not Available

Comparison between self-assembling peptide nanofiber scaffold (SAPNS) and fibrin sealant in neurosurgical hemostasis.

Authors: Xu FF, Wang YC, Sun S, Ho AS, Lee D, Kiang KM, Zhang XQ, Lui WM, Liu BY, Wu WT, Leung GK

Publication Date: 2015

Abstract:

RADA16-I is a synthetic type I self-assembling peptide nanofiber scaffold (SAPNS) which may serve as a novel biocompatible hemostatic agent. Its application in neurosurgical hemostasis, however, has not been explored. Although RADA16-I is nontoxic and nonimmunogenic, its intrinsic acidity may potentially provoke inflammation in the surgically injured brain. We conducted an animal study to compare RADA16-I with fibrin sealant, a commonly used agent, with the hypothesis that the former would be a comparable alternative. Using a standardized surgical brain injury model, 30 Sprague-Dawley rats were randomized into three treatment groups: RADA16-I, fibrin sealant or gelatin sponge (control). Animals were sacrificed on day 3 and 42. Astrocytic and microglial infiltrations within the cerebral parenchyma adjacent to the operative site were significantly lower in the RADA16-I and fibrin sealant groups than control. RADA16-I did not cause more cellular inflammatory response despite its acidity when compared with fibrin sealant. Immunohistochemical studies showed infiltration by astrocytes and microglia into the fibrin sealant and RADA16-I grafts, suggesting their potential uses as tissue scaffolds. RADA16-I is a promising candidate for further translational and clinical studies that focus on its applications as a safe and effective hemostat, proregenerative nanofiber scaffold as well as drug and cell carrier.

Full Text:

Not Available

Motor recovery and synaptic preservation after ventral root avulsion and repair with a fibrin sealant derived from snake venom.

Authors: Barbizan R, Castro MV, Rodrigues AC, Barraviera B, Ferreira RS, Oliveira AL

Publication Date: 2013

Abstract:

BACKGROUND: Ventral root avulsion is an experimental model of proximal axonal injury at the central/peripheral nervous system interface that results in paralysis and poor clinical outcome after restorative surgery. Root reimplantation may decrease neuronal degeneration in such cases. We describe the use of a snake venom-derived fibrin sealant during surgical reconnection of avulsed roots at the spinal cord surface. The present work investigates the effects of this fibrin sealant on functional recovery, neuronal survival, synaptic plasticity, and glial reaction in the spinal motoneuron microenvironment after ventral root reimplantation. METHODOLOGY/PRINCIPAL FINDINGS: Female Lewis rats (7 weeks old) were subjected to VRA and root replantation. The animals were divided into two groups: 1) avulsion only and 2) replanted roots with fibrin sealant derived from snake venom. Post-surgical motor performance was evaluated using the CatWalk system twice a week for 12 weeks. The rats were sacrificed 12 weeks after surgery, and their lumbar intumescences were processed for motoneuron counting and immunohistochemistry (GFAP, Iba-1 and synaptophysin antisera). Array based qRT-PCR was used to evaluate gene regulation of several neurotrophic factors and receptors as well as inflammatory related molecules. The results indicated that the root reimplantation with fibrin sealant enhanced motor recovery, preserved the synaptic covering of the motoneurons and improved neuronal survival. The replanted group did not show significant changes in microglial response

compared to VRA-only. However, the astroglial reaction was significantly reduced in this group. CONCLUSIONS/SIGNIFICANCE: In conclusion, the present data suggest that the repair of avulsed roots with snake venom fibrin glue at the exact point of detachment results in neuroprotection and preservation of the synaptic network at the microenvironment of the lesioned motoneurons. Also such procedure reduced the astroglial reaction and increased mRNA levels to neurotrophins and anti-inflammatory cytokines that may in turn, contribute to improving recovery of motor function.

Full Text:

Not Available

Complications following decompression of Chiari malformation Type I in children: dural graft or sealant?.

Authors: Parker SR, Harris P, Cummings TJ, George T, Fuchs H, Grant G

Publication Date: 2011

Abstract:

OBJECT: Posterior fossa decompression with duraplasty for Chiari malformation Type I (CM-I) is a common pediatric neurosurgery procedure. Published series report a complication rate ranging from 3% to 40% for this procedure. Historically, many dural substitutes have been used, including bovine grafts, human cadaveric pericardium, synthetic dura, and autologous pericranium. The authors hypothesized that a recently observed increase in complications was dependent on the graft used. METHODS: Between January 2004 and January 2008, 114 consecutive patients <= 18 years old underwent primary CM-I decompression using duraplasty. Records were retrospectively reviewed for short- and intermediate-term complications and operative technique, focusing on the choice of duraplasty graft with or without application of a tissue sealant. RESULTS: The average age of the patients was 8.6 years. The dural graft used was variable: 15 were treated with cadaveric pericardium, 12 with Durepair, and 87 with EnDura. Tisseel was used in 75 patients, DuraSeal in 12, and no tissue sealant was used in 27 patients. The overall complication rate was 21.1%. The most common complications included aseptic meningitis, symptomatic pseudomeningocele, or a CSF leak requiring reoperation. The overall complication rates were as follows: cadaveric pericardium 26.7%, Durepair 41.7%, and EnDura 17.2%; reoperation rates were 13%, 25%, and 8.1%, respectively. Prior to adopting a different graft product, the overall complication rate was 18.1%; following the change the rate increased to 35%. Complication rates for tissue sealants were 14.8% for no sealant, 18.7% for Tisseel, and 50% for DuraSeal. Nine patients were treated with the combination of Durepair and DuraSeal and this subgroup had a 56% complication rate. CONCLUSIONS: Complication rates after CM-I decompression may be dependent on the dural graft with or without the addition of tissue sealant. The complication rate at the authors' institution approximately doubled following the adoption of a different graft product. Tissue sealants used in combination with a dural substitute to augment a duraplasty may increase the risk of aseptic meningitis and/or CSF leak. The mechanism of the apparent increased inflammation with this combination remains under investigation.

Full Text:

Not Available

Fibrin glue system for adjuvant brachytherapy of brain tumors with 188Re and 186Re-labeled microspheres.

Authors: Hafeli UO, Pauer GJ, Unnithan J, Prayson RA

Publication Date: 2007

Abstract:

Brain tumors such as glioblastoma reappear in their original location in almost 50% of cases. To prevent this recurrence, we developed a radiopharmaceutical system that consists of a gel applied immediately after surgical resection of a brain tumor to deliver local radiation booster doses. The gel, which strongly adheres to tissue in the treatment area, consists of fibrin glue containing the beta-emitters rhenium-188 and rhenium-186 in microsphere-bound form. Such microspheres can be prepared by short (2 h or less) neutron activation even in low neutron flux reactors, yielding a mixture of the two beta-emitters rhenium-188 (E(max)=2.1 MeV, half life=17 h) and rhenium-186 (E(max)=1.1 MeV, half life=90.6h). The dosimetry of this rhenium-188/rhenium-186 fibrin glue system was determined using gafchromic film measurements. The treatment efficacy of the radioactive fibrin glue was measured in a 9L-glioblastoma rat model. All animals receiving the non-radioactive fibrin glue died within 17+/-3 days, whereas 60% of the treated animals survived 36 days, the final length of the experiment. Control animals that were treated with the same amount of radioactive fibrin glue, but had not received a previous tumor cell injection, showed no toxic effects over one year. The beta-radiation emitting rhenium-188/rhenium-186-based gel thus provides an effective method of delivering high doses of local radiation to tumor tissue, particularly to wet areas where high adhesive strength and long-term radiation (with or without drug) delivery are needed.

Full Text:

Not Available

Corticospinal regeneration into lumbar grey matter correlates with locomotor recovery after complete spinal cord transection and repair with peripheral nerve grafts, fibroblast growth factor 1, fibrin glue, and spinal fusion.

Authors: Tsai EC, Krassioukov AV, Tator CH

Publication Date: 2005

Abstract:

Knowledge of which tracts are essential for the recovery of locomotor function in rats after repair is unknown. To assess the mechanism of recovery, we examined the correlation between functional recovery and axonal regeneration. All rats underwent complete cord transection and repair with peripheral nerves, fibroblast growth factor 1, fibrin glue, and spinal fixation. Repaired rats recovered both motor-evoked potentials recorded at the lumbar level and locomotor function. Cord retransection rostral to the repair abolished the recovery, indicating improvement was due to long tract regeneration. To determine which long tracts correlated with recovery, a novel technique of simultaneous bidirectional axonal tracing and immunohistochemical examination of axonal type was used to quantitate the regeneration of corticospinal, rubrospinal, reticulospinal, vestibulospinal, raphespinal, propriospinal, serotonergic, and calcitonin gene-related peptide containing axons. Multiple linear regression analysis revealed recovery of function correlated only with regeneration of corticospinal axons into the gray matter of the lumbar spinal cord ($R = 0.977$, $p < 0.02$). For the first time, we show that regeneration of the corticospinal tract into the lumbar gray matter is a mechanism of functional locomotor recovery after complete cord transection and repair.

Full Text:

Not Available

Endoscopic fibrin sealing of gastrocutaneous fistulas after sleeve gastrectomy and biliopancreatic diversion with duodenal switch.

Authors: Papavramidis TS, Kotzampassi K, Kotidis E, Eleftheriadis EE, Papavramidis ST

Publication Date: 2008

Abstract:

BACKGROUND AND AIM: Gastrocutaneous fistulas (GCF) are uncommon complications accounting for 0.5-3.9% of gastric operations. When their management is not effective, the mortality rate is high. This study reports the conservative treatment of GCF in morbidly obese patients who underwent biliopancreatic diversion with duodenal switch. METHODS: Ninety-six morbidly obese patients were treated in our department with biliopancreatic diversion with duodenal switch (Marceau technique) and, in six of them, a high-output GCF developed. A general protocol was applied to all patients presenting a GCF. Everyone was treated by total parenteral nutrition (TPN) and somatostatin for at least 7 days after the appearance of the leak. If the leak continued, then fibrin glue was used as a tissue adhesive. Endoscopic application of the sealant was accomplished under direct vision via a double-lumen catheter passed through a forward-viewing gastroscope. RESULTS: All patients were treated successfully with conservative treatment (either solely with TPN and somatostatin, or with endoscopic fibrin sealing sessions). No evidence of fistula was observed at gastroscopy 3 and 24 months after therapy. CONCLUSION: The conservative treatment of GCF following biliopancreatic diversion with duodenal switch is highly effective. All patients should enter a protocol that includes TPN and somatostatin. When the GCF persist, endoscopic sealing glue should be considered before operation because it is simple, safe, effective and, in some cases, life-saving. Therefore, conservative treatment should be employed as a therapeutic option in GCF developing after bariatric surgery.

Full Text:

Not Available

A Case of Successful Therapy by Intrapleural Injection of Fibrin Glue for Chylothorax after Lung Transplantation for Lymphangioleiomyomatosis.

Authors: Oishi H, Hoshikawa Y, Sado T, Watanabe T, Sakurada A, Kondo T, Okada Y

Publication Date: 2017

Abstract:

A 37-year-old woman underwent bilateral lung transplantation for lymphangioleiomyomatosis. Dense pleural adhesions due to past pleurodesis for chylothorax were observed and dissected in both thoracic cavities. The patient developed chylothorax after transplant. Chylothorax in the right thoracic cavity was successfully treated by conventional pleurodesis; however, pleural effusion from the left thoracic cavity was not reduced. According to fluoroscopic images obtained by injecting a contrast medium through the chest tube, the remaining pleural space in the left thoracic cavity was small and localized in the lower region adjacent to the mediastinum. We opted to fill this space with fibrin glue; we injected fibrinogen and thrombin solution into the space through the chest tube. We performed fibrin glue treatment three times and pleural effusion was dramatically decreased. We removed the chest tube on day 107 post-transplant. No recurrent chylothorax has been recorded for 10 years after lung transplantation.

Full Text:

Not Available

A randomised trial of lung sealant versus medical therapy for advanced emphysema.

Authors: Come CE, Kramer MR, Dransfield MT, Abu-Hijleh M, Berkowitz D, Bezzi M, Bhatt SP, Boyd MB, Cases E, Chen AC, Cooper CB, Flandes J, Gildea T, Gotfried M, Hogarth DK, Kolandaivelu K, Leeds W, Liesching T, Marchetti N, Marquette C, Mularski RA, Pinto-Plata VM, Pritchett MA, Rafeq S, Rubio ER, Slebos DJ, Stratakos G, Sy A, Tsai LW, Wahidi M, Walsh J, Wells JM, Whitten PE, Yusen R, Zulueta JJ, Criner GJ, Washko GR

Publication Date: 2015

Abstract:

Uncontrolled pilot studies demonstrated promising results of endoscopic lung volume reduction using emphysematous lung sealant (ELS) in patients with advanced, upper lobe predominant emphysema. We aimed to evaluate the safety and efficacy of ELS in a randomised controlled setting.Patients were randomised to ELS plus medical treatment or medical treatment alone. Despite early termination for business reasons and inability to assess the primary 12-month end-point, 95 out of 300 patients were successfully randomised, providing sufficient data for 3- and 6-month analysis.57 patients (34 treatment and 23 control) had efficacy results at 3 months; 34 (21 treatment and 13 control) at 6 months. In the treatment group, 3-month lung function, dyspnoea, and quality of life improved significantly from baseline when compared to control. Improvements persisted at 6 months with >50% of treated patients experiencing clinically important improvements, including some whose lung function improved by >100%. 44% of treated patients experienced adverse events requiring hospitalisation (2.5-fold more than control, p=0.01), with two deaths in the treated cohort. Treatment responders tended to be those experiencing respiratory adverse events.Despite early termination, results show that minimally invasive ELS may be efficacious, yet significant risks (probably inflammatory) limit its current utility.

Full Text:

Not Available

Autologous fibrin sealant reduces the incidence of prolonged air leak and duration of chest tube drainage after lung volume reduction surgery: a prospective randomized blinded study.

Authors: Moser C, Opitz I, Zhai W, Rousson V, Russi EW, Weder W, Lardinois D

Publication Date: 2008

Abstract:

OBJECTIVE: Prolonged air leak is reported in up to 50% of patients after lung volume reduction surgery. The effect of an autologous fibrin sealant on the intensity and duration of air leak and on the time to chest drain removal after lung volume reduction surgery was investigated in a randomized prospective clinical trial. METHODS: Twenty-five patients underwent bilateral thoracoscopic lung volume reduction surgery. In each patient, an autologous fibrin sealant was applied along the staple lines on one side, whereas no additional measure was taken on the other side. Randomization of treatment was performed at the end of the resection on the first side. Air leak was assessed semiquantitatively by use of a severity score (0 = no leak; 4 = continuous severe leak) by two investigators blinded to the treatment. RESULT: Mean value of the total severity scores for the first 48 hours postoperative was significantly lower in the treated group (4.7 +/- 7.7) than in the control group (16.0 +/- 10.1) (P < .001), independently of the length of the resection. Prolonged air leak and mean duration of drainage were also significantly reduced after application of the sealant (4.5% and 2.8 +/- 1.9 days versus 31.8% and 5.9 +/- 2.9 days) (P = .03 and P < .001). CONCLUSIONS: Autologous fibrin sealant for reinforcement of the staple lines after lung volume reduction surgery significantly reduces prolonged air leak and duration of chest tube drainage.

Full Text:

Not Available

Long-term assessment of the treatment of recurrent tracheoesophageal fistula with fibrin glue associated with diathermy.

Authors: Gutierrez San Roman C, Barrios JE, Lluna J, Ibanez V, Hernandez E, Ayuso L, Valdes E, Roca A, Marco A, Garcia-Sala C

Publication Date: 2006

Abstract:

PURPOSE: Recurrent tracheoesophageal fistula (RTF) is a serious common complication of the surgical treatment of esophageal atresia. We report the results of our technique of bronchoscopic treatment of RTF with fibrin glue (Tissucol), with a follow-up of over 1 decade. METHODS: A retrospective review between 1993 and 2004 was conducted, including all patients diagnosed with RTF and treated bronchoscopically with Tissucol, with over 1 year of follow-up. The procedure was implemented under general anesthesia using a rigid neonatal bronchoscope. A magnification chamber and previous diathermia using a urethral catheter were used in the latter 4 patients. The fibrin glue was injected through a clear catheter. The number of endoscopic sessions per patient was limited to 3. RESULTS: Seven patients were treated, with evidence of fistular closure in 6 (85%). One patient with satisfactory results, but a follow-up of 4 months, was not included. The age at bronchoscopy ranged from 14 to 20 days (mean, 16.7 days), and a total of 12 sessions were required (mean, 1.7). In the latter 4 patients, diathermia was associated with good results in all and a lower number of sessions (mean, 1.5). All patients were evaluated clinically and radiologically, and a control endoscopy was performed in 4 patients. The follow-up lasted from 2 to 11 years (mean, 7.4 years). CONCLUSIONS: Because we started to use Tissucol (1994), other authors have reported successful isolated cases, but a relatively large series and a long-term follow-up were lacking. We consider that the success of the procedure depends on several technical factors such as an early diagnosis, before epithelium is formed in the fistula, and the use of initial diathermia, associated in the latter 4 patients. The results obtained with 85% success with a follow-up over 1 year show that the fibrin adhesive is the reference substance for the treatment of RTF; we recommend its endoscopic application associated with diathermia as initial measure.

Full Text:

Not Available

Effect of routine fibrin glue use on the duration of air leaks after lobectomy.

Authors: Fleisher AG, Evans KG, Nelems B, Finley RJ

Publication Date: 1990

Abstract:

The effectiveness of fibrin glue as a sealant to reduce postoperative air leaks after pulmonary lobectomy was evaluated in 28 consecutive patients between November 1988 and May 1989. A fibrin glue spray was used in 14 patients, and 14 patients served as controls. Assignment of either group was made before thoracotomy. Nine male and 5 female patients with a mean age of 63.8 years were in the fibrin glue experimental group, and 8 male and 6 female patients with a mean age of 59 years, in the control group. An equal number of complete and incomplete fissures were in each group. All fissures were handled in the same way (stapled). Two milliliters of fibrin glue was applied through a double-syringe delivery system and sprayed on the staple line and any cut surface of the inflated lung just before thoracotomy closure. The fibrin glue-treated group had a mean air leak duration of 2.3 +/- 3.7 days, chest tube drains for 6 +/- 4.1 days, and a postoperative hospitalization of 9.8 +/- 3.1 days. The control group had a mean air leak duration of 3.3 +/- 3.3 days (p = 0.94), chest tube drains for 5.9 +/- 3.9 days (p = 0.95), and a postoperative hospitalization of 11.5 +/- 3.9 days (p = 0.21). We conclude that the routine use of a fixed quantity of fibrin glue is not effective in reducing the duration of air leaks, chest tube drainage, or hospitalization after uncomplicated pulmonary lobectomy.

Full Text:

Not Available

Colonization of klebsiella pneumoniae inside fistula tracts a possible risk factor for failure of fibrin glue-assisted closure.

Authors: Wu X., Ren J., Wang G., Gu G., Li X., Ren H., Hong Z., Li J.

Publication Date: 2015

Abstract:

Goals: This study was designed to investigate the risk factors affecting glue-assisted closure (GAC) in the enterocutaneous fistula (ECF) patients receiving glue application. Background: ECF is a challenging problem in surgical practice, and it is difficult to resolve by spontaneous closure. Currently, GAC is popular when treating fistulas, but data related to risk factors are limited. Methods: We retrospectively analyzed 82 patients with 93 ECFs, who had autologous glue sealing from 2010 to 2012 in a referral center. Their demographic data, clinical records, and fistula characteristics were collected. Both univariate analysis and multivariate Cox proportional hazards model were used to determine the prognostic factors affecting closure. Results: During the 14-day treatment period, 78.5% (73/93) of the fistulas achieved GAC. We excluded 3 reopened fistulas and investigated 90 ECFs from 79 patients. Univariate analysis demonstrated that patients with high levels of CRP, high CRP: prealbumin ratio, elevated blood glucose, and specific pathogen colonization, together with lower GI location, greater output volume, and shorter tract length, had a poor outcome (P<0.05). Using multivariate analysis, monomicrobial and polymicrobial colonization with Klebsiella pneumoniae inside the fistula tracts (hazard ratio, 0.191; 95% confidence interval, 0.045-0.810; P=0.025) was a statistically significant risk

factor for failure of fistula closure. Conclusions: The presence of monomicrobial and polymicrobial colonization with K. pneumoniae in fistulous tracts was an independent risk factor for failure of GAC in patients receiving glue application. Better debridement of the tracts should be performed before the glue sealing.

Full Text:

Not Available

L-PRP/L-PRF in esthetic plastic surgery, regenerative medicine of the skin and chronic wounds.

Authors: Cieslik-Bieleck A., Choukroun J., Odin G., Dohan Ehrenfest D.M.

Publication Date: 2012

Abstract:

The use of platelet concentrates for topical use is of particular interest for the promotion of skin wound healing. Fibrin-based surgical adjuvants are indeed widely used in plastic surgery since many years in order to improve scar healing and wound closure. However, the addition of platelets and their associated growth factors opened a new range of possibilities, particularly for the treatment of chronic skin ulcers and other applications of regenerative medicine on the covering tissues. In the 4 families of platelet concentrates available, 2 families were particularly used and tested in this clinical field: L-PRP (Leukocyte- and Platelet-rich Plasma) and L-PRF (Leukocyte- and Platelet-Rich Fibrin). These 2 families have in common the presence of significant concentrations of leukocytes, and these cells are important in the local cleaning and immune regulation of the wound healing process. The main difference between them is the fibrin architecture, and this parameter considerably influences the healing potential and the therapeutical protocol associated to each platelet concentrate technology. In this article, we describe the historical evolutions of these techniques from the fibrin glues to the current L-PRP and L-PRF, and discuss the important functions of the platelet growth factors, the leukocyte content and the fibrin architecture in order to optimize the numerous potential applications of these products in regenerative medicine of the skin. Many outstanding perspectives are appearing in this field and require further research. © 2012 Bentham Science Publishers.

Full Text:

Not Available

Autologous fibrin glue with growth factors in reconstructive maxillofacial surgery.

Authors: Thorn J.J., Sorensen H., Weis-Fogh U., Andersen M.

Publication Date: 2004

Abstract:

The aim of this paper was to describe a method for the preparation of autologous fibrin glue with platelet growth factors and to report its use with particulate cancellous bone in reconstructive maxillofacial surgery. The fibrin glue is a two-component glue, where the one component is a concentrated fibrinogen solution with platelet growth factors and the other component is a thrombin solution. Both components were produced from the patients own blood, thus making the glue entirely autologous. The glue was prepared from platelet rich plasma separated from 200 ml of the patient's blood prior to the operation. The fibrinogen in the glue was precipitated from the platelet rich plasma by ethanol precipitation at low temperature and separated together with the platelets by centrifugation. Raising the temperature to 37degreeC redissolved the precipitate. The thrombin solution in the glue was produced from prothrombin precipitated from 10 ml of the platelet rich plasma by lowering the pH and the ionic strength. The precipitate was separated by centrifugation and dissolved in a calcium ion solution. Increasing the pH to neutral value induced activation to thrombin. Preparation of the fibrin glue was performed in the blood bank within 60 to 90 min with the use of standard equipment. The outcome from 200 ml of blood was approximately 8 ml of fibrin glue: 6 ml fibrinogen to be coagulated with 2 ml of thrombin. The glue had a fibrinogen concentration of approximately 12 times the value in platelet rich plasma and the concentration of growth factors was approximately eight times the value in platelet rich plasma. We have used this glue successfully with particulate bone grafts for reconstructive purposes within the oral and maxillofacial field. It might as well be applied to other surgical areas. Whenever larger amount of the glue will be needed, a whole unit of blood may be taken from the patient, and the red cells re-transfused to the patient during or after the operation.

Full Text:

Not Available

Use of autologous fibrin-platelet glue and bone fragments in maxillofacial surgery.

Authors: Giannini G., Mauro V., Agostino T., Gianfranco B.

Publication Date: 2004

Abstract:

The use of autologous cryo-platelet gel and bone fragments in maxillofacial surgery is described. Cryo-platelet gel has been used successfully in 5 patients who underwent surgery for maxillary or mandibular problems. The level of improvement was scored, arbitrarily, from 0 to 4. Very favourable results were seen in our 5 patients. The glue preparation is very easy and inexpensive and the glue creates excellent and stable hemostasis. From a general point of view, we add additional anecdotal evidence supporting the utility of fibrin-platelet glue in terms of reduced infections and length of hospital stay, which suggest the need for well planned and controlled trials to show if there is benefit and when and this treatment modality should be used in maxillofacial surgery.

Full Text:

Not Available

The potential effect of biological sealants on colorectal anastomosis healing in experimental research involving severe diabetes. [Review]

Authors: Stergios K, Kontzoglou K, Pergialiotis V, Korou LM, Frountzas M, Lalude O, Nikiteas N, Perrea DN

Publication Date: 2017

Abstract:

Colorectal anastomoses continuous to pose a significant challenge in current surgical practice. Anastomotic leakage remains one of the most frequent and dramatic complications of colorectal surgery, even in centres of high specialisation. Diabetes is a well-established independent factor which results in higher anastomotic leakage rates. Fibrin sealants have been applied in experimental and clinical studies for the prevention of anastomotic dehiscence. However, little is known regarding their impact on diabetic patients. Several fibrin sealants have been proposed as adjunct to standard surgical techniques to prevent leakage from colonic anastomoses following the reversal of temporary colostomies, approved for general haemostasis. This review summarises current advances in colorectal anastomoses and provides evidence that may strengthen the need for tissue sealants in colorectal anastomoses of diabetic patients. We searched Medline (1966-2016) and Scopus (2004-2016) for current evidence in the field. To date, there is no evidence to support the use of fibrin sealants as an adjunct in diabetic patients who undergo colorectal surgery. Experimental animal models with extreme diabetes could be of significant use in the present field and further research is needed prior to application of fibrin sealants in a clinical setting.

Full Text:

Not Available

Preventive Measures for Postoperative Bile Leakage After Central Hepatectomy: A Multicenter, Prospective, Observational Study of 101 Patients.

Authors: Ishii T, Hatano E, Furuyama H, Manaka D, Terajima H, Uemoto S

Publication Date: 2016

Abstract:

BACKGROUND: There are no conclusive measures for preventing postoperative bile leakage (POBL). METHODS: First, 310 patients who underwent hepatectomy were analyzed retrospectively to clarify risk factors for POBL. Then, focusing on operations at high risk of POBL, patients who underwent

central hepatectomy were recruited prospectively among 18 institutions, to evaluate various preventive measures for avoiding POBL. The primary endpoint was the frequency of POBL. RESULTS: The retrospective analysis revealed central hepatectomy and repeated hepatectomy to be independent risk factors for POBL. One hundred and one patients undergoing central hepatectomy were enrolled in the prospective study. POBL developed in 13 patients (12.9 %). Intraoperative bile leakage was recognized in 42 of the 101 patients (41.6 %), and 10 of the 42 patients developed POBL (23.8 %). Primary closure of the site of bile leakage and/or biliary drainage tube placement was preferable for preventing POBL in the patients with intraoperative bile leakage. Although 59 patients (58.4 %) did not show intraoperative bile leakage, three patients (5.1 %) developed POBL. In the group without intraoperative bile leakage, treatment with fibrin glue with a polyglycolic acid (PGA) sheet or collagen sheet coated with a fibrinogen and thrombin layer (CSFT) had good results. CONCLUSIONS: Primary closure of the site of bile leakage and/or placement of biliary drainage tubes may be recommended in cases involving intraoperative bile leakage. Treatment with fibrin glue with a PGA sheet and/or CSFT might have preventive effects in patients without intraoperative bile leakage.

Full Text:

Not Available

Combination of fibrin glue protection with microsurgical technique for duct-to-mucosa pancreatico-jejunostomy reduces the incidence of leakages after pancreaticoduodenectomy.

Authors: La Greca G, Primo S, Sofia M, Lombardo R, Puleo S, Russello D, Di Cataldo A

Publication Date: 2014

Abstract:

The Achilles' heel of pancreatic surgery is the management of the pancreatic stump. Leakage from pancreatic anastomosis with subsequent fistula, abscess formation, sepsis, or bleeding is one of the most common causes of morbidity and mortality, and it also contributes significantly to prolonged hospitalization and increased hospital expenses. Many surgical methods have been developed aimed at reducing the incidence of post-operative pancreatic fistula. However, the best technique for pancreatico-enteric reconstruction continues to be disputed. Herein, we describe an interim analysis of 35 consecutive pancreatico-duodenectomies, all with the same standardized technique that combines microsurgical technique for duct-to-mucosa pancreatico-jejunostomy with the routine use of fibrin sealant. The rate of leakage of pancreaticojejunostomy was 5,7% (n=2), all of which were grade A fistulas, treated conservatively. The increased precision of magnification instruments and microsurgical technique for duct to mucosa anastomosis, combined with routine sealing of the pancreatic anastomosis are key factors to efficiently manage the pancreatic stump. The good results obtained and especially the minimal rate of fistula suggests that this technical solution is a safe, feasible and reliable approach for pancreatic reconstruction after pancreatico-duodenectomy.

Full Text:

Not Available

Adipose-Derived Mesenchymal Stem Cells With Microfracture Versus Microfracture Alone: 2-Year Follow-up of a Prospective Randomized Trial.

Authors: Koh YG, Kwon OR, Kim YS, Choi YJ, Tak DH

Publication Date: 2016

Abstract:

PURPOSE: To compare the clinical and radiologic efficacy of adipose-derived stem cells (ADSCs) with fibrin glue and microfracture (MFX) versus MFX alone in patients with symptomatic knee cartilage defects. METHODS: Patients who were aged 18 to 50 years and had a single International Cartilage Repair Society grade III/IV symptomatic cartilage defect (>=3 cm(2)) on the femoral condyle were randomized to receive ADSCs with fibrin glue and MFX treatment (group 1, n = 40) or MFX treatment alone (group 2, n = 40). There was a lack of blinding for patients because of the additional intervention method (liposuction). The cartilage defect was diagnosed using preoperative magnetic resonance imaging (MRI), and quantitative and qualitative assessments of the repair tissue were carried out at 24 months by using the Magnetic Resonance Observation of Cartilage Repair Tissue scoring system with follow-up MRI. Clinical results were evaluated using the Lysholm score, the Knee Injury and Osteoarthritis Outcome Score (KOOS), and a 10-point visual analog scale for pain (0 points, no pain; 10 points, worst possible pain) preoperatively and postoperatively at 3 months, 12 months, and the last follow-up visit. RESULTS: The 2 groups had similar baseline patient characteristics. Follow-up MRI was performed at 24 months (mean, 24.3 months; range, 24.0 to 25.1 months) after the operation. Group 1 included 26 patients (65%) who had complete cartilage coverage of the lesion at follow-up compared with 18 patients (45%) in group 2. Significantly better signal intensity was observed for the repair tissue in group 1, with 32 patients (80%) having normal or nearly normal signal intensity (i.e., complete cartilage coverage of the lesion) compared with 28 patients (72.5%) in group 2. The mean clinical follow-up period was 27.4 months (range, 26 to 30 months). The improvements in the mean KOOS pain and symptom subscores were significantly greater at follow-up in group 1 than in group 2 (pain, 36.6 +/- 11.9 in group 1 and 30.1 +/- 14.7 in group 2 [P = .034]; symptoms, 32.3 +/- 7.2 in group 1 and 27.8 +/- 6.8 in group 2 [P = .005]). However, the improvements in the other subscores were not significantly different between group 1 and group 2 (activities of daily living, 38.5 +/- 12.8 and 37.6 +/- 12.9, respectively [P = .767]; sports and recreation, 33.9 +/- 10.3 and 31.6 +/- 11.0, respectively [P = .338]; quality of life, 38.4 +/- 13.1 and 37.8 +/- 12.0, respectively [P = .650]). Among the 80 patients, second-look arthroscopies were performed in 57 knees (30 in group 1 and 27 in group 2), and biopsy procedures were performed during these arthroscopies for 18 patients in group 1 and 16 patients in group 2. The second-look arthroscopies showed good repair tissue quality, although no significant intergroup difference was observed. The mean total histologic score was 1,054 for group 1 compared with 967 for group 2 (P = .036). Age, lesion size, duration of symptoms before surgery, mechanism of injury, and combined procedures were not correlated with clinical results, Magnetic Resonance Observation of Cartilage Repair Tissue scores, and histologic outcomes at short-term follow-up. CONCLUSIONS: Compared with MFX alone, MFX and ADSCs with fibrin glue provided radiologic and KOOS pain and symptom subscore improvements, with no differences in activity, sports, or quality-of-life subscores, in symptomatic single cartilage defects of the knee that were 3 cm(2) or larger, with similar structural repair tissue. LEVEL OF EVIDENCE: Level II, prospective comparative study.

Full Text:

Not Available

Outcomes of endovascular aneurysm repair with contemporary volume-dependent sac embolization in patients at risk for type II endoleak.

Authors: Piazza M, Squizzato F, Zavatta M, Menegolo M, Ricotta JJ 2nd, Lepidi S, Grego F, Antonello M

Publication Date: 2016

Abstract:

OBJECTIVE: The aim of this study was to evaluate outcomes of intraoperative aneurysm sac embolization during endovascular aneurysm repair (EVAR) in patients considered at risk for type II endoleak (EII), using a sac volume-dependent dose of fibrin glue and coils. METHODS: Between January 2012 and December 2014, 126 patients underwent EVAR. Based on preoperative computed tomography evaluation of anatomic criteria, 107 patients (85%) were defined as at risk for EII and assigned to randomization for standard EVAR (group A; n = 55, 44%) or EVAR with intraoperative sac embolization (group B; n = 52, 42%); the remaining 19 patients (15%) were defined as at low risk for EII and excluded from the randomization (group C). Computed tomography scans were evaluated with OsiriX Pro 4.0 software to obtain aneurysm sac volume. Freedom from EII, freedom from EII-related reintervention, and aneurysm sac volume shrinkage at 6, 12, and 24 months were compared by Kaplan-Meier estimates. Patients in group C underwent the same follow-up protocol as groups A and B. RESULTS: Patient characteristics, Society for Vascular Surgery comorbidity scores (0.99 +/- 0.50 vs 0.95 +/- 0.55; P = .70), and operative time (149 +/- 50 minutes vs 157 +/- 39 minutes; P = .63) were similar for groups A and B. Freedom from EII was significantly lower for group A compared with group B at 3 months (58% vs 80%; P = .002), 6 months (68% vs 85%; P = .04), and 12 months (70% vs 87%; P = .04) but not statistically significant at 24 months (85% vs 87%; P = .57). Freedom from EII-related reintervention at 24 months was significantly lower for group A compared with group B (82% vs 96%; P = .04). Patients in group B showed a significantly overall mean difference in aneurysm sac volume shrinkage compared with group A at 6 months (-11 +/- 17 cm(3) vs -2 +/- 14 cm(3); P < .01), 12 months (-18 +/- 26 cm(3) vs -3 +/- 32 cm(3); P = .02), and 24 months (-27 +/- 25 cm(3) vs -5 +/- 26 cm(3); P < .01). Patients in group C had the lowest EII rate compared with groups A and B (6 months, 5%; 12 months, 6%; 24 months, 0%) and no EII-related reintervention. CONCLUSIONS: This randomized study confirms that sac embolization during EVAR, using a sac volume-dependent dose of fibrin glue and coils, is a valid method to significantly reduce EII and its complications during early and midterm follow-up in patients considered at risk. Although further confirmatory studies are needed, the faster aneurysm sac volume shrinkage over time in patients who underwent embolization compared with standard EVAR may be a positive aspect influencing the lower EII rate also during long-term follow-up.

Full Text:

Not Available

Randomized trial of a dry-powder, fibrin sealant in vascular procedures.

Authors: Gupta N, Chetter I, Hayes P, O-Yurvati AH, Moneta GL, Shenoy S, Pribble JP, Zuckerman LA

Publication Date: 2015

Abstract:

OBJECTIVE: Topical hemostats are important adjuncts for stopping surgical bleeding. The safety and efficacy of Fibrocaps, a dry-powder, fibrin sealant containing human plasma-derived thrombin and fibrinogen, was evaluated in patients undergoing vascular surgical procedures. METHODS: In this single-blind trial (clinicaltrials.gov: NCT01527357), adult patients were randomized 2:1 to Fibrocaps plus gelatin sponge (Fibrocaps) vs gelatin sponge alone. Results are presented for the patient subset undergoing vascular procedures with suture hole bleeding. The primary efficacy endpoint compared time to hemostasis (TTH) over 5 minutes. Safety follow-up continued to day 29. RESULTS: A total of 175 patients were randomized and treated (Fibrocaps, 117; gelatin sponge, 58). Patients were predominately male (69%) and underwent arterial bypass (81%), arteriovenous graft formation (9%), or carotid endarterectomy (9%). Fibrocaps significantly reduced TTH compared with gelatin sponge (hazard ratio [HR], 2.1; 95% confidence interval [CI], 1.5-3.1; median TTH, 2 minutes; 95% CI, 1.5-2.5 vs 4 minutes; 95% CI, 3.0-5.0; P < .002). Significant reductions were also observed in patients receiving concomitant antiplatelet agents alone (HR, 2.8; 95% CI, 1.0-7.4; P = .03; n = 33), anticoagulants alone (HR, 2.0; 95% CI, 1.0-4.0; P = .04; n = 43), or both antiplatelet agents and anticoagulants (Fibrocaps vs gelatin sponge, HR, 2.3; 95% CI, 1.2-4.3; P = .008; n = 65). Incidences of common adverse events (procedural pain, nausea, constipation) were generally comparable between treatment arms. Anti-thrombin antibodies developed in 2% of Fibrocaps-treated patients and no-gelatin-sponge patients. CONCLUSIONS: Fibrocaps, a ready-to-use, dry-powder fibrin sealant, was well-tolerated and reduced TTH in patients undergoing vascular procedures, including those receiving antiplatelet agents and/or anticoagulants, demonstrating its safety and usefulness as an adjunct to hemostasis.

Full Text:

Not Available

Determination of the efficacy of EVICELTM on blood loss in orthopaedic surgery after total knee replacement: study protocol for a randomised controlled trial.

Authors: Budde S, Noll Y, Zieglschmid V, Schroeder C, Koch A, Windhagen H

Publication Date: 2015

Abstract:

BACKGROUND: After total knee replacement, overall blood loss is often underestimated, although it exceeds the visible blood loss caused by bleeding into the tissues or into the joint. The use of fibrin sealants during surgery has been suggested to reduce perioperative blood loss and transfusion rates and may be beneficial for patient recovery and the postoperative function of the joint. METHODS/DESIGN: This will be a single-centre, single-blinded, randomised controlled trial with a parallel design, for which 68 patients undergoing total knee replacement will be recruited and followed up at 3, 6 and 12 months; 34 will be control patients who will receive the standard orthopaedic surgery treatment (electrocoagulation), and the other 34 will receive the same treatment plus 5 ml EVICELTM applied during surgery and used according to the manufacturer's instructions. The primary objective is to test the null hypothesis that the effect of EVICELTM for controlling haemostasis and reducing postoperative blood loss in patients undergoing total knee replacement is not superior to the use of electrocoagulation alone. The secondary objective is to show that EVICELTM reduces the need for transfusion, increases range of motion, improves clinical outcome and wound healing, and reduces the need for analgesics. The tertiary objective is to show that EVICELTM reduces the costs of total knee replacement treatment. DISCUSSION: So far, studies on the effect of fibrin sealants in total knee replacement have delivered inconsistent and ambivalent results, indicating that there is still a need for high-evidence studies as proposed in the presented study protocol. TRIAL REGISTRATION: German registration number DRKS00007564; date of registration: 26 November 2014.

Full Text:

Not Available

The Role of the Superwet Technique in Face Lift: An Analysis of 1089 Patients over 23 Years.

Authors: Costa CR, Ramanadham SR, O'Reilly E, Coleman JE, Rohrich RJ

Publication Date: 2015

Abstract:

BACKGROUND: The use of superwet technique of infiltration and autologous tissue sealants during rhytidectomy has benefits of decreasing bleeding and edema, improving visualization, and easing dissection. The purpose of this study was to analyze whether these intraoperative strategies resulted in more consistent and reproducible outcomes and significantly decreased hematoma rates. METHODS: A retrospective review was performed on 1089 consecutive face lifts performed by a single surgeon. Fisher's exact test was used to determine significant differences in hematomas between those patients who received platelet-rich plasma and superwet technique and those who did not. Multivariate logistic regression was used to evaluate demographic variables and intraoperative interventions for risk of complication. RESULTS: Five hundred eighty-seven of 1089 face lifts received platelet-rich plasma and 926 of 1089 underwent a superwet technique. Ten hematomas were recorded, six in the group that did not receive platelet-rich plasma compared to four who did ($p = 0.527$). One hematoma was observed before implementation of the superwet technique and nine were in the group after ($p = 1.00$). Multivariate analysis showed male sex to be a significant factor for hematoma ($p < 0.001$).

CONCLUSIONS: This analysis showed excellent outcomes with a hematoma rate of 0.9 percent. Although no significant differences were noted, the authors attribute their consistent and reproducible results to the use of the superwet technique and platelet-rich plasma. The superwet technique allows for improved safety and visualization with improved hemostasis. Platelet-rich plasma potentially decreases ecchymosis and edema. Prospective studies are needed to determine significant differences between these intraoperative interventions. CLINICAL QUESTION/LEVEL OF EVIDENCE: Therapeutic, IV.

Full Text:

Not Available

What is the best method for minimizing the risk of hematoma formation after rhytidectomy?. [Review]

Authors: Kleinberger AJ, Spiegel JH

Publication Date: 2015

Abstract:

Not Available

Full Text:

Not Available

Safety and efficacy of a novel, dry powder fibrin sealant for hemostasis in hepatic resection.

Authors: Ruitenbeek K, Ayez N, Verhoef C, de Wilt JH, Bottema J, Rijken AM, van Rij M, Koopman J, Zuckerman LA, Frohna P, Porte RJ

Publication Date: 2014

Abstract:

BACKGROUND/AIMS: Fibrocaps is a dry powder fibrin sealant containing human plasma-derived fibrinogen and thrombin. The safety, efficacy, and application methods for Fibrocaps were evaluated in an exploratory, first-in-human, noncomparative, clinical study. METHODS: Patients with minor bleeding/oozing after elective partial hepatic resection had Fibrocaps applied to the bleeding site either directly from the vial or from a spray device, with manual pressure applied using a cellulose, collagen, or gelatin sponge, if needed. Safety was evaluated at screening and postoperative days 1, 2, and 5, and weeks 4 and 12. The formation of anti-thrombin antibodies was assessed at baseline, and after 4 and 12 weeks. Time to hemostasis (TTH) within 10 min was determined. RESULTS: Twenty-nine

patients were treated with Fibrocaps; 6 experienced serious adverse events that were not related to the course of treatment. Adverse events occurring in >10% of patients were nausea, constipation, hypotension, obstipation, hypokalemia, and postoperative pain. Most adverse events were mild or moderate in severity. No patient developed anti-thrombin antibodies. The percentage of patients who achieved hemostasis was 93%; the median TTH was 3.8 min (range 0.3-10.3). Manual pressure was applied with Fibrocaps in 19 patients and considered beneficial in most. CONCLUSION: Fibrocaps was well tolerated in patients undergoing elective hepatic resection and resulted in rapid hemostasis. These safety and efficacy results support further clinical testing of this ready-to-use fibrin sealant as an adjunct to surgical hemostasis.

Full Text:

Not Available

Human fibrin glue sealing versus suture polypropylene fixation in Lichtenstein inguinal herniorrhaphy: a prospective observational study.

Authors: Damiano G, Gioviale MC, Palumbo VD, Spinelli G, Buscemi S, Ficarella S, Bruno A, Tomasello G, Lo Monte AI

Publication Date: 2014

Abstract:

BACKGROUND: Patients who underwent primary inguinal hernia repair still report a high rate of postoperative pain after operation due to the effect of mesh fixation by suture.An alternative is the use of human fibrin glue. We compared the two techniques. METHODS: 468 patients randomly underwent primary inguinal hernia Lichtenstein repair fixing the mesh by suture or by human fibrin glue (HFG); in both cases the mesh was fixed to the posterior wall of the inguinal canal and to the inguinal ligament. RESULTS: No significant differences were recorded between the two groups in terms of complications, while the sutureless technique reduces the operative time and the postoperative pain. CONCLUSIONS: A widespread technique for the treatment of inguinal hernia is the application of a mesh using Lichtenstein procedure. The prosthesis can be fixed by traditional suture or using a new method of sutureless fixation with adhesive materials that shows an excellent local tolerability and lack of adverse effects and contraindications. Copyright Celsius.

Full Text:

Not Available

Long-term comparison of fibrin tissue glue and vicryl suture in conjunctival autografting for pterygium surgery.

Authors: Cagatay HH, Gokce G, Ekinci M, Koban Y, Daraman O, Ceylan E

Publication Date: 2014

Abstract:

PURPOSE: Pterygium is a common clinical entity that usually causes visual impairment, astigmatism and cosmetic problems. Although many surgical techniques to treat pterygium have been proposed, no single method, with minimal patient complications, has yet been accepted and established. Excision combined with conjunctival autograft is the most often used procedure for the treatment of primary pterygium, and the technique is associated with minimized recurrence rates in patients. The purpose of our study was to compare visual and refractive outcomes, complications, and recurrence rates with the use of fibrin glue versus 8.0 vicryl suture in pterygium surgery performed with conjunctival autograft. MATERIALS AND METHODS: Our retrospective, comparative study included 106 eyes of 106 patients operated on for primary pterygium, between the years 2011 and 2012, and followed for >= 12 months. Patients were divided into 2 treatment groups: Group 1, vicryl suture use (n = 53), and Group 2, fibrin tissue glue (n = 53). Patient follow-up periods were 21.15 +/- 5.3 months for Group 1 and 22.06 +/- 5.2 months for Group 2. RESULTS: Demographics and preoperative/follow-up clinical characteristics of patients revealed no significant differences between the 2 patient groups. Additionally, no significant differences were found between the patient groups in visual acuity level changes and refractive values. Although the rates of recurrence (7.5% in Group 1 and 1.9% in Group 2; P = 0.36) and graft dehiscence (Group 1, 7.5% compared with Group 2, 3.8%; P = 0.67) were slightly higher for patients in the suture group, differences did not reach significance. CONCLUSIONS: Our study results suggest that conjunctival autografting with fibrin glue has favorable visual and refractive results for patients, and is associated with lower complication rates, compared with use of the traditional 8.0 vicryl suturing technique. We suggest that fibrin tissue glue provides adequate adhesion and that graft loss will not be a problem if protective shields are used in patients postoperatively. The appropriate surgery technique should be selected by considering the advantages and disadvantages of each procedure.

Full Text:

Not Available

Systematic review and meta-analysis of fibrin sealants for patients undergoing pancreatic resection. [Review]

Authors: Orci LA, Oldani G, Berney T, Andres A, Mentha G, Morel P, Toso C

Publication Date: 2014

Abstract:

INTRODUCTION: Post-operative pancreatic fistula (POPF) is a common complication after partial pancreatic resection, and is associated with increased rates of sepsis, mortality and costs. The role of fibrin sealants in decreasing the risk of POPF remains debatable. The aim of this study was to evaluate the literature regarding the effectiveness of fibrin sealants in pancreatic surgery. METHODS: A

comprehensive database search was conducted. Only randomized controlled trials comparing fibrin sealants with standard care were included. A meta-analysis regarding POPF, intra-abdominal collections, post-operative haemorrhage, pancreatitis and wound infections was performed according to the recommendations of the Cochrane collaboration. RESULTS: Seven studies were included, accounting for 897 patients. Compared with controls, patients receiving fibrin sealants had a pooled odds ratio (OR) of developing a POPF of 0.83 [95% confidence interval (CI): 0.6-1.14], P = 0.245. There was a trend towards a reduction in post-operative haemorrhage (OR = 0.43 (95%CI: 0.18-1.0), P = 0.05) and intra-abdominal collections (OR = 0.52 (95%CI: 0.25-1.06), P = 0.073) in those patients receiving fibrin sealants. No difference was observed in terms of mortality, wound infections, re-interventions or hospital stay. CONCLUSION: On the basis of these results, fibrin sealants cannot be recommended for routine clinical use in the setting of pancreatic resection.

Full Text:

Not Available

Blood loss reduction in cementless total hip replacement with fibrin spray or bipolar sealer: a randomised controlled trial on ninety five patients.

Authors: Falez F, Meo A, Panegrossi G, Favetti F, La Cava F, Casella F

Publication Date: 2013

Abstract:

PURPOSE: Several studies have investigated effectiveness of fibrin spray or bipolar sealer to control peri-operative bleeding and reduce the need for blood transfusion, but a direct comparison between the two methods has not been previously performed. We conducted a prospective randomised trial, with standard electrocautery as a control group. METHODS: In our investigation, 95 patients were randomised to one of three parallel groups receiving (1) 10 mL of topical fibrin spray before closure, (2) haemostasis with radiofrequency energy using a bipolar sealer, and (3) standard electrocautery. All patients and staff apart from the surgeons were blinded until data analysis was complete.
Peri-operative blood loss has been calculated using a formula described by Ward and Gross (considering estimated patient blood volume, pre- and post-operative haemoglobin and haematocrit levels), with mention of eventual blood re-infusion or transfusion, at given intervals from surgery (6, 24, 48, 72 hours). RESULTS: Mean blood loss was lower for both methods investigated, compared to the control group at every time interval considered, although differences were stronger for fibrin spray [Quixil]. Mean blood saving at the given intervals from surgery (6-24-48-72 hours) was respectively 96 ml, 129 ml, 296 ml, and 121 ml for bipolar sealer [Aquamantys] and 235 ml, 368 ml, 642 ml, and 490 ml for fibrin spray. These results are statistically significant (p=0.05) for fibrin spray at every interval compared to control values, while a significance is detectable for bipolar sealer only at 48 hours after surgery. CONCLUSIONS: The fibrin spray group had the best performance in terms of blood loss, significantly reduced in comparison with the control group and bipolar sealer group. Blood loss reduction for the bipolar sealer was remarkable only at 48 hours, compared with the control group. Blood loss reduction for fibrin spray was significant at every time interval considered. Differences between the two treatments investigated and the control group narrowed slightly at 72 hours, as an

expression of spontaneous homeostasis. Notable is the fact that blood volume saved with fibrin spray at 24 and 48 hours is comparable to the volume of at least one blood unit. A cost-effectiveness analysis should be considered in term of expense, biological risks (related to blood transfusion or human-derived products use) and bleeding-related complications.

Full Text:

Not Available

Laparoscopic splenic biopsy--porcine to human studies--using a fibrin sealant technique.

Authors: Hui KY, Robinson SM, Amer A, Wallis JP, White SA

Publication Date: 2013

Abstract:

INTRODUCTION: Splenic biopsies are not routinely performed because of the risk of severe hemorrhage. The aim of this study was to explore the feasibility of performing laparoscopic splenic biopsies using a fibrin sealant in pigs and then to translate this technique into the clinical setting. METHOD: Four German Landrace pigs underwent a laparoscopic splenic biopsy using a fibrin sealant to occlude the needle tract. Time to achieve hemostasis and postoperative hemorrhage were assessed. RESULT: The average time to achieve haemostasis was 15 s (range, 8 to 25 s) with no hemorrhage from the needle tract observed. Subsequently this was translated into the clinical setting where a patient also underwent a laparoscopic splenic biopsy without any adverse effect. CONCLUSIONS: Laparoscopic splenic biopsy with the application of a fibrin sealant is a safe and efficient technique.

Full Text:

Not Available

Does fibrin glue sealant decrease the rate of anastomotic leak after a pancreaticoduodenectomy? Results of a prospective randomized trial.

Authors: Martin I, Au K

Publication Date: 2013

Abstract:

BACKGROUND: The aim of this study was to evaluate the effect of topical fibrin glue applied externally to all anastomoses after a pancreaticoduodenectomy (PD) on drain lipase levels, anastomotic leaks, complication rates and length of hospital stay. METHODS: A standardized non-pylorus preserving PD was performed with or without fibrin glue applied to each anastomosis. RESULTS: Fifty-seven patients were randomized: 32 with and 25 without TISSEEL. There were no statistical differences in each group with respect to drain lipase levels (high 40% versus 43%, P = 0.794), complications including gastric or biliary leaks (24% versus 28%, P = 1.00), wound infection (16% versus 9%, P = 0.28) and a Clavien score of 3 or more (16% versus 25%, P = 0.757) or hospital stay (12 versus 17 days, P = 0.777). Most patients with elevated drain lipase levels had an unaltered clinical course not predictive of adverse outcomes. However, the operative finding of a soft pancreas (27 out of 57 patients) was associated with post-operative complications (P = 0.002). There were no peri-operative deaths. CONCLUSIONS: Fibrin glue application to all anastomoses does not alter drain lipase levels. Drain lipase levels are not a significant surrogate marker for clinically significant anastomotic leaks or complications. Fibrin glue application did not reduce the incidence of an anastomotic leak or complications.

Full Text:

Not Available

Intraoperative intrasac thrombin injection to prevent type II endoleak after endovascular abdominal aortic aneurysm repair.

Authors: Zanchetta M, Faresin F, Pedon L, Ronsivalle S

Publication Date: 2007

Abstract:

PURPOSE: To report a prospective, nonrandomized pilot study to determine whether fibrin glue aneurysm sac embolization at the time of endovascular aneurysm repair (EVAR) is a safe and effective procedure to primarily prevent type II endoleaks. METHODS: Between June 2003 and December 2005, 84 consecutive patients (79 men; mean age 73.8+/-7.8 years, range 64-86) with degenerative infrarenal abdominal aortic aneurysm underwent EVAR with bifurcated stent-grafts and fibrin glue injection into the aneurysm sac at the conclusion of the endovascular procedure. A total of 424 imaging studies and 348 visits were recorded during the study period and reviewed. RESULTS: Selective catheterization of the aneurysm sac and fibrin glue injection immediately after initial stent-graft deployment was successful in 83 (99%) of 84 cases; there was one failure to access the excluded aneurysm sac due to severe iliac artery calcification. The estimated primary and assisted clinical success rates at 2 years were 91.3% and 98.8%, respectively, but the major findings were the low rate of delayed type II endoleak (2.4%) and the statistically significant decrease in the maximum transverse aneurysm diameter (50.40+/-6.70 versus 42.03+/-6.50 mm, p = 0.0001) at follow-up. In addition, of 31 patients available for 24-month follow-up, 14 (45.2%) patients showed a reduction in maximum transverse aneurysm diameter by >or=5 mm; 16 (51.6%) patients had no significant changes, whereas only 1 patient showed a >5-mm enlargement. CONCLUSION: This clot engineering approach to aneurysm sac embolization at the time of endografting appears to be safe and may spare the patient a repeated catheter-based intervention or surgical procedure.

Full Text:

Not Available

Post-operative benefits of Tisseel()/Tissucol () for mesh fixation in patients undergoing Lichtenstein inguinal hernia repair: secondary results from the TIMELI trial.

Authors: Campanelli G, Pascual MH, Hoeferlin A, Rosenberg J, Champault G, Kingsnorth A, Bagot d'Arc M, Miserez M

Publication Date: 2014

Abstract:

PURPOSE: The Tisseel/Tissucol for mesh fixation in Lichtenstein hernia repair (TIMELI) study showed that mesh fixation with human fibrin sealant during inguinal hernia repair significantly reduced moderate-severe complications of pain 12 months post-operatively compared with sutures. Further analyses may assist surgeons by investigating predictors of post-surgical complications and identifying patients that may benefit from Tisseel/Tissucol intervention. METHODS: Univariate and multivariate analyses identified risk factors for combined pain, numbness and groin discomfort (PND) visual analogue scale (VAS) score 12 months post-operatively. Variables tested were: fixation method, age, employment status, physical activity, nerve handling, PND VAS score at pre-operative visit and 1 week post-operatively. The effect of fixation technique on separate PND outcomes 12 months post-surgery was also assessed. Analyses included the intention-to-treat (ITT) population and a subpopulation with pre-operative PND VAS > 30 mm. RESULTS: 316 patients were included in the ITT, with 130 patients in the subpopulation with pre-operative PND VAS > 30. Multivariate analysis identified mesh fixation with sutures, worsening pre-operative PND and worsening PND 1 week post-surgery as significant predictors of 12-month PND in the ITT population; mesh fixation with sutures was a significant predictor of 12-month PND in the pre-operative PND VAS > 30 subpopulation ($p < 0.05$). Mesh fixation with Tisseel/Tissucol resulted in significantly less numbness and a lower intensity of groin discomfort compared with sutures at 12 months; there was no difference in pain between the treatment groups. CONCLUSIONS: Pre-operative discomfort may be an important predictor of post-operative pain, numbness and discomfort. Tisseel/Tissucol may improve long-term morbidity over conventional sutures in these patients.

Full Text:

Not Available

Comparative study between fibrin glue and platelet rich plasma in dogs skin grafts.

Authors: Hermeto LC, Rossi Rd, Padua SB, Pontes ER, Santana AE

Publication Date: 2012

Abstract:

PURPOSE: Compare fibrin glue (Tissucol()) and platelet-rich plasma in full-thickness mesh skin grafts in dogs. METHODS: Eighteen dogs were used, divided into two groups: fibrin glue (FG) and platelet-rich plasma (PRP). In all the animals, a full-thickness 3x3 cm mesh skin graft was implanted. In the left limb, the biomaterial was place between the graft and the receptor bed, according to the group, while the right limb served as the control group. All the animals were evaluated clinically every 48 hours until the 14th day, using the variables of exudation, coloration, edema and cosmetic appearance. Three animals were evaluated histologically, on the third, seventh and tenth postoperative days, using the variables of fibroblasts, collagen, granulation tissue, microscopic integration-adherence and acute inflammation. RESULTS: Clinical evaluations showed that the group CF showed better scores for all variables compared to PRP group. On the histological evaluations PRP group had a higher presence of fibroblasts in the seventh and fourteenth days. CONCLUSION: The fibrin glue group was clinically superior to the platelet-rich group when used on full-thickness skin grafts in dogs.

Full Text:

Not Available

A novel approach to closure of perineal wounds during abdominoperineal resection: use of fibrin sealant.

Authors: Vaid S, Nicholson T

Publication Date: 2012

Abstract:

Abdominoperineal resection is associated with significant morbidity. The perineal wound poses a unique risk and complications are common, including skin breakdown, abscess, sinus tracts, perineal herniation, and evisceration. A 2-component fibrin sealant made from pooled human plasma has been proven to achieve hemostasis and tissue sealing. We report a case series of 5 consecutive patients in whom we used this fibrin sealant during perineal wound closure. Of our patients, 2 patients (40%) were diabetic and 4 patients (80%) received preoperative radiotherapy. The median body mass index was 32 (calculated as weight in kilograms divided by height in meters squared). The patients were at increased risk of perineal wound dehiscence and infection. Median follow-up was 6 months, and no patients had perineal wound complications. A fibrin sealant could be used as an alternative to more invasive procedures, such as flap reconstruction, in patients at high risk of perineal wound dehiscence.

Full Text:

Not Available

A prospective randomized study comparing fibrin sealant to manual compression for the treatment of anastomotic suture-hole bleeding in expanded polytetrafluoroethylene grafts.

Authors: Saha SP, Muluk S, Schenk W 3rd, Dennis JW, Ploder B, Grigorian A, Presch I, Goppelt A

Publication Date: 2012

Abstract:

OBJECTIVE: The ideal hemostatic agent for treatment of suture-line bleeding at vascular anastomoses has not yet been established. This study evaluated whether the use of a fibrin sealant containing 500 IU/mL thrombin and synthetic aprotinin (FS; marketed in the United States under the name TISSEEL) is beneficial for treatment of challenging suture-line bleeding at vascular anastomoses of expanded polytetrafluoroethylene (ePTFE) grafts, including those further complicated by concomitant antiplatelet therapies. METHODS: Over a 1-year period ending in 2010, ePTFE graft prostheses, including arterio-arterial bypasses and arteriovenous shunts, were placed in 140 patients who experienced suture-line bleeding that required treatment after completion of anastomotic suturing. Across 24 US study sites, 70 patients were randomized and treated with FS and 70 with manual compression (control). The primary end point was the proportion of patients who achieved hemostasis at the study suture line at 4 minutes after start of application of FS or positioning of surgical gauze pads onto the study suture line. RESULTS: There was a statistically significant difference in the comparison of hemostasis rates at the study suture line at 4 minutes between FS (62.9%) and control (31.4%) patients ($P < .0001$), which was the primary end point. Similarly, hemostasis rates in the subgroup of patients on antiplatelet therapies were 64.7% (FS group) and 28.2% (control group). When analyzed by bleeding severity, the hemostatic advantage of FS over control at 4 minutes was similar (27.8% absolute improvement for moderate bleeding vs 32.8% for severe bleeding). Logistic regression analysis (accounting for gender, age, intervention type, bleeding severity, blood pressure, heparin coating of ePTFE graft, and antiplatelet therapies) found a statistically significant treatment effect in the odds ratio (OR) of meeting the primary end point between treatment groups (OR, 6.73; $P < .0001$), as well as statistically significant effects for intervention type (OR, 0.25; $P = .0055$) and bleeding severity (OR, 2.59; $P = .0209$). The safety profile of FS was excellent as indicated by the lack of any related serious adverse events. CONCLUSIONS: The findings from this phase 3 study confirmed that FS is safe and its efficacy is superior to manual compression for hemostasis in patients with peripheral vascular ePTFE grafts. The data also suggest that FS promotes hemostasis independently of the patient's own coagulation system, as shown in a representative population of patients with vascular disease under single- or dual-antiplatelet therapies.

Full Text:

Not Available

Type II endoleak: from treatment of a complication to prevention.

Authors: Ronsivalle S, Faresin F, Franz F, Rettore C, Zanchetta M, Olivieri A

Publication Date: 2012

Abstract:

Not Available

Full Text:

Not Available

New approach in vaginal prolapse repair: mini-invasive surgery associated with application of platelet-rich fibrin.

Authors: Gorlero F, Glorio M, Lorenzi P, Bruno-Franco M, Mazzei C

Publication Date: 2012

Abstract:

INTRODUCTION AND HYPOTHESIS: Platelet-rich fibrin (PRF) matrix is an autologous leukocyte and PRF biomaterial. PRF is a fibrin matrix polymerized in a tetramolecular structure with the incorporation of platelets, leukocytes, cytokines, and circulating stem cells. The three-dimensional structure of PRF is optimal for migration of endothelial cells and fibroblasts. It permits rapid angiogenesis and easier remodeling of fibrin in a more resistant connective matrix. In vaginal surgery, PRF may act as a graft material with better healing and better functional outcome. METHODS: We performed a prospective observational study on ten consecutive women requiring surgery for prolapse recurrence (stage II or higher). These women had high risks for recurrence, erosion with graft materials, and intraoperative and postoperative complications with traditional pelvic reconstructive surgical procedures. ICS score and P-QoL Questionnaire results were assessed preoperatively and postoperatively. Surgery consisted of anterior, posterior, or apical repair plus PRF. Follow-up was performed at 1, 6, 12, 18, and 24 months. RESULTS: Anatomically, the success rate was 80%. Prolapse symptoms improved by 100%. Sexual activity increased by 20% without dyspareunia. The surgical time was satisfactory (mean, 38.5 min). There were no intraoperative or postoperative complications. CONCLUSIONS: The use of PRF for site-specific prolapse repair is associated with a good functional outcome because of the healing and mechanical properties of PRF.

Full Text:

Not Available

Tissue adhesives as an alternative for conjunctival closure in strabismus surgeries.

Authors: Basmak H, Gursoy H, Cakmak AI, Niyaz L, Yildirim N, Sahin A

Publication Date: 2011

Abstract:

PURPOSE: Comparison of conjunctival closure with fibrin glue and conventional closure in strabismus surgeries. METHODS: Twenty-nine patients undergoing strabismus surgery were studied. Group 1 included twelve cases in whom Tisseel was used for closure and group 2 included seventeen cases in whom 7/0 Vicryl was used. Severity of redness, watering, pain, and discomfort in opening eyes were evaluated postoperatively. RESULTS: In the first hour, severe pain was experienced in both groups without statistical significance; but in group 1, pain was less severe in the 12th and 24th hour ($P < .0001$). After the first hour severity of watering was less in group 1 ($P < .0001$). Discomfort in opening eyes was detected in fifteen patients in group 2 in the first 12 hours where only one case with fibrin glue had discomfort. In the second week, no differences in severity of complaints were seen. CONCLUSIONS: Conjunctival closure with Tisseel following strabismus surgery might be an alternative to suturing.

Full Text:

Not Available

Use of fibrin sealant as a hemostatic agent in expanded polytetrafluoroethylene graft placement surgery.

Authors: Saha SP, Muluk S, Schenk W 3rd, Burks SG, Grigorian A, Ploder B, Presch I, Pavlova BG, Hantak E

Publication Date: 2011

Abstract:

BACKGROUND: The low thrombogenicity, porosity, and limited elasticity of expanded polytetrafluoroethylene (ePTFE) vascular grafts, although beneficial, may exacerbate the problem of suture-line bleeding at vascular anastomoses and consequently lead to increased operating times. The overall objective of this prospective, randomized, controlled, subject-blinded, multicenter phase 2 study was to evaluate the efficacy and safety of a fibrin sealant containing 500 IU/mL thrombin and synthetic aprotinin (FS; marketed in the United States under the name TISSEEL) for hemostasis in subjects undergoing vascular surgery and receiving prosthetic ePTFE vascular grafts. METHODS: FS was

compared with manual compression with surgical gauze pads, a standard of care for hemostasis in vascular surgery. Two FS polymerization/setting times (60 and 120 seconds) were investigated to evaluate influence on the efficacy results. Patients undergoing ePTFE graft placement surgery (N = 73) who experienced bleeding that required treatment after surgical hemostasis were randomized to be treated with FS with clamps opened at 60 seconds (FS-60; N = 26), with FS with clamps opened at 120 seconds (FS-120; N = 24), or with manual compression with surgical gauze pads (control; N = 23). The proportion of subjects achieving hemostasis at 4 minutes (primary endpoint) as well as at 6 and 10 minutes (secondary endpoints) in the three treatment groups was analyzed using logistic regression analysis, taking into account gender, age, type of intervention, severity of bleeding, systolic blood pressure, diastolic blood pressure, heparin coating of the ePTFE graft, and platelet inhibitors. RESULTS: There were substantial differences in the proportion of subjects who achieved hemostasis at the study suture line at 4 minutes from treatment application between FS-120 (62.5%) and control (34.8%) groups (a 79.6% relative improvement). Logistic regression analyses found a statistically significant treatment effect at the 10% level in the odds ratio (OR) of achieving hemostasis at 4 minutes between the FS-120 and control groups (OR = 3.98, p = 0.0991). Furthermore, it has been shown that the perioperative administration of platelet inhibitors significantly influences (OR = 3.89, p = 0.0607) hemostasis rates at the primary endpoint. No statistically significant treatment effects were found for the other factors. Logistic regression analyses performed on the secondary endpoints demonstrated a significant treatment effect of achieving hemostasis at 6 minutes (OR = 9.92, p = 0.0225) and at 10 minutes (OR = 6.70, p = 0.0708) between the FS-120 and control groups. Statistically significant effects in the logistic regression analyses were found at the 10% level in the OR of achieving hemostasis at 6 and 10 minutes, respectively, for the following factors: FS-120 versus control group (OR = 9.92; p = 0.0225 and OR = 6.70; p = 0.0708, respectively), type of intervention (OR = 0.3; p = 0.0775 and OR = 0.25; p = 0.0402, respectively), and heparin coating of the ePTFE prosthesis (OR = 4.83; p = 0.0413 and OR = 3.65; p = 0.0911, respectively). FS was safe and well-tolerated, as indicated by the lack of any related serious adverse events. CONCLUSION: The findings from this phase 2 study support the strong safety profile of FS and suggest that it is an efficacious hemostatic agent in ePTFE graft placement surgery, as well as a useful tool in peripheral vascular surgery applications.

Full Text:

Not Available

Fibrin glue in the endoscopic treatment of fistulae and anastomotic leakages of the gastrointestinal tract.

Authors: Lippert E, Klebl FH, Schweller F, Ott C, Gelbmann CM, Scholmerich J, Endlicher E, Kullmann F

Publication Date: 2011

Abstract:

BACKGROUND: Fistulae or leakages of anastomotic junctions of the gastrointestinal tract used to be an indication for surgery. However, patients often are severely ill and endoscopic therapeutic options have been suggested to avoid surgical intervention. PURPOSE: This is a retrospective analysis of fibrin

glue application in the treatment of gastrointestinal fistulae or anastomotic leakages. AIM: The aim of this study was to investigate the value of fibrin glue in the treatment of gastrointestinal fistulae and leakages. METHODS: From September 1996 to November 2002, 52 patients with gastrointestinal fistulae or insufficiencies have been treated endoscopically including the use of fibrin glue (Tissucol Duo S, Baxter, Unterschleissheim, Germany). Clinical data comprising concomitant therapies and results were analysed by chart review. RESULTS: Twenty-six lesions were located in the oesophagus or gastroesophageal junction, 4 in the stomach, 7 in the small intestine, 13 colorectal and 2 in the pancreas. The duration of treatment ranged from 12 to 1,765 days. Two to 81 ml fibrin glue (median 8.5) was used in 1-40 sessions (median 4). All patients received antibiotics; additional endoscopic options were frequently applied. Endoscopic therapy cured 55.7% patients (n = 29); 36.5% (n = 19) were cured with fibrin glue as sole endoscopic option. In 23.1% (n = 12), surgical intervention became necessary. Patients without major infectious complications tended to have a higher cure rate without surgery (87.5% vs. 50%). Eleven patients died (21.1%). CONCLUSION: Endoscopic therapy is a valuable option in the treatment of fistulae and anastomotic insufficiencies of the gastrointestinal tract. It usually is applied repeatedly. Fibrin glue is a mainstay of this procedure. Major infectious complications seem to define a subgroup of patients with poorer outcome.

Full Text:

Not Available

Treatment of perigraft seroma in expanded polytetrafluoroethylene grafts by sequential fibrin sealing of the outer graft surface.

Authors: Zanow J, Kruger U, Settmacher U, Scholz H

Publication Date: 2010

Abstract:

BACKGROUND: The recommended standard for treatment of perigraft seroma (PS) is the graft removal and the reconstruction using an alternative prosthesis. We assumed that a fibrin sealing of the outer surface of expanded polytetrafluoroethylene (ePTFE) grafts would prevent leakage and used this technique in the treatment and prevention of PS. METHODS: Over a 10-year period, 24 patients were treated for PS after subcutaneous implantation of ePTFE grafts (14 arterial bypasses and 10 arteriovenous grafts). Affected graft segments were temporarily removed and underwent sequential fibrin sealing technique before reimplantation. In addition, an in vitro experiment was carried out to demonstrate the efficacy of fibrin sealing to prevent leakage through the ePTFE graft wall, after its hydrophobic barrier was destroyed by filling with saline solution under pressure. RESULTS: A cure of PS was observed in 20 patients (84%) at a follow-up period of 37 +/- 18 months. A later graft infection was not seen in any patient. The patency rate of reconstructed grafts appears to be unaffected. In the performed experiment we have demonstrated an elimination of leakage through the graft wall by the fibrin sealing technique. CONCLUSIONS: Sequential fibrin sealing of the outer surface is an effective way to treat PS in ePTFE grafts. However, failure of this treatment cannot be precluded. Further studies are necessary that may provide further insights into the causes and best treatment of PS and the possibly important role of PS in the aneurysm enlargement after complete endovascular exclusion with ePTFE endografts.

Full Text:

Not Available

Commentary: reduction of type II endoleak using embolization of the aneurysm sac during EVAR.

Authors: Jonker FH, Aruny J, Moll FL, Muhs BE

Publication Date: 2010

Abstract:

Not Available

Full Text:

Not Available

Aneurysm sac "thrombization" and stabilization in EVAR: a technique to reduce the risk of type II endoleak.

Authors: Ronsivalle S, Faresin F, Franz F, Rettore C, Zanchetta M, Olivieri A

Publication Date: 2010

Abstract:

PURPOSE: To evaluate the reduction in type II endoleak risk after introducing a new prevention method, "thrombization" or clotting of the aneurysm sac, during endovascular aneurysm repair (EVAR) versus the standard EVAR technique. METHODS: From September 1999 to December 2008, 469 consecutive patients underwent EVAR for AAA at our institution. In 2003, the injection of fibrin glue with or without microcoils into the aneurysm sac was added to the EVAR treatment plan ("thrombization" technique). Patients who did not meet the inclusion criterion (at least 1-year follow-up imaging) were censored at the end of 2007, leaving 404 patients eligible for the study: 224 patients (210 men; mean age 71.9+/-8.5 years, range 25-88) undergoing EVAR alone from September 1999 to May 2003 (group 1) compared to 180 patients (161 men; mean age 72.6+/-8 years, range 46-89) who underwent EVAR + thrombization from June 2003 to December 2006 (group 2). RESULTS: The 2 treatment groups were similar with regard to aneurysm morphology. No allergic or anaphylactic reactions were encountered related to the fibrin glue. Over median follow-up times of 72 months in group 1 and 26 months in group 2, there were 34 (15.2%) endoleaks in group 1 versus 4 (2.2%) in group 2 ($p<0.0001$). The incidence of

type II endoleak was 0.25/100 person-months for group 1 versus 0.07/100 person-months for group 2. The preventive sac thrombization technique was significantly associated with a reduced risk of type II endoleak (HR 0.13, 95% CI 0.05 to 0.36; p<0.0001) regardless of the type of stent-graft fixation (infrarenal versus suprarenal). CONCLUSION: The preventive method of intrasac "thrombization" using fibrin glue injection with or without the insertion of coils proves to be a simple, low cost, safe, and effective technique to significantly reduce the risk of type II endoleaks irrespective of the endograft used.

Full Text:

Not Available

The effect of sealing with a fixed combination of collagen matrix-bound coagulation factors on the healing of colonic anastomoses in experimental high-risk mice models.

Authors: Pantelis D, Beissel A, Kahl P, Wehner S, Vilz TO, Kalff JC

Publication Date: 2010

Abstract:

PURPOSE: Experimental and clinical studies on the sealing of colorectal anastomoses in order to reduce the rate of leakage have previously been performed with divergent results. However, comparatively few studies have been performed on anastomotic healing using a fibrin glue-coated patch. The aim of this experimental basic scientific study in mice was to investigate the effect of fibrin glue-coated collagen patches on the healing process of colonic anastomoses in situations of adverse healing process (technical deficiency and peritonitis). METHODS: Colonic anastomoses were carried out in 206 mice and randomized into six groups (I: complete anastomoses, II: sealed complete anastomoses, III: incomplete anastomoses, IV: sealed incomplete anastomoses, V: complete anastomoses in the presence of bacterial peritonitis, VI: sealed complete anastomoses in the presence of bacterial peritonitis). Tissues from the anastomoses were removed and used for functional, histochemical, molecular, and biochemical investigations. RESULTS: The evaluation of postoperative course data revealed the beneficial effect of additional sealing with a fixed combination of collagen matrix-bound coagulation factors I and IIa (Tachosil(), Nycomed Austria, Linz) in high-risk experimental anastomotic healing. Sealing incomplete anastomoses resulted in significantly lower lethality and leakage rates, as well as significantly higher bursting pressure values and histopathologic scores. Collagen 1 and 3 expressions and hydroxyproline concentrations are greatly increased with additional sealing in all high-risk anastomoses. CONCLUSIONS: In our current model, we demonstrate that additionally sealing high-risk experimental colonic anastomoses provides a positive effect on the healing process. The effect on the molecular level in particular seems to be essential and requires further experimental studies to evaluate the mechanism.

Full Text:

Not Available

Inguinal-scrotal hernias in young patients: is laparoscopic repair a possible answer? Preliminary results of a single-institution experience with a transabdominal preperitoneal approach.

Authors: Agresta F, Mazzarolo G, Balbi P, Bedin N

Publication Date: 2010

Abstract:

OBJECTIVES: The laparoscopic trans-abdominal preperitoneal (TAPP) approach to inguinal hernia repair is well documented as an excellent choice in numerous studies, especially when conducted by an experienced surgeon. Its full list of specific indications is still under debate. Generally, the repair of scrotal hernias demands a higher level of experience on the part of the surgeon, irrespective of the applied surgical technique. In this report, we evaluate our preliminary experience of TAPP laparoscopic repair for inguinoscrotal hernias in young patients in a Community Hospital setting, focusing on the feasibility of the technique and the incidence of complications. MATERIALS AND METHODS: Between January 2008 and January 2009 a total of ten consecutive young patients at the "Civil Hospital" in Vittorio Veneto (TV), underwent TAPP laparoscopic repair of bilateral inguinoscrotal hernias. RESULTS: The overall mean operative time was 65 (+/-15) min. All procedures were performed on a day surgery basis. There were no conversions to open repair, no mortality/morbidity or relapsing hernias. The mean follow-up was 14 (+/-2) months. No patients reported severe pain at 10 days, There were no reports of night pain at 30 days. All patients had a return to physical-work capacity within 14 days. All patients were completely satisfied at the 3-month follow up. CONCLUSIONS: Analysis of the short-term post-operative outcomes of our experience enabled us to conclude that, in the proper setting, TAPP can be performed for inguinoscrotal hernia repair with an efficiency comparable to that of normal inguinal hernia repair.

Full Text:

Not Available

Intrasac fibrin glue injection after platinum coils placement: the efficacy of a simple intraoperative procedure in preventing type II endoleak after endovascular aneurysm repair.

Authors: Pilon F, Tosato F, Danieli D, Campanile F, Zaramella M, Milite D

Publication Date: 2010

Abstract:

OBJECTIVES: To verify in our experience if fibrin glue injection into the aneurysm sac, made at the end of endovascular aneurysm repair (EVAR), can reduce type II endoleak rates. METHODS: Between January 2005 and February 2008, 38 patients underwent EVAR for an unruptured abdominal aortic aneurysm. The first 20 consecutive patients (Group A) had standard EVAR while the last 18 patients (Group B) had EVAR with fibrin glue injection into the sac, regardless of type II endoleak's presence. RESULTS: There was no statistically significant difference between the two groups concerning the surgical time and the time of X-ray exposure (P=0.30 and 0.54, respectively). Type II endoleak rate was significantly higher in Group A compared to Group B (6 cases, 30% vs. 1 case, 5.5%, respectively, P=0.05). Primary short-term clinical success was 95% and 100%, respectively. At 12 months, selective lumbar embolization was performed in two patients in Group A and in one patient in Group B. Patients in Group A had less computed tomography (CT) studies than patients in Group B (2.0 vs. 1.2, respectively, P=0.024). CONCLUSIONS: Fibrin glue injection is a safe procedure and seems to reduce type II endoleak rates. Patients who received this procedure had fewer CT examinations, with reduced health-care costs.

Full Text:

Not Available

Cut and paste: sutureless conjunctival closure in strabismus surgery.

Authors: Guo S, Wagner RS, Forbes BJ, DeRespinis PA, Caputo AR

Publication Date: 2010

Abstract:

PURPOSE: This study investigated the use of fibrin glue and compared its effect with traditional sutures for conjunctival closure in strabismus surgery. METHODS: The study included 12 patients undergoing horizontal strabismus surgery, of whom 5 underwent bilateral medial rectus muscle recessions and 7 underwent bilateral lateral rectus muscle recessions. For each patient, fibrin glue was used to close the conjunctiva of one eye and 6-0 plain sutures were used to close the other. RESULTS: All eyes maintained adequate closure of the conjunctiva postoperatively and there were no intraoperative or postoperative complications for an eye. However, the average surgical time needed to apply fibrin glue was considerable less than that required for closure with sutures. Furthermore, eyes closed with fibrin glue were associated with significantly less postoperative inflammation and patient discomfort than those closed with sutures. All patients and parents reported significantly less discomfort from the eyes treated with fibrin glue. CONCLUSION: These results are promising and demonstrated a safe and effective alternative to traditional suture closure in strabismus surgery. When compared to traditional suture closure, conjunctival closure with glue includes the following advantages: less postoperative patient discomfort, diminished postoperative inflammation, and potentially reduced surgical time with corresponding reduced time under general anesthesia.

Full Text:

Not Available

Primary mesh augmentation with fibrin glue for abdominal wall closure--investigations on a biomechanical model.

Authors: Schug-Pass C, Lippert H, Kockerling F

Publication Date: 2010

Abstract:

BACKGROUND: The occurrence of incisional hernias after various types of abdominal procedures and incisions continues to be a problem. A number of studies conducted for diverse risk groups have identified a beneficial role for the prophylactic use of mesh augmentation. To what extent this affects the stability of a suture was tested in our biomechanical model. MATERIALS AND METHODS: To that effect, we compared three groups, carrying out six measurements in each case: (1) single suture in a muscle specimen, (2) suture and additional reinforcement with fibrin glue, and (3) suture and additional reinforcement with a mesh fixed with fibrin glue (Tissucol, Tisseel; with an overlap of 2 cm to all sides). RESULTS: The single suture conferred a tensile strength, which in our model, was just above the prescribed maximum abdominal pressure of 32 N (37.3 N). The additional use of fibrin glue did not have any significant impact on this result (41.8 N). Only through mesh augmentation with fibrin glue was it possible to achieve a significantly greater tensile strength (64.5 N, $p = 0.003$). CONCLUSIONS: The prophylactic use of meshes for stabilization of laparotomy closures appears to be effective. Adequate mesh fixation can be achieved with fibrin glue alone. Further experimental studies and in particular randomized clinical trials are needed to demonstrate proof of the long-term advantages of mesh augmentation in risk groups.

Full Text:

Not Available

Mechanical resistance of peripheral nerve repair with biological glue and with conventional suture at different postoperative times.

Authors: Nishimura MT, Mazzer N, Barbieri CH, Moro CA

Publication Date: 2008

Abstract:

Regardless of its type, the repair of a peripheral nerve must ideally permit early motion of the affected limb and resist disruption by the tensile forces generated throughout the healing process and regeneration. A comparative study of the mechanical resistance of the repair of the sciatic nerve with

biological glue and conventional microsurgical suture over time was undertaken in 48 rats. Both right and left sciatic nerves were exposed simultaneously and repaired at random with the glue on one side and conventional suture on the opposite side. Mechanical resistance of the repair was evaluated in situ with a universal testing machine using a hooklike accessory applied proximally to the repair site, immediately and at 7, 14, and 28 days postoperatively. A load was applied at the rate of 2 mm/min till rupture. The resistance of both types of repair significantly increased up to day 14 ($P < 0.001$), and the repair with the glue was significantly less resistant than repair with conventional suture immediately postoperatively ($P < 0.001$) and on day 7 ($P = 0.03$). Resistance became equivalent for the two types of repair on days 14 ($P = 0.67$) and 28 ($P = 0.34$). The change in resistance of both types of repair with time was in accordance with the power function numeric formula.

Full Text:

Not Available

Results of pterygium surgery using a biologic adhesive.

Authors: Ayala M

Publication Date: 2008

Abstract:

PURPOSE: To evaluate the recurrence rate after pterygium surgery using a biologic adhesive (Tiseel Duo Quick). METHODS: Eighty-eight patients with primary pterygium were included. This was a prospective nonrandomized trial. Primary endpoints were recurrence rate and operation time, and secondary endpoints were age, sex, and the country of origin's influences on recurrence rate. All patients were operated on by using a conjunctival autograft fixed with Tisseel Duo Quick. Follow-up time was 1 year after surgery. RESULTS: The recurrence rate was 4.54%. The average operation time was 11.8 +/- 2 (SD) minutes. The mean age at the time of surgery was 60.3 +/- 13.54 years. The mean age of the patients with recurrent pterygia was 50.5 +/- 13.77 years. The male/female distribution of the operated patients was 67/21 (76.14%). The male/female distribution of the recurrences was 1/3 (25%). The Swedish/non-Swedish ethnical distribution of the operated patients was 60/22 (68.18%). The Swedish/non-Swedish distribution of the recurrences was 2/2 (50%). CONCLUSIONS: Pterygium surgery using a biologic adhesive seems to have a low recurrence rate and short operation time. Further studies regarding the effect of sex, age, and race in pterygium recurrence are needed.

Full Text:

Not Available

Application of fibrin glue after hepatectomy might still be justified.

Authors: Katkhouda N

Publication Date: 2008

Abstract:

Not Available

Full Text:

Not Available

The venous graft as an effector of early angiogenesis in a fibrin matrix.

Authors: Polykandriotis E, Tjiawi J, Euler S, Arkudas A, Hess A, Brune K, Greil P, Lametschwandtner A, Horch RE, Kneser U

Publication Date: 2008

Abstract:

The arteriovenous loop (AV loop) model is gaining importance as a means of initiating and sustaining perfusion in tissue engineering constructs in vivo. This study represents an attempt to dissect the morphology of early arterialization and angiogenesis in the AV loop in a fibrin matrix with special focus on the interpositional venous graft (IVG) segment. An AV loop was constructed in 30 rats using the femoral vessels and an IVG. The AV loop was encased in an isolation chamber filled with a fibrin matrix. Evaluation methods included scanning electron microscopy (SEM) of corrosion casts, immune histology and micro magnetic resonance angiography (MRA). Direct luminal neovascular sprouting was evident between day 10 and day 14 from the vein and the IVG but not from the arterial segment. Arterialization of the IVG manifested itself on the corrosion casts as a gradual reduction in luminal caliber with onset after day 7. Microdissection of the microvascular replicas could demonstrate for the first time the presence of direct luminal sprouts from the IVG. MRA was used to display the shunt pattern of perfusion in the patent AV loop. From the three segments of the vascular axis in the AV loop the IVG is the most versatile for applications in the clinical as well as the experimental setting. Kinetics of angiogenesis warrant further investigation in the IVG.

Full Text:

Not Available

Utility of micro-coils and glue in coronary artery perforation during balloon angioplasty.

Authors: Lanjewar C, Ephrem B, Kerkar PG

Publication Date: 2007

Abstract:

Not Available

Full Text:

Not Available

Staple line reinforcement with fleece-coated fibrin glue (TachoComb) after thoracoscopic bullectomy for the treatment of spontaneous pneumothorax.

Authors: Muramatsu T, Ohmori K, Shimamura M, Furuichi M, Takeshita S, Negishi N

Publication Date: 2007

Abstract:

BACKGROUND: We investigated the cause of pneumothorax recurrence after thoracoscopic surgery and the effectiveness of staple line reinforcement with fleece-coated fibrin glue (TachoComb) in the prevention of postoperative pneumothorax recurrence. METHODS: From April 3, 1992 to the end of December 2005, thoracoscopic bullectomy was performed on 499 patients of primary spontaneous pneumothorax. The causes of recurrence were investigated on 39 patients on the basis of surgical observations, preoperative chest computed tomography, and so on. The most common cause was new bulla formation (37 cases), 19 of which were apparently related to the staple line (within 1 cm of the staple lines) and 15 of which were not related to the staple line. After 2000, we stopped using forceps to grasp lungs and we have reinforced the staple line by applying fleece-coated fibrin glue. RESULTS: The staple line reinforced with fleece-coated fibrin glue, or sprayed with fibrin glue solution and the untreated group (bullectomy only with staples) were compared, and the recurrence rates were 1.22%, 7.25%, and 10.00%, respectively (P = 0.0006021). CONCLUSIONS: The recurrence rate after thoracoscopic bullectomy with fleece-coated fibrin glue was significantly lowered and we consider this procedure to be the treatment of choice for the management of spontaneous pneumothorax.

Full Text:

Not Available

Prevention of biliary leakage after partial liver resection using topical hemostatic agents. [Review] [30 refs]

Authors: Erdogan D, Busch OR, Gouma DJ, van Gulik TM

Publication Date: 2007

Abstract:

Liver resection is widely accepted as the only potentially curative treatment in malignant or benign hepatobiliary lesions. Although not frequent, biliary leakage is a postoperative complication which may have considerable consequences. The field of topical hemostatic agents is rapidly developing, with various products currently available. This article reviews the risk factors associated with biliary leakage and the methods used for testing or prevention of biliary leakage. A literature search was performed using key words related to experimental and clinical studies dealing with biliary leakage. Experimental studies assessed the potential bilio-static effect of different topical hemostatic agents after bile duct reconstruction. Clinical series show biliary leakage rates up to 12%. There is no evidence that flushing of the bile duct system after resection reduces the incidence of biliary leakage. Further controlled studies are needed to clarify the preventive effect of topical hemostatic agents on biliary leakage after liver resection. [References: 30]

Full Text:

Not Available

Re: Spray application of fibrin glue as risk factor for subcutaneous emphysema in laparoscopic transabdominal inguinal hernia repair.

Authors: Agresta F

Publication Date: 2007

Abstract:

Not Available

Full Text:

Not Available

Application of fibrin glue sealant after hepatectomy does not seem justified: results of a randomized study in 300 patients.

Authors: Figueras J, Llado L, Miro M, Ramos E, Torras J, Fabregat J, Serrano T

Publication Date: 2007

Abstract:

OBJECTIVE: To evaluate the efficacy, amount of hemorrhage, biliary leakage, complications, and postoperative evolution after fibrin glue sealant application in patients undergoing liver resection. SUMMARY BACKGROUND DATA: Fibrin sealants have become popular as a means of improving perioperative hemostasis and reducing biliary leakage after liver surgery. However, trials regarding its use in liver surgery remain limited and of poor methodologic quality. PATIENTS AND METHODS: A total of 300 patients undergoing hepatic resection were randomly assigned to fibrin glue application or control groups. Characteristics and debit of drainage and postoperative complications were evaluated. The amount of blood loss, measurements of hematologic parameters liver test, and postoperative evolution (particularly involving biliary fistula and morbidity) was also recorded. RESULTS: Postoperatively, no differences were observed in the amount of transfusion (0.15 +/- 0.66 vs. 0.17 +/- 0.63 PRCU; P = 0.7234) or in the patients that required transfusion (18% vs. 12%; P = 0.2), respectively, for the fibrin glue or control group. There were no differences in overall drainage volumes (1180 +/- 2528 vs. 960 +/- 1253 mL) or in days of postoperative drainage (7.9 +/- 5 vs. 7.1 +/- 4.7). Incidence of biliary fistula was similar in the fibrin glue and control groups, (10% vs. 11%). There were no differences regarding postoperative morbidity between groups (23% vs. 23%; P = 1). CONCLUSIONS: Application of fibrin sealant in the raw surface of the liver does not seem justified. Blood loss, transfusion, incidence of biliary fistula, and outcome are comparable to patients without fibrin glue. Therefore, discontinuation of routine use of fibrin sealant would result in significant cost saving.

Full Text:

Not Available

Preliminary experience using fibrin glue for mesh fixation in 250 patients undergoing minilaparoscopic transabdominal preperitoneal hernia repair.

Authors: Santoro E, Agresta F, Buscaglia F, Mulieri G, Mazzarolo G, Bedin N, Mulieri M

Publication Date: 2007

Abstract:

PURPOSE: Fibrin glue for mesh fixation has been proposed to prevent the risk of nerve injury in inguinal hernia repair. We retrospectively evaluated a series of 250 patients who underwent minilaparoscopic transabdominal preperitorneal (miniTAPP) hernioplasty (using trocars, optics, and instruments <10 mm in diameter) in whom mesh fixation was achieved using 2 mL of fibrin glue. We considered the feasibility of the technique and the incidence of complications, especially those possibly related to mesh fixation. We also compared the results with an earlier series of 245 patients in whom tacks were used to fix the mesh. MATERIALS AND METHODS: Between April 2004 and November 2005, 250 patients underwent bilateral or unilateral miniTAPP hernioplasty with instruments, optics, and trocars smaller than 10 mm and meshes fixed by fibrin glue. RESULTS: The mean overall operative time was 52.25 +/- 15.2 min. All the procedures were done as day surgeries. We registered one intraoperative bladder lesion and 15 cases of seroma. There were no relapses, prosthesis rejection, or infection. The mean follow-up was 13.2 +/- 6.1 months (range, 5-24 months). CONCLUSION: On the

basis of our initial experience, miniTAPP hernioplasty with a fibrin glue is feasible, effective, and easy to perform in experienced hands, with good results without higher risk of recurrence. In addition, the fibrin fixation method seems to decrease postoperative neuralgia and reduced the incidence of postoperative seromas and hematomas.

Full Text:

Not Available

Advances and methods in liver surgery: haemostasis. [Review] [0 refs]

Authors: Heaton N

Publication Date: 2005

Abstract:

Not Available

Full Text:

Not Available

Does fibrin sealant decrease immediate urinary leakage following radical retropubic prostatectomy?.

Authors: Diner EK, Patel SV, Kwart AM

Publication Date: 2005

Abstract:

PURPOSE: We determined the effectiveness of fibrin sealant in decreasing postoperative urinary leakage following radical retropubic prostatectomy performed by 1 surgeon at Washington Hospital Center. MATERIALS AND METHODS: Between April and November 2003 our group treated 32 consecutive patients with prostate cancer with radical retropubic prostatectomy. The first 16 patients (control) underwent the Walsh described technique and the second group of 16 patients had an additional application of fibrin sealant around the urethro vesical anastomosis. Postoperative drain output was measured every 8 hours. The results of the 2 groups were compared. RESULTS: The Blake drain was removed after 4 nursing shifts (times 1 through 4) in 81% (13 of 16) of the control group and in 100% (16 of 16) of the fibrin sealant group. The fibrin sealant group had significantly less drainage output overall compared with the control group ($p = 0.005$). The drainage output from each group decreased with time at a significant rate independent of each other ($p < 0.001$), and there was a larger difference ($p = 0.04$) in output between groups at times 1 and 2 compared with times 3 and 4. There

was no relationship between the amount of urinary drainage and drain output. There was no immediate morbidity associated with the use of fibrin sealant. CONCLUSIONS: The application of fibrin sealant to the urethro vesical anastomosis during radical retropubic prostatectomy does decrease postoperative drain output. With earlier drain removal, patients would benefit from less discomfort and from skilled nursing requirements. In select patients early drain removal could accelerate discharge home.

Full Text:

Not Available

Validating the subcutaneous model of injectable autologous cartilage using a fibrin glue scaffold.

Authors: Westreich R, Kaufman M, Gannon P, Lawson W

Publication Date: 2004

Abstract:

PURPOSE: To create and validate an injectable model for autologous in vivo cartilage engineering with ultimate clinical applicability in human subjects. HYPOTHESIS: Cartilage can be generated subcutaneously using fibrin glue and autologous chondrocyte components. BACKGROUND: To date, cartilage engineering studies have been limited by several factors. Immunocompromised animals and nonautologous chondrocytes have been successfully used to create cartilage, but results using identical designs failed in immunocompetent subjects. Recent studies using more biocompatible tissues and matrices have been performed with both in vitro and in vivo steps. Although successful, several problems are notable. In vitro cartilage displays a poor modulus of elasticity, even after in vivo implantation. Variable deformation and volume loss occurs when in vitro specimens are matured in vivo. These concerns limit the clinical utility of these methods. We therefore set out to create autologous cartilage using a model that was clinically feasible, easy to create, and could be performed with very low patient harvest morbidity. MATERIALS AND METHODS: Eight New Zealand white rabbits underwent a unilateral harvest of ear cartilage. Samples were then digested using standard methods. Cell counts and survival assays were performed before implantation. One sample of fibrin glue (Tisseel) and chondrocytes was injected subcutaneously into each donor rabbit and then left in situ for 3 months. A second sample with both basic fibroblast growth factor (b-FGF) and insulin-like growth factor (IGF)-1 in the injection suspension was also assessed (for a total of 16 samples). After harvest, analysis of overall volume, histology, and chondrocyte drop out counts was performed. RESULTS: Cartilage formation occurred in 8 of 14 (57%) specimens that were obtained at the time of sacrifice. Of note, 6 of 7 (85%) non-growth-factor containing samples yielded positive results. Comparison with the success rate using concomitant growth factors (2/7) showed a negative effect on cartilage yield (P = .015). Chondrocyte survival, based on chondrocyte dropout counts, was not effected. Angiogenesis appeared to correlate with cartilage formation in the central regions of the implant. Alcian blue demonstrated the presence of active matrix deposition, and elastin Verhoff-van Geison (EVG) stains were positive, showing an elastic cartilage phenotype. Very limited osteoid formation was seen in successful implants. Failed implants demonstrated avascular necrosis, giant cell reactions, and inflammatory infiltrates. CONCLUSIONS: This study validates the subcutaneous site as a recipient bed for the engineering of autologous cartilage in vivo. It also represents the first subcutaneous implantation of fibrin glue and chondrocytes in an immunocompetent host as well as the first published report of elastic cartilage generation in vivo. Although the model needs to be further streamlined to increase yields and overall

volume, this study clearly demonstrates the feasibility of in vivo chondrogenesis (85% success). The addition of FGF and IGF-1 at the concentrations used negatively influenced cartilage yield. However, extrapolation of these results to other combinations or concentrations can not be done, and this issue deserves further investigation.

Full Text:

Not Available

Comparison of a new fibrin sealant with standard topical hemostatic agents.

Authors: Schwartz M, Madariaga J, Hirose R, Shaver TR, Sher L, Chari R, Colonna JO 2nd, Heaton N, Mirza D, Adams R, Rees M, Lloyd D

Publication Date: 2004

Abstract:

BACKGROUND: Bleeding following liver resection continues to be a significant morbidity of the procedure. Fibrin sealants represent an improvement over conventional topical hemostatic agents, because they contain components that actively form clot. However, most available agents contain nonhuman protein, which represents an immunologic risk. HYPOTHESIS: An investigational surgical fibrin sealant (Crosseal; American Red Cross, Washington, DC) composed of human clottable proteins and human thrombin is more effective than standard topical hemostatic agents in reducing the time required to achieve hemostasis after liver resection. DESIGN: Prospective, randomized, controlled trial. SETTING: Fifteen major referral centers in the United States and the United Kingdom. METHODS: After liver resection using standard surgical techniques, 121 patients seen between May 1999 and May 2000 were randomized to treatment with a 2-component fibrin sealant (n=58) or to standard topical hemostatic agents, used singly or in combination (n=63). Up to 10 mL of Crosseal was administered by a spray applicator, as recommended by the manufacturer, whereas agents used in the control group were applied according to their instructions for use. MAIN OUTCOME MEASURES: The primary outcome measured was time to hemostasis. Secondary outcomes measured included blood loss between application of the hemostatic agent and closure of the abdomen, duration of postoperative biliary drainage, and the occurrence of complications, defined a priori as reoperation for any reason, development of abdominal fluid collections, or bilious appearance of drained fluid for at least 1 day postoperatively. RESULTS: The mean time to hemostasis was 282 seconds with Crosseal, compared with 468 seconds with standard agents (2-sided; P =.06), for the 116 efficacy-evaluable patients. Hemostasis was achieved within 10 minutes in 53 patients (91.4%) treated with the study fibrin sealant and in 44 control patients (69.8%) (2-sided; P =.003). Intraoperative blood loss was similar in the 2 groups. In the Crosseal group, the percentage of patients developing postoperative complications was 17.2%, compared with 36.5% in the control group (2-sided; P =.02). CONCLUSIONS: Compared with the use of standard topical hemostatic agents, Crosseal fibrin sealant significantly reduced the time to achieve hemostasis following liver resection. Patients treated with the new fibrin sealant also experienced significantly fewer postoperative complications.

Full Text:

Not Available

Impact of gender on femoral access complications secondary to application of a collagen-based vascular closure device.

Authors: Eggebrecht H, von Birgelen C, Naber C, Kroger K, Schmermund A, Wieneke H, Bartel T, Wortgen U, Baumgart D, Haude M, Erbel R

Publication Date: 2004

Abstract:

BACKGROUND: Vascular complications at the femoral access site continue to be a significant problem after cardiac catheterization procedures. It was the aim of the present study to assess the impact of gender on the incidence of severe femoral access complications following the application of a collagen-based vascular closure device after transfemoral catheterization procedures. METHODS: A total of 1,294 consecutive patients (977 male, 317 female) underwent closure of femoral access sites with 8F collagen-based vascular closure devices (Angioseal) immediately after diagnostic or interventional coronary catheterization procedures, independently of the coagulation status. All patients were closely monitored for the occurrence of complications during the following 24 hours. RESULTS: Between male and female patients, there was no difference in the technical performance of the device with successful deployment being achieved in 96.7% and 95.9%, respectively (p=0.60). Severe access complications were found to be significantly higher in female versus male patients (1.6% vs. 0.2%; Odds ratio 7.7, 95% confidence interval 1.5-40.1; p=0.015), although similar accomplishment of an immediate hemostasis was seen in 92.8% and 92.4% of male and female patients (p=0.98). CONCLUSION: Women show a significantly increased risk of developing severe femoral access complications secondary to the application of a collagen-based vascular closure device, although the overall incidence of these complications is relatively low. We speculate that the increased risk in women may be related to smaller arterial dimensions, which could be evaluated by femoral angiography prior to deployment of a closure device.

Full Text:

Not Available

Topics for discussion--clinical questions and answers.

Authors: Albala DM

Publication Date: 2003

Abstract:

Not Available

Full Text:

Not Available

Use of fibrin glue in percutaneous nephrolithotomy.

Authors: Mikhail AA, Kaptein JS, Bellman GC

Publication Date: 2003

Abstract:

OBJECTIVES: To report our experience with the use of fibrin glue during tubeless percutaneous nephrolithotomy. We addressed the safety of this approach and evaluated its use for any clinical benefit with respect to length of hospital stay, bleeding, analgesic usage, and urinary extravasation. METHODS: This was a retrospective review of 43 patients who underwent tubeless percutaneous nephrolithotomy. In 20 consecutive patients (one bilateral), percutaneous tracts were injected with 2 to 3 mL of Tissel Vapor Heated sealant at the conclusion of the procedure. The fibrin glue was instilled during simultaneous removal of the percutaneous sheath. These 20 patients were compared with a control group (23 consecutive patients) in which fibrin glue was not used. The length of hospitalization, hematocrit drop, analgesic use, stone burden, operative times, postoperative complications, and any noted computed tomography scan findings were compared. RESULTS: Postoperatively, the average length of hospital stay was less in the experimental than in the control group by 0.71 day ($P < 0.05$). Differences in hematocrit drop between the experimental (6.8%) and control (5.6%) groups were not statistically significant. The total analgesic use was less in the experimental group, but the difference was not statistically significant. No statistical difference was found between the operative times for both groups. Postoperative fevers and wound seroma were noted in the experimental group. No abscesses or any significant changes along the percutaneous tracts were seen on postoperative computed tomography scans. In the control group, no procedure-related complications were noted. CONCLUSIONS: The use of fibrin glue is safe in percutaneous nephrolithotomy procedures and additional prospective randomized studies are needed to evaluate for any clinical benefit.

Full Text:

Not Available

Fibrin sealant reduces the duration and amount of fluid drainage after axillary dissection: a randomized prospective clinical trial.

Authors: Moore M, Burak WE Jr, Nelson E, Kearney T, Simmons R, Mayers L, Spotnitz WD

Publication Date: 2001

Abstract:

BACKGROUND: Patients who have axillary dissections during lumpectomy or modified radical mastectomy for breast carcinoma accumulate serosanguinous fluid, potentially resulting in a seroma. Currently accepted practice includes insertion of one or more drains for fluid evacuation. This multicenter, randomized, controlled, phase II study was undertaken to evaluate whether a virally inactivated, investigational fibrin sealant is safe and effective when used as a sealing agent to reduce the duration and volume of serosanguinous fluid drainage and to determine the dose response of this effect. STUDY DESIGN: Patients undergoing lumpectomy or modified radical mastectomy were randomized to treatment with 4, 8, or 16 mL of fibrin sealant or control (no agent) at the axillary dissections site. Patients undergoing modified radical mastectomy also received an additional 4 or 8 mL of fibrin sealant at the skin flap site. Efficacy was evaluated by the number of days required for wound drainage and the volume of fluid drainage compared with control. Safety was confirmed by clinical course, the absence of viral seroconversion, and no major complications attributable to the sealant. RESULTS: The 4-mL axillary dissection dose of fibrin sealant significantly reduced the duration and quantity of fluid drainage from the axilla following lumpectomy ($p < or = 0.05$). In the modified radical mastectomy patients, a 16-mL axillary dissection dose combined with an 8-mL skin flap dose was significantly effective in reducing the number of days to drain removal ($p < or = 0.05$) and fluid drainage ($p < or = 0.01$). There were no fibrin sealant patient viral seroconversions and no major complications attributable to the sealant. A number of wound infections were noted, although this may represent a center-specific effect. CONCLUSIONS: Application of fibrin sealant following axillary dissection at the time of lumpectomy or modified radical mastectomy can significantly decrease the duration and quantity of serosanguinous drainage. The viral safety of the product was also supported.

Full Text:

Not Available

The long-term outcome of retropubic urethrocystopexy (sutures and fibrin sealant) and pubococcygeal repair.

Authors: Lalos O, Berglund AL, Bjerle P

Publication Date: 2000

Abstract:

BACKGROUND: To evaluate the results of retropubic urethrocystopexy (with sutures and fibrin sealant) and pubococcygeal repair five to seven years postoperatively. MATERIALS AND METHODS: Thirty women with genuine stress urinary incontinence were subjected to retropubic urethrocystopexy (n=30) and 15 women to pubococcygeal repair (n= 15). The preoperative assessment included both subjective and objective methods. The results evaluated three months, one year and five to seven years after the surgical treatment. RESULTS: One year after surgery 71% of the women in the urethrocystopexy group reported that they were continent, compared with only 43% five to seven years after surgery. In the pubococcygeal repair group 80% were continent at one-year follow-up, compared with 60% at the long-term follow-up. According to pad test 79% of the women in the urethrocystopexy group had ceased leaking urine at minimal activity and 64% at maximal activity five to seven years after surgery.

However, in the pubococcygeal repair group the corresponding percentage was 71% under both conditions. Intravesical pressure and Body Mass Index increased significantly in the whole group but urethra conductance and maximal urine flow decreased only in the urethrocystopexy group five to seven years after the surgical treatment. CONCLUSIONS: Accurate assessment of the results of any surgical treatment of stress urinary incontinence is difficult. During long term follow-up period significant changes may occur among the women, e.g. menopause and increase of Body Mass Index both predisposing to urinary incontinence.

Full Text:

Not Available

Hemostatic efficacy of fibrin sealant (human) on expanded poly-tetrafluoroethylene carotid patch angioplasty: a randomized clinical trial.

Authors: Jackson MR, Gillespie DL, Longenecker EG, Goff JM, Fiala LA, O'Donnell SD, Gomperts ED, Navalta LA, Hestlow T, Alving BM

Publication Date: 1999

Abstract:

PURPOSE: The efficacy of solvent-detergent-treated fibrin sealant (human [FSH]) for controlling anastomotic bleeding from expanded polytetrafluoroethylene (ePTFE) patch angioplasty during carotid endarterectomy was evaluated, and FSH was compared with thrombin-soaked gelatin sponge (Gelfoam; TSG). METHODS: The study was of a randomized, open-label, single-site, single-treatment, parallel design that took place in a referral center with hospitalized patients. Forty-seven adult patients (33 men, 14 women) underwent elective carotid endarterectomy. Patients were randomized to receive either FSH (N = 24) or TSG (N = 23). FSH was obtained as an investigational new drug. FSH was applied as a liquid by means of a dual-syringe technique. Heparin anticoagulation, patch thickness, and suture type were standardized. Two different needle sizes were used (CV-6, PT-13: N = 21 [FSH: N = 10, TSG: N = 11]; CV-6, PT-9: N = 26 [FSH: N = 14, TSG: N = 13]). The FSH or TSG was applied to the ePTFE patch, and then blood flow was restored through the carotid artery. Degree of anticoagulation was assessed by anti-factor Xa activity. The time from restoration of carotid blood flow until achieving hemostasis was recorded. The blood loss from patch suture hole bleeding was measured. Completion intraoperative duplex ultrasound scanning was performed in all cases. Heparin was reversed with protamine sulfate. The primary end point was successful hemostasis within 15 minutes of restoration of carotid blood flow. The secondary end points were the amount of blood loss caused by suture line bleeding and the time to achieve hemostasis. RESULTS: There was no difference in the number of patients with complete hemostasis at 15 minutes (TSG, 13 of 23; FSH, 12 of 24; P =.77). The measured blood loss was 99.0 +/- 119.9 (SD) mL for TSG, and 105.0 +/- 107.9 mL for FSH (P =.86). The time to hemostasis was the same for both groups (TSG, 16.5 +/- 16.5 minutes; FSH, 16.6 +/- 14.2 minutes; P =.97). Within both treatment groups, the use of larger needles (PT-13) was associated with greater blood loss (FSH, 169.7 +/- 124.2 mL; TSG, 172.7 +/- 151.5 mL) than was the use of smaller needles (PT-9; FSH, 58.8 +/- 66.3 mL; TSG, 34.1 +/- 25.6 mL; P =.036, P =.001, respectively). There were no postoperative strokes or bleeding complications in either group. No abnormalities were shown in either group by means of completion carotid duplex ultrasound scanning. CONCLUSION: FSH was

equivalent, but not superior to, TSG in achieving hemostasis during carotid endarterectomy performed with ePTFE patch angioplasty. Adhesion properties of FSH to ePTFE are possibly different than those to native tissue and warrant additional investigation.

Full Text:

Not Available

A prospective randomized double-blind trial of fibrin glue for pain and bleeding after tonsillectomy.

Authors: Stoeckli SJ, Moe KS, Huber A, Schmid S

Publication Date: 1999

Abstract:

OBJECTIVES: The notable morbidity of tonsillectomy includes considerable postoperative pain and a rate of postoperative bleeding that have remained largely uninfluenced by modern surgical techniques or medication. Fibrin glue is known to have a hemostatic effect in some settings, and there is research suggesting it may also reduce postoperative pain. The objectives of this study were to evaluate the effect of fibrin glue on pain and bleeding after tonsillectomy. STUDY DESIGN: A prospective randomized double-blind study was performed on 50 consecutive adult patients undergoing tonsillectomy for chronic tonsillitis. METHODS: After removal of both tonsils the tonsillar fossa randomly assigned to the treatment protocol was coated with fibrin glue. The other side was left unaltered. The patient was then monitored for postoperative bleeding and wound healing, and a patient-based pain assessment instrument was used to evaluate symptoms every 8 hours for 10 days after surgery. RESULTS: Detailed evaluation of the pain scores allowed the authors to create a pain profile for what the typical patient experiences over the first 10 postoperative days, as well as during the course of a single day. The pain remains relatively constant for the first 7 days and begins to decrease only on the eighth postoperative day. During a single day there is increased pain in the morning compared with noon and evening. However, no statistically significant difference was detected in postoperative pain, bleeding, or healing between the wounds treated with fibrin glue and controls. CONCLUSIONS: The patient-based pain evaluation data should aid the physician in preoperative outcome counselling and targeted prescription of pain medication. However, contrary to previous indications, the authors cannot substantiate a significant beneficial effect of fibrin glue in postoperative pain control. Furthermore, we did not find its action as a hemostatic agent clinically applicable in this setting, and thus find no indication for the routine use of fibrin glue in tonsillectomy.

Full Text:

Not Available

Epidural fibrin glue injection stops persistent cerebrospinal fluid leak during long-term intrathecal

catheterization.

Authors: Gerritse BM, van Dongen RT, Crul BJ

Publication Date: 1997

Abstract:

Not Available

Full Text:

Not Available

Delayed vasal reanastomosis in rats: comparison of a microsurgical technique and a fibrin-glued procedure.

Authors: Vankemmel O, Rigot JM, Burnouf T, Mazeman E

Publication Date: 1996

Abstract:

OBJECTIVES: To compare fibrin-glued vasovasostomy to a conventional microsurgical technique in a protocol of delayed vasovasostomy. MATERIALS AND METHODS: Forty male Sprague-Dawley rats underwent bilateral vasectomy through a midline abdominal incision. Two weeks later all animals underwent a bilateral vasectomy reversal through a bilateral inguino-scrotal incision, following two different protocols. Invariably, the proximal segment had a larger lumen. The control group (20 rats) had a conventional modified one-layer sutured vasal anastomosis with 10/0 nylon. The experimental group (20 rats) underwent vasal anastomosis using fibrin glue and consisting of three transmural sutures with 10/0 nylon followed by the application of fibrin glue circumferentially to seal the anastomosis. The fibrin-tissue adhesive was obtained from pooled donor plasma and was virally inactivated by a solvent-detergent treatment. Seven weeks after surgery all animals were killed and the vasal specimens were evaluated for gross patency and the incidence of sperm granuloma. RESULTS: The control group had a patency rate of 85% and half had sperm granuloma. The experimental group had a patency rate of 92% and 40% had sperm granuloma; neither difference was significant. The mean operative time was significantly shorter for the fibrin glue-assisted vasovasostomy ($P < 0.001$). CONCLUSION: This study showed that a delayed fibrin-glued vasovasostomy gave a comparable anatomical success and an incidence of sperm granuloma similar to that using a conventional microsurgical technique, but with the advantages of a shorter operative time and a less technically demanding anastomosis.

Full Text:

Not Available

[Endoscopic therapy in acute hemorrhage caused by duodenal diverticula]. [German]

Authors: Johanns W, Jakobeit C, Greiner L

Publication Date: 1996

Abstract:

HISTORY AND CLINICAL FINDINGS: A 70-year-old previously healthy woman had been feeling nauseous for one day and had passed several liquid tarry stools. A barium meal previously done as an out-patient had shown a duodenal diverticulum 3.5 cm in diameter with marked contrast-medium retention. Her general condition was impaired, her skin pale and cold, while heart rate and blood pressure were normal. Rectal examination confirmed tarry stool and thus suggested upper gastrointestinal bleeding, the contrast-medium retention pointing to the duodenal diverticulum as a likely site. INVESTIGATIONS: Haemoglobin concentration was 9.1 g/dl, the haematocrit 26.6%. Total protein was reduced to 4.4 g/dl. Esophagogastroduodenoscopy (performed about 10 hours after the barium meal) showed erosion at the duodenal bulb and contrast retention in the juxtapapillary diverticulum, but no acute bleeding was discovered. TREATMENT AND COURSE: Repeat endoscopy on the following day revealed acute bleeding (Forrest stage Ia) from an arterial stump in the diverticulum. It was stopped with local injection of adrenaline (6 ml of 1:10,000 solution) and fibrin glue, but the injections had to be repeated twice. Another endoscopy 30 days after the first showed merely a mucosal scar. CONCLUSION: Early endoscopy enables one to make the diagnosis and to provide minimally invasive treatment of bleeding from a duodenal diverticulum.

Full Text:

Not Available

Comparison of vasovasostomy techniques in rats utilizing conventional microsurgical suture, carbon dioxide laser, and fibrin tissue adhesives.

Authors: Ball RA, Steinberg J, Wilson LA, Loughlin KR

Publication Date: 1993

Abstract:

An evaluation of vas reanastomoses in rats comparing suture only, carbon dioxide (CO2) laser-assisted, and fibrin-based tissue adhesive was performed in our laboratory. A cohort of 60 known fertile male Sprague Dawley rats initially underwent lower midline abdominal exploration and transection of their vas deferens bilaterally, followed by immediate microsurgical vasovasostomy by

one of the three experimental methods. All groups initially had the severed vasa ends coapted by two or three transmural (mucosa through serosa) sutures of 10-0 nylon under an operating microscope. The conventionally sutured group had an additional four to six nylon 10-0 sutures placed externally in the serosa only to complete the anastomosis. The CO2 laser-assisted group underwent laser welding with denaturation of the serosa to seal the anastomosis. A fibrin-based tissue adhesive, produced by combining human cryoprecipitate and thrombin, was placed topically over the coapted vas ends to seal the anastomosis in the third group. Postoperative evaluation revealed similarities among the three surgical groups with the fibrin-based tissue adhesive group resulting in the highest patency rate (89%) and pregnancy rate (85%) as well as the lowest granulation rate (18%) and shortest operative time (27 minutes). The laser-assisted group resulted in the lowest pregnancy rate (68%), while the sewn anastomosis group had the lowest patency rate (76%). Both laser-assisted and conventionally sewn vasectomy reversals required significantly longer operative time (39 and 46 minutes, respectively) compared with the fibrin-based tissue adhesive-assisted procedures ($p < 0.01$). This study provides evidence that alternative microsurgical techniques may be utilized to perform uncomplicated, expeditious, and successful vasectomy reversals.

Full Text:

Not Available

Collagen repair not improved by fibrin adhesive. Cruciate ligament ruptures studied in dogs.

Authors: Lazovic D, Messner K

Publication Date: 1993

Abstract:

The anterior cruciate ligament in 30 dogs was transected and repaired by simple suture. In every other dog, fibrin adhesive (Tisseel Kit, Immuno AG, Vienna, Austria) was applied to the transection area before suturing. The proportion of organized versus unorganized and inflammatory tissue formation was assessed histologically. At 3 weeks, the amount of normal organized collagenous tissue was reduced to 20 percent both without and with fibrin adhesive. After 6 weeks, a substantial increase of organized collagenous tissue was observed after suture only, which at 12 weeks reached about 70 percent of the total area. In contrast, repair with fibrin adhesive had at 12 weeks only 30 percent of normal collagenous tissue.

Full Text:

Not Available

Arthroscopic meniscal repair with fibrin glue.

Authors: Ishimura M, Tamai S, Fujisawa Y

Publication Date: 1991

Abstract:

Since 1984 we have arthroscopically repaired 40 meniscal tears in 32 patients using fibrin glue in our operative technique. This technique was reported initially in 1985 (Ishimura M, Samma M, Habata T, Fujisawa Y. The use of fibrin glue for fresh knee injury. Cent Jpn Orthop Traumat 1985; 28:1404-8), with a more detailed study published in 1987 [Ishimura M, Samma M, Fujisawa Y, et al. Arthroscopic repair of the meniscus tears with fibrin glue. Arthroscopy (Jpn) 1987;12:31-6]. During the follow-up period, which ranged from 10 months to 6 years and 7 months (mean: 3 years and 8 months), only two patients complained of meniscal symptoms and underwent arthroscopic partial meniscectomy. Twenty patients with 25 repairs underwent repeat arthroscopy at an average of 5.7 months (range: 2 months-1 year and 2 months) after the initial repair. Twenty repairs were rated as good, four as fair, and one as poor by arthroscopic evaluation criteria. At present, the most appropriate use of this arthroscopic meniscal gluing technique is in tears in the posterior segment, which are difficult to suture without arthrotomy. Even a long tear with a stable reduced position can be expected to show good healing. When reduction of the tear is not stable, additional sutures should be used.

Full Text:

Not Available

The use of fibrin tissue glue in thyroid surgery: resource utilization implications.

Authors: Matthews TW, Briant TD

Publication Date: 1991

Abstract:

Current hospital resource limitations prompted efforts to shorten the postoperative in-hospital recovery time after thyroid and parathyroid surgery by hastening the removal of wound drains. Thirty patients' wounds were closed with fibrin tissue glue (Tisseel) and sutures. These were retrospectively compared with 30 randomly selected patients undergoing identical procedures and standard suture closures. Mean drainage the first postoperative night was 18 ml in the test group versus 39 ml in the controls. The average times to drain removal were 1.6 days and 2.2 days respectively. The mean test postoperative hospital stay was reduced by 0.9 days in test patients (2.8 days versus 3.7 days). There was no difference in the complication rate between the two groups. Using this technique, significant increases in the efficiency of resource utilization appear to be possible. A randomized prospective trial of fibrin glue versus traditional closure is required at this time to verify the usefulness of fibrin tissue glue in thyroid surgery.

Full Text:

Not Available

Alveolar ridge augmentation with hydroxylapatite using fibrin sealant for fixation. Part II: Clinical application.

Authors: Hotz G

Publication Date: 1991

Abstract:

The use of fibrin as a resorbable biological adhesive permits moulding of HA granules into individually shaped implants. The binder prevents dislocation of granules during delivery, and the moulded implants securely retain their shape until fibrous tissue ingrowth is complete. Three years of clinical experience have shown that, mouldable fibrin-bound HA has so far proved suitable as a bone substitute in preprosthetic as well as in plastic and reconstructive surgery.

Full Text:

Not Available

[The significance of the use of fibrin glue in complete cystectomy with urinary diversion]. [French]

Authors: Monsallier M, Mouriquand P, Desmettre O, Maquet JH, Perrin P

Publication Date: 1990

Abstract:

Two groups of 15 patients were submitted to radical cystoprostatectomy with urinary diversion. Was used in one group. Fibrin glue appears to be a valuable progress to improve the immediate follow-up of these patients, in terms of morbidity and the duration of parenteral assistance.

Full Text:

Not Available

Fibrin glue for pilonidal sinus disease. [Review]

Authors: Lund J, Tou S, Doleman B, Williams JP

Publication Date: 2017

Abstract:

BACKGROUND: Pilonidal sinus disease is a common condition that mainly affects young adults. This condition can cause significant pain and impairment of normal activities. No consensus currently exists on the optimum treatment for pilonidal sinus and current therapies have various advantages and disadvantages. Fibrin glue has emerged as a potential treatment as both monotherapy and an adjunct to surgery. OBJECTIVES: To assess the effects of fibrin glue alone or in combination with surgery compared with surgery alone in the treatment of pilonidal sinus disease. SEARCH METHODS: In December 2016 we searched: the Cochrane Wounds Specialised Register; CENTRAL; MEDLINE; Embase and CINAHL Plus. We also searched clinical trials registries and conference proceedings for ongoing and unpublished studies and scanned reference lists to identify additional studies. There were no restrictions with respect to language, date of publication or study setting. SELECTION CRITERIA: We included randomised controlled trials (RCTs) only. We included studies involving participants of all ages and studies conducted in any setting. We considered studies involving people with both new and recurrent pilonidal sinus. We included studies which evaluated fibrin glue monotherapy or as an adjunct to surgery. DATA COLLECTION AND ANALYSIS: Two study authors independently extracted data and assessed risk of bias. We used standard methods expected by Cochrane. MAIN RESULTS: We included four RCTs with 253 participants, all were at risk of bias. One unpublished study evaluated fibrin glue monotherapy compared with Bascom's procedure, two studies evaluated fibrin glue as an adjunct to Limberg flap and one study evaluated fibrin glue as an adjunct to Karydakis flap.For fibrin glue monotherapy compared with Bascom's procedure, there were no data available for the primary outcomes of time to healing and adverse events. There was low-quality evidence of less pain on day one after the procedure with fibrin glue monotherapy compared with Bascom's procedure (mean difference (MD) -2.50, 95% confidence interval (CI) -4.03 to -0.97) (evidence downgraded twice for risk of performance and detection bias). Fibrin glue may reduce the time taken to return to normal activities compared with Bascom's procedure (mean time 42 days with surgery and 7 days with glue, MD -34.80 days, 95% CI -66.82 days to -2.78 days) (very low-quality evidence, downgraded as above and for imprecision).Fibrin glue as an adjunct to the Limberg flap may reduce the healing time from 22 to 8 days compared with the Limberg flap alone (MD -13.95 days, 95% CI -16.76 days to -11.14 days) (very low-quality evidence, downgraded twice for risk of selection, performance and detection bias and imprecision). It is uncertain whether use of fibrin glue affects the incidence of postoperative seroma (an adverse event) (risk ratio (RR) 0.27, 95% CI 0.05 to 1.61; very low-quality evidence, downgraded twice for risk of selection, performance and detection bias and imprecision). There was low-quality evidence that fibrin glue, as an adjunct to Limberg flap, may reduce postoperative pain (median 2 versus 4; $P < 0.001$) and time to return to normal activities (median 8 days versus 17 days; $P < 0.001$). The addition of fibrin glue to the Limberg flap may reduce the length of hospital stay (MD -1.69 days, 95% CI -2.08 days to -1.29 days) (very low-quality evidence, downgraded twice for risk of selection, performance and detection bias and for unexplained heterogeneity).A single RCT evaluating fibrin glue as an adjunct to the Karydakis flap did not report data for the primary outcome of time to healing. It is uncertain whether fibrin glue with the Karydakis flap affects the incidence of postoperative seroma (adverse event) (RR 3.00, 95% CI 0.67 to 13.46) (very low-quality evidence, downgraded twice for risk of selection, performance and detection bias and for imprecision). Fibrin glue as an adjunct to Karydakis flap may reduce length of stay but this is highly uncertain (mean 2 days versus 3.7 days; $P < 0.001$, low-quality evidence downgraded twice for risk of selection, performance and detection bias). AUTHORS' CONCLUSIONS: Current evidence is uncertain regarding any benefits associated with fibrin glue either as monotherapy or as an adjunct to surgery for people with pilonidal sinus disease. We identified only four RCTs and each was small and at risk of bias resulting in very low-quality evidence for the primary outcomes of time to healing and adverse events. Future studies should enrol many more participants, ensure adequate randomisation and blinding, whilst measuring clinically relevant outcomes.

Full Text:

Not Available

A Case of Successful Therapy by Intrapleural Injection of Fibrin Glue for Chylothorax after Lung Transplantation for Lymphangioleiomyomatosis.

Authors: Oishi H, Hoshikawa Y, Sado T, Watanabe T, Sakurada A, Kondo T, Okada Y

Publication Date: 2017

Abstract:

A 37-year-old woman underwent bilateral lung transplantation for lymphangioleiomyomatosis. Dense pleural adhesions due to past pleurodesis for chylothorax were observed and dissected in both thoracic cavities. The patient developed chylothorax after transplant. Chylothorax in the right thoracic cavity was successfully treated by conventional pleurodesis; however, pleural effusion from the left thoracic cavity was not reduced. According to fluoroscopic images obtained by injecting a contrast medium through the chest tube, the remaining pleural space in the left thoracic cavity was small and localized in the lower region adjacent to the mediastinum. We opted to fill this space with fibrin glue; we injected fibrinogen and thrombin solution into the space through the chest tube. We performed fibrin glue treatment three times and pleural effusion was dramatically decreased. We removed the chest tube on day 107 post-transplant. No recurrent chylothorax has been recorded for 10 years after lung transplantation.

Full Text:

Not Available

The use of TisseelTM fibrin sealant in selective neck dissection--a retrospective study in a tertiary Head and Neck Surgery centre.

Authors: Mushi E, Kinshuck A, Svecova N, Schache A, Jones TM, Tandon S, Lancaster J

Publication Date: 2015

Abstract:

OBJECTIVES: To determine the feasibility of drain-free surgery in selective neck dissection (SND) by investigating the effects of the use of synthetic fibrin glue TisseelTM on the drain output and overall wound healing. STUDY DESIGN: Retrospective case review. SETTING: Tertiary referral unit in Head and Neck surgery. PARTICIPANTS: The case notes of 30 patients who had undergone SND in levels I to IV were examined and compared. Tisseel was applied prior to wound closure in fifteen patients only. MAIN OUTCOME MEASURES: Drain output, number of days of drain in situ and total number of days of hospitalisation as well as complications rate and type between the Tisseel and non-Tisseel groups.

RESULTS: Patients who had Tisseel applied in the wound had a mean drain output of 67.1 ml, which was significantly lower than 174.4 ml in patients who did not have it. Patients in the Tisseel group had the drain in situ for a shorter period and were hospitalised for fewer days than the ones in the non-Tisseel group. CONCLUSIONS: The use of Tisseel in SND resulted in lower drain output and shorter period of drain in situ and hospitalisation. There was no additional morbidity or complication associated with its use, and the initial conclusion is that this technique may have benefits not only to patient recovery but also for healthcare providers as they could potentially reduce the overall costs of surgery by reducing the length of hospital stay.

Full Text:

Not Available

Endoscopic tissue shielding with polyglycolic acid sheets, fibrin glue and clips to prevent delayed perforation after duodenal endoscopic resection.

Authors: Doyama H, Tominaga K, Yoshida N, Takemura K, Yamada S

Publication Date: 2014

Abstract:

The incidence of delayed perforation after endoscopic resection for superficial non-ampullary duodenal epithelial tumors is extremely high. Endoscopic tissue shielding with polyglycolic acid (PGA) sheets and fibrin glue is a promising method to prevent delayed perforation after endoscopic resection in the duodenum. However, we often encounter difficulty when covering an artificial ulcer with PGA sheets after endoscopic resection. We report three cases of postoperative ulcers covered by PGA sheets, fibrin glue, and clips.

Full Text:

Not Available

Intracranial facial nerve grafting after removal of vestibular schwannoma.

Authors: Bacciu A, Falcioni M, Pasanisi E, Di Lella F, Lauda L, Flanagan S, Sanna M

Publication Date: 2009

Abstract:

OBJECTIVE: The objectives of this study were to evaluate outcomes from facial nerve (FN) cable grafting in patients who experienced FN transection during vestibular schwannoma removal and to compare the FN outcomes of patients who underwent FN grafting by using fibrin glue with those of patients who underwent FN grafting by using microsuture. MATERIAL AND METHODS: We retrospectively evaluated a series of 33 patients in whom FN grafting was achieved either by using microsuture (8 cases) or fibrin glue (25 cases). Immediate repair of the FN was performed in all cases at the time of initial resection. The patients FN function was assessed preoperatively, in the immediate postoperative period, and at 3, 6, 9, and 12 months or more postoperatively using the House-Brackmann grading system. All patients had at least 1-year follow-up. RESULTS: At 12 months, a House-Brackmann grade III was achieved in 75% of those who underwent cable nerve graft interposition by using microsuture and in 76% of those who underwent cable nerve graft interposition by using fibrin glue. Analysis of final FN function outcomes demonstrated no statistically significant difference in FN outcomes between the 2 groups (P = .891, Mann-Whitney U test; P = .1, Fisher exact test). CONCLUSIONS: The functional results after FN cable grafting by using fibrin glue exclusively were equivalent to those obtained with microsuture. However, the technique of FN repair by means of fibrin glue is technically simple, less time-consuming, and imparts less trauma on the nerve than does the traditional suture method.

Full Text:

Not Available

Use of fibrin sealant in closing mucocutaneous fistulas following head and neck cancer surgery.

Authors: Farrag TY, Boahene KD, Agrawal N, Turner L, Byrne PJ, Earnest L, Koch WM, Tufano RP

Publication Date: 2007

Abstract:

Not Available

Full Text:

Not Available

Fibrin glue system for adjuvant brachytherapy of brain tumors with 188Re and 186Re-labeled microspheres.

Authors: Hafeli UO, Pauer GJ, Unnithan J, Prayson RA

Publication Date: 2007

Abstract:

Brain tumors such as glioblastoma reappear in their original location in almost 50% of cases. To prevent this recurrence, we developed a radiopharmaceutical system that consists of a gel applied immediately after surgical resection of a brain tumor to deliver local radiation booster doses. The gel, which strongly adheres to tissue in the treatment area, consists of fibrin glue containing the beta-emitters rhenium-188 and rhenium-186 in microsphere-bound form. Such microspheres can be prepared by short (2 h or less) neutron activation even in low neutron flux reactors, yielding a mixture of the two beta-emitters rhenium-188 (E(max)=2.1 MeV, half life=17 h) and rhenium-186 (E(max)=1.1 MeV, half life=90.6h). The dosimetry of this rhenium-188/rhenium-186 fibrin glue system was determined using gafchromic film measurements. The treatment efficacy of the radioactive fibrin glue was measured in a 9L-glioblastoma rat model. All animals receiving the non-radioactive fibrin glue died within 17+/-3 days, whereas 60% of the treated animals survived 36 days, the final length of the experiment. Control animals that were treated with the same amount of radioactive fibrin glue, but had not received a previous tumor cell injection, showed no toxic effects over one year. The beta-radiation emitting rhenium-188/rhenium-186-based gel thus provides an effective method of delivering high doses of local radiation to tumor tissue, particularly to wet areas where high adhesive strength and long-term radiation (with or without drug) delivery are needed.

Full Text:

Not Available

Effects of Tisseel and FloSeal on primary ischemic time in a rat fasciocutaneous free flap model.

Authors: Partsafas AW, Bascom DA, Jorgensen SA, Wax MK

Publication Date: 2004

Abstract:

OBJECTIVES: Free flaps are the technique of choice for reconstruction of defects resulting from extirpation of tumors of the head and neck. Advances in microsurgical technique have resulted in success rates of greater than 95%. Numerous intraoperative factors, ranging from technical issues to topically applied agents, can complicate the outcome of microsurgical free tissue transfer. Synthetic tissue adhesives and hemostatic agents are playing an ever-increasing role in reconstructive surgery. The safety of these factors in free flap surgery has not been ascertained. STUDY DESIGN: Animal Care Committee live rat model. METHODS: Male Sprague-Dawley rats were divided into three groups: group I, Control; group 2, FloSeal; group 3, Tisseel. In each group, a 3 x 6 cm ventral fasciocutaneous groin flap based on the left superficial epigastric artery was elevated and the experimental material applied beneath the flap and around the flap pedicle prior to suturing of the flap back to the wound bed. The experimental materials consisted of 0.2 mL saline in the control group, 0.5 mL FloSeal, and 0.2 mL Tisseel. In phase I of this study, the effect of each treatment on flap survival was assessed by survival at postoperative day 4. In phase II of the study, the effects of these agents on ischemic tolerance was investigated. Five rats in each treatment group were exposed to ischemic times of 6, 8, 10, and 12 hours. Survival of the flap was assessed 7 days after reversal of the ischemia. Probit curves and the critical ischemic time (CIT50) were calculated. RESULTS: All flaps survived the 2-hour period of ischemia and were viable at postoperative day 4. Flap survival from group 1 (Control), group 2

(FloSeal), and group 3 (Tisseel) at the various ischemic times was as follows: at 6 hours, 80%, 80%, and 80%, respectively; at 8 hours, 80%, 80%, 60%; at 10 hours, 60%, 33%, 40%; at 12 hours, 20%, 20%, 0%. The CIT50 for the Control, FloSeal, and Tisseel groups was 9.4, 9.0, and 7.0 hours, respectively.CONCLUSIONS FloSeal, a thrombin-based hemostatic agent, and Tisseel, a fibrin glue, displayed no adverse effect on flap survival in this model.

Full Text:

Not Available

Prevention of lymphorrhea by means of fibrin glue after axillary lymphadenectomy in breast cancer: prospective randomized trial.

Authors: Gilly FN, Francois Y, Sayag-Beaujard AC, Glehen O, Brachet A, Vignal J

Publication Date: 1998

Abstract:

A prospective randomized trial was carried out to evaluate the efficacy of fibrin glue in preventing lymphorrhea after axillary lymphadenectomy in breast cancer. One hundred and eight breast cancer patients, operated on by two senior surgeons, were randomized into two groups: group 1 (n = 58) without fibrin glue and group 2 (n = 50) with 2 ml of fibrin glue applied to the axillary dissection area at the end of the lymphadenectomy procedure. Early postoperative morbidity was 2/58 and 0/50 in groups 1 and 2, respectively. Mean daily postoperative drainage was significantly greater in group 1. The mean cumulative drainage quantity 6 days after the operation was 407.8 ml and 214.4 ml in groups 1 and 2, respectively (p = 0.001). The mean postoperative hospital stay was 10.1 days and 8.0 days in groups 1 and 2, respectively (p = 0.006). One delayed seroma was observed in each group. Fibrin glue seems to reduce daily postoperative drainage and hospital stay, but did not affect delayed seroma formation after axillary lymphadenectomy for breast cancer.

Full Text:

Not Available

Fibrin sealant reduces serous drainage and allows for earlier drain removal after axillary dissection: a randomized prospective trial.

Authors: Moore MM, Nguyen DH, Spotnitz WD

Publication Date: 1997

Abstract:

Fibrin sealant (FS) has been used successfully as an effective adhesive and hemostatic agent in a variety of surgical procedures. At the University of Virginia, autologous fibrin sealant is used to reduce the potential accumulation of serous fluid after axillary dissection in patients undergoing modified radical mastectomy (MRM) for carcinoma of the breast. Unilateral MRM, including level I and II axillary lymph node dissection, was performed upon 21 patients prospectively randomized into treatment and control groups. Surgical procedures between both groups differed only by the application of autologous FS prior to axilla closure in the treatment group. Drainage was collected and measured at 24-hour intervals following the operation. Drains were removed following the measurement of 40 ml or less during a 24-hour interval. Cumulative drainage for the first 3 postoperative days in the treatment group averaged 198 +/- 83 ml compared to 467 +/- 138 ml in the control group ($P < 0.0003$). Day of drain removal averaged 3.9 +/- 1.7 for the treatment group and 6.9 +/- 1.2 for the control group ($P < 0.0001$). In the treatment group, there was a reduction in cumulative drainage over the first 3 days of 268 ml or 57 per cent, and there was a reduction in the number of days before drains can be removed of 3.0 days, or 43 per cent. We conclude that local application of FS significantly reduced the total drainage measured in patients undergoing MRM and enabled earlier drain removal.

Full Text:

Not Available