Fibren

Fibrin glue

Authors: M Brennan, M Brennan

Publication Date: 1991 Dec;5(4):240-4.

Abstract:

Fibrin glue is a topical biological adhesive, the effect of which imitates the final stages of coagulation. The glue consists of a solution of concentrated human fibrinogen which is activated by the addition of bovine thrombin and calcium chloride. The resultant clot aids haemostasis and tissue sealing and is completely absorbed during wound healing without foreign body reaction or extensive fibrosis. The fibrinogen component of fibrin glue can be produced from fresh frozen plasma obtained from single unit donations thereby reducing the risks of transfusion transmitted infections encountered by exposure to pools from large numbers of donors. Methods involving precipitation of fibrinogen by cryoprecipitation, polyethylene glycol or ammonium sulphate have been described and evaluated. The risk of transmission of infection can be further reduced by using plasma from 'accredited donors' who are plasma donors regularly tested for ALT and markers of viral infection or by use of fibrinogen prepared in advance of surgery from autologous blood. The second component, a mixture of thrombin and CaCl2, is quantitatively and qualitatively well defined and commercially available (Armour Pharmaceutical Co., Thrombinar (bovine thrombin]. Thrombin is applied to the operation site simultaneously and in equal volume to the fibrinogen but from a separate syringe. In the UK a commercial heat treated fibrin glue prepared from pooled plasma is available on a doctor/named patient basis (Tisseel, Immuno, Vienna). The haemostatic and adhesive properties of fibrin glue can be employed in virtually every surgical specialty. The usefulness of the glue is particularly well documented in the fields of cardiovascular surgery, ENT and neurosurgery.(ABSTRACT TRUNCATED AT 250 WORDS)

Full Text:

Not Available

Fibrin glue for pilonidal sinus disease

Authors: Jon Lund, Samson Tou, Brett Doleman, John P Williams, Jon Lund, Samson Tou, Brett Doleman, John P Williams

Publication Date: 2017 Jan 13

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

Fibrin glue for local haemostasis in haemophilia surgery

Authors: E Carlos Rodriguez-Merchan, E Carlos Rodriguez-Merchan

Publication Date: 2017 Dec;45(5):187-191.

Abstract:

Introduction:Local fibrin glue (FG) appears to be a useful local haemostatic agent for severe haemorrhage in people with haemophilia (PWH) undergoing surgical procedures. Aim:To evaluate the role of local FG in PWH. Methods:A review of the literature on the topic has been performed. Results:Local FG is not always necessary to achieve haemostasis in all surgical procedures performed in PWH. However, it could be a good adjunct therapy, primarily when a surgical field will bleed more than expected (e.g. patients with inhibitors), and also for circumcisions, dental extractions, and surgical treatment of pseudotumours. Conclusions:Although correct surgical haemostasis can typically be achieved by the infusion of factor concentrate at the adequate dose, my recommendation for surgeons is always to have local FG by their side. Local FG appears to be an effective adjunctive therapy for cases in which bleeding is likely (e.g. patients with inhibitors), and for circumcisions, oral surgery, and treatment of pseudotumours. Through the use of local FG, the doses of factor concentrate necessary to prevent bleeding could be reduced, providing considerable cost savings.

Full Text:

Not Available

Fibrin glue in ophthalmology

Authors: Anita Panda, Sandeep Kumar, Abhiyan Kumar, Raseena Bansal, Shibal Bhartiya, Anita Panda, Sandeep Kumar, Abhiyan Kumar, Raseena Bansal, Shibal Bhartiya

Publication Date: 2009 Sep-Oct;57(5):371-9.

Abstract:

Suturing is a time consuming task in ophthalmology and suture induced irritation and redness are frequent problems. Postoperative wound infection and corneal graft rejection are examples of possible suture related complications. To prevent these complications, ophthalmic surgeons are switching to sutureless surgery. A number of recent developments have established tissue adhesives like cyanoacrylate glue and fibrin glue as attractive alternatives to sutures. A possible and promising new application for tissue adhesives is to provide a platform for tissue engineering. Currently, tissue glue is being used for conjunctival closure following pterygium and strabismus surgery, forniceal reconstruction surgery, amniotic membrane transplantation, lamellar corneal grafting, closure of corneal perforations and descematoceles, management of conjunctival wound leaks after trabeculectomy, lid surgery, adnexal surgery and as a hemostat to minimise bleeding. The purpose of this review is to discuss the currently available information on fibrin glue.

Full Text:

Not Available

Fibrin glue versus sutures for conjunctival autografting in primary pterygium surgery

Authors: Vito Romano, Mario Cruciani, Luigi Conti, Luigi Fontana, Vito Romano, Mario Cruciani, Luigi Conti, Luigi Fontana

Publication Date: 2016 Dec 2;12(12):CD011308.

Abstract:

Background:Pterygium, a growth of the conjunctiva over the cornea, is a progressive disease leading in advanced stages to visual impairment, restriction of ocular motility, chronic inflammation and cosmetic concerns. Surgical removal is the treatment of choice, but recurrence can be a problem. Currently the best surgical option in terms of recurrence is conjunctival autograft. To date the most common surgical methods of attaching conjunctival autografts to the sclera are through suturing or fibrin glue. Each method presents its own advantages and disadvantages. Sutures require considerable skill from the surgeon and can be associated with a prolonged operation time, postoperative discomfort and suture-related complications, whereas fibrin glue may give a decreased operation time, improve postoperative comfort and avoid suture-related problems. Objectives:To assess the effectiveness of fibrin glue compared to sutures in conjunctival autografting for the surgical treatment of pterygium. Search methods:We searched CENTRAL (which contains the Cochrane Eyes and Vision Trials Register) (2016, Issue 9), Ovid MEDLINE, Ovid MEDLINE In-Process and Other Non-Indexed Citations, Ovid MEDLINE Daily, Ovid OLDMEDLINE (January 1946 to October 2016), Embase (January 1980 to October 2016), the ISRCTN registry (www.isrctn.com/editAdvancedSearch), ClinicalTrials.gov (www.clinicaltrials.gov), and the World Health Organization (WHO) International Clinical Trials Registry Platform (ICTRP) (www.who.int/ictrp/search/en). We did not use any date or language restrictions in the electronic searches for trials. We last searched the electronic databases on 14 October 2016. Selection criteria:We included randomised controlled trials (RCTs) in any setting where fibrin glue was compared with sutures to treat people with pterygium. Data collection and analysis:Two review authors independently screened the search results, assessed trial quality, and extracted data using standard methodological procedures expected by Cochrane. Our primary outcome was recurrence of pterygium defined as any re-growth of tissue from the area of excision across the limbus onto the cornea. The secondary outcomes were surgical time and complication rate. We graded the certainty of the evidence using GRADE. Main results:We included 14 RCTs conducted in Brazil, China, Egypt, India, Malaysia, New Zealand, Philippines, Saudi Arabia, Sweden and Turkey. The trials were published between 2004 and 2016, and were assessed as a mixture of unclear and low risk of bias with three studies at high risk of attrition bias. Only adults were enrolled in these studies.Using fibrin glue for the conjunctival autograft may result in less recurrence of pterygium compared with using sutures (risk ratio (RR) 0.47, 95% CI 0.27 to 0.82, 762 eyes, 12 RCTs; low-certainty evidence). If pterygium recurs after approximately 10 in every 100 surgeries with sutures, then using fibrin glue may result in approximately 5 fewer cases of recurrence in every 100 surgeries (95% CI 2 fewer to 7 fewer cases). Using fibrin glue may lead to more complications compared with sutures (RR 1.92; 95% CI 1.22 to 3.02, 11 RCTs, 673 eyes, low-certainty evidence). The most common complications reported were: graft dehiscence, graft retraction and granuloma. On average using fibrin glue may mean that surgery is quicker compared with suturing (mean difference (MD) -17.01 minutes 95% CI -20.56 to -13.46), 9 RCTs, 614 eyes, low-certainty evidence). Authors' conclusions:The meta-analyses, conducted on people with pterygium in a hospital or outpatient setting, show fibrin glue may result in less recurrence and may take less time than sutures for fixing the conjunctival graft in place during pterygium surgery. There was low-certainty evidence to suggest a higher proportion of complications in the fibrin glue

group.

Full Text:

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Fibrin Glue and Conduit Form a Composite Structure in Digital Nerve Repair

Authors: Patrick J Schimoler, David Pope, Alexander Kharlamov, Peter Tang, Mark Carl Miller, Patrick J Schimoler, David Pope, Alexander Kharlamov, Peter Tang, Mark Carl Miller

Publication Date: 2022 Jan 1;144(1):011010.

Abstract:

Repair of severed nerves without autograft or allograft has included suture, suture with glue alone, suture with conduit and suture with glue augmentation to conduit, where use of conduit is considered for separation of the nerve ends from 5 mm to 3 cm. Repairs must not only serve acutely to provide apposition of nerve ends but must enable the healing of the nerve. Using biological conduit can place suture at the ends of the conduit while fibrin glue alone eliminates suture but with limited strength. The combination of conduit and glue offers the growth guidance of conduit with sufficient strength from the glue to maintain the nerve within the conduit. The role of fibrin glue in the integrity of the repair remains an open question, however. We sought to determine the factors in the strength of a glue-conduit-nerve construct and include consideration of standard suture repair. Fresh-frozen cadaveric digital nerves were repaired with suture alone, with glue alone or with suture and glue together and then loaded to failure. Previously tested specimens with conduit, suture and glue were considered for comparison. The suture alone (2.02 N) and suture with glue (2.24 N) were not statistically different from each other but were statistically stronger than glue alone (0.15 N). When compared to the earlier results of the strength of conduit with glue (0.65 N), these simple results show that the glue and conduit act together. The increased area over which the glue adheres to the nerve and conduit creates a composite structure stronger than either alone.

Full Text:

Not Available

Fibrin glue

Authors: H I Atrah, H I Atrah

Publication Date: 1994 Apr 9;308(6934):933-4.

Abstract:

Not Available

Full Text:

Not Available

Dacryocystectomy: A fibrin glue-assisted subfascial excision

Authors: Jessica Y Tong, Dinesh Selva, Jessica Y Tong, Dinesh Selva

Publication Date: 2023 May;71(5):2260-2262.

Abstract:

This article describes a technique of dacryocystectomy involving dissection within the subfascial plane, in which the lacrimal sac fascia is preserved and the orbital fat remains undisturbed. The lacrimal sac cavity was directly injected with Tisseel fibrin glue mixed with trypan blue. This led to sac distension and facilitated its separation from surrounding periosteal and fascial attachments. Staining the lacrimal sac epithelium improved definition of the mucosal lining. Transverse sections of the lacrimal sac specimen were histologically analyzed, which confirmed that dissection was completed within a subfascial plane. The technique herein described facilitates en bloc excision of the lacrimal sac without breaching the fascial plane that separates the sac from orbital fat.

Full Text:

Not Available

Fibrin Glue-Assisted Hemostasis during Proliferative Diabetic Retinopathy Surgery

Authors: Brijesh Takkar, Mudit Tyagi, Brijesh Takkar, Mudit Tyagi

Publication Date: 2023 Dec;7(12):1126.

Abstract:

Not Available

Full Text:

Not Available

A systematic review and meta-analysis on the use of fibrin glue in peripheral nerve repair: Can we just glue it?

Authors: Jaimy E Koopman, Liron S Duraku, Tim de Jong, Rob B M de Vries, J Michiel Zuidam, Caroline A Hundepool, Jaimy E Koopman, Liron S Duraku, Tim de Jong, Rob B M de Vries, J Michiel Zuidam, Caroline A Hundepool

Publication Date: 2022 Mar;75(3):1018-1033.

Abstract:

Background:Within the field of peripheral nerve surgery, the use of fibrin glue as an alternative to conventional microsurgical suture repair is becoming increasingly popular. Advantages of fibrin glue for nerve reconstruction include technical ease of use, less tissue manipulation, and shorter operation times. Although fibrin glue seems a promising alternative to conventional microsurgical repair, further insight into the outcomes of nerve recovery is essential. Objective:To summarize the current literature on the use of fibrin glue for peripheral nerve repair and compare these results with outcomes following conventional suture repair. Methods:A systematic search in Embase, MEDLINE, Web of Science, Cochrane, and Google Scholar databases was performed. The search included animal, cadaveric, and human studies assessing outcomes following peripheral nerve repair using fibrin glue. Data on outcomes were subdivided into functional outcomes, electrophysiology, histopathology, biomechanical outcomes, and operation times. We calculated standardized mean differences and combined these in a random effects model to estimate the overall effect. Results:From a total of 2057 references, 37 animal, two cadaveric, and four human studies were included. Fibrin glue repairs resulted in similar functional and electrophysiology outcomes and shorter operation times than suture repairs. However, fibrin glue alone resulted in lower strength and more dehiscence. No dehiscence was reported when fibrin glue was combined with one or two sutures. Yet, we also found that methodological details were poorly reported in animal studies, resulting in an unclear risk of bias. This should be taken into consideration when interpreting the results. Conclusion:The results indicate that nerve regeneration may be similar in fibrin glue repairs and suture repairs. Combining fibrin glue with one or two positional sutures allows for a precise realignment of the nerve fibers and seems to provide sufficient strength to prevent dehiscence.

Full Text:

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