

Does the absorbable fibrin adhesive bandage facilitate partial nephrectomy?.

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Abstract:

Purpose: To evaluate the ability of the absorbable fibrin adhesive bandage (AFAB), a prototype product comprising lyophilized fibrinogen and thrombin on a Vicryl(TM) mesh backing, to seal the collecting system and control bleeding after partial nephrectomy. Materials and Methods: Growing female pigs (n = 18) underwent left nephrectomy and a 40% (by length) right lower pole partial nephrectomy. One of three treatments was immediately applied: Conventional-closure of the collecting system, ligation of visible segmental vessels, application of Surgicel(TM) with bolstering sutures to the renal capsule; AFAB-application of up to two 4 x 4-inch AFABs held under pressure for 60 seconds; Placebo-application of a hemostatically inert Vicryl(TM) bandage, visually identical to the AFAB. Blood loss and ischemic and total operative times were recorded, and abdominal computerized tomography (CT) was performed on postoperative day 6. Animals were sacrificed at 6 weeks to evaluate the remaining renal mass histologically. Results: Compared with conventional therapy, use of the AFAB resulted in significantly less bleeding (13 versus 68 ml., $p < 0.001$) and lower operative (7.2 versus 16.3 minutes, $p < 0.001$) and ischemic times (3.4 versus 7.8 minutes, $p < 0.001$). Estimated blood loss in the placebo bandage group was dramatically higher (357 ml., $p < 0.001$). Postoperative CT and histological sectioning suggested that the AFAB produces a stable, durable clot and that healing is at least as successful as with conventional treatment. Conclusion: Use of the AFAB facilitated performance of partial nephrectomy by reducing blood loss and ischemic and total operative times. The AFAB appears equivalent to conventional surgery in its ability to seal

the collecting system.