

A combination of hemostatic agents may safely replace deep medullary suture during laparoscopic partial nephrectomy in a pig model.

Authors: Ploussard G, Haddad R, Loutochin O, Bera R, Cabrera T, Malibari N, Scarlata E, Derbekyan V, Bladou F, Anidjar M

Publication Date: 2015

Abstract:

PURPOSE: We assessed whether a combination of the fibrin tissue adhesive Tisseel (human fibrinogen and thrombin) plus the hemostatic matrix FloSeal (bovine derived gelatin matrix/human thrombin) could safely replace the conventional deep medullary suture without compromising outcomes.

MATERIALS AND METHODS: Laparoscopic mid pole and one-third partial nephrectomy was performed on the right kidney of 12 female pigs. The only difference between the 2 groups of 6 pigs each was the use of a fibrin tissue adhesive plus hemostatic matrix combination in group 2 instead of the deep medullary running suture in control group 1. Renal scans and angiograms were performed at baseline and before sacrifice at 5-week followup. Retrograde in vivo pyelogram was also done.

RESULTS: No significant difference was seen in operative parameters or postoperative course between the groups. Renal scans revealed a statistically insignificant trend toward greater uptake loss in group 1 and angiograms showed 3 major vessel occlusions in that group. No active bleeding was detected. Those 3 kidneys had significantly poorer postoperative uptake on renal scan than that of other kidneys (18.6% vs 39.4%, $p = 0.013$). Only 1 small asymptomatic pseudoaneurysm was

noted in group 1. No urine leakage was found in either group. No major vessel occlusion, pseudoaneurysm or urinary complications developed in group 2.

CONCLUSIONS: Even after deep one-third partial nephrectomy FloSeal with concurrent Tisseel appeared sufficient to control major medullary vascular injuries and replace the deep medullary conventional suture without compromising operative outcomes. The potential advantages seen during functional and vascular examinations by decreasing the risk of unnecessary segmental vessel occlusion need further clinical evaluation.

Copyright © 2015 American Urological Association Education and Research, Inc. Published by Elsevier Inc. All rights reserved.