

Creation of a Ureteropelvic Junction Obstruction and Its Correction by Chemical Glue-Assisted Laparoscopic Dismembered Pyeloplasty

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摘要

Abstract

PURPOSE: We established a porcine model of ureteropelvic junction (UPJ) obstruction using a laparoscopic technique and assessed the outcome of standard suture-assisted and chemical glue-assisted laparoscopic pyeloplasty. **MATERIALS AND METHODS:** Female domestic pigs (N = 20) underwent laparoscopic suture-ligature to create UPJ obstruction. One month later, laparoscopic end-to-end anastomosis was performed to correct the obstruction: with standard suturing techniques in 10 animals and with chemical (cyanoacrylate) glue in the other 10. Postoperative ureteral stents were not used. Four weeks postoperatively, intravenous urography was performed to evaluate the patency of the anastomoses. The UPJ was procured by laparotomy to assess the anastomoses and periureteral fibrosis histologically. **RESULTS:** The UPJ obstruction was created in an average of 15 +/- 6 minutes. There was no early postoperative mortality. Eighteen pigs survived for at least 1 month, and UPJ obstruction developed in 17 (95%). Microscopically, the lumen of the UPJ was partially occluded, measuring an average of 40% +/- 5% of normal. After laparoscopic correction, a patent UPJ was found in seven of nine animals treated with traditional sutures. Among the eight animals with chemically glued anastomoses, none had a patent UPJ, and severe periureteral adhesions and intraluminal fibrosis were noted at the pyeloplasty site. Marked ureteral tortuosity was present in six of the eight pigs receiving glue-assisted pyeloplasty but in none of the animals having suture-assisted pyeloplasty. **CONCLUSIONS:** Ureteropelvic junction obstruction was established by laparoscopic suture-ligature in a porcine model with a 95% success rate. Chemical glue-assisted anastomosis was inferior to standard laparoscopic sutures for pyeloplasty to correct the obstruction.