

ENDOUROLOGY & LAPAROSCOPY

Laparoscopic transuterine fetal vesicostomy: a feasibility study

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Purpose: We evaluate the feasibility of applying minimally invasive techniques for fetal vesicostomy. We also evaluate whether transuterine fetal vesicostomy can be performed laparoscopically.

Materials and Methods: A total of 25 pregnant ewes were time dated at approximately 90 days of gestation. With the animals under general anesthesia a low open abdominal incision was made and the uterus was brought out through the incision. With a 14 gauge needle the amniotic sac was filled with 1 to 2 L warm glycine. Three to 4, 5/12 blunt tip balloon trocars were placed in the uterus. Using laparoscopic techniques, a low transverse incision was made in the fetal abdomen, the bladder was opened at the dome and 2 running sutures were placed approximating the fetal abdominal wall to the edge of the fetal bladder. The trocar sites in the uterus were closed, and the maternal abdominal incision was closed.

Results: Of the 25 pregnant ewes the technique was developed in the initial 15. In the subsequent 10 animals the complete procedure was accomplished successfully. Following these 10 procedures 5 abortions occurred on postoperative day 2, and there was 1 intrauterine fetal demise. Three fetuses were alive and delivered by cesarean section on postoperative days 10, 30 and 31. In the first fetus in which we used an interrupted suture for the vesicostomy a large hernia was noted at the vesicostomy site. The other 2 fetuses had a patent, well healed vesicostomy and were alive at cesarean section delivery on postoperative days 10 and 31. The last fetus was allowed to deliver at term by standard vaginal delivery. The fetus was alive and well, and the vesicostomy had strictured down to a pinhole in size, which was not unexpected as it was not an obstructed model.

Conclusions: Although technically challenging, transuterine laparoscopic fetal vesicostomy is technically feasible in the ewe model. Continued evaluation of this technique should include intensive fetal monitoring and the use of tocolytics to decrease the incidence of spontaneous abortion.

Editorial Comment

Fetal bilateral hydronephrosis with oligohydramnios is an indication for evaluation and potential fetal intervention. Currently, when fetal lungs are immature with good renal function, vesical decompression can be performed in utero percutaneously with the placement of a shunt (stent) but the results are suboptimal due to malfunction of the stents often requiring manipulation or replacement.

The authors studied the feasibility of laparoscopic technique to perform transuterine fetal vesicostomy using an animal model.

Interesting technical aspects should be noted; i.e., the exchange of the amniotic fluid with warm glycine to optimize visualization and cauterization, the use of blunt tip balloon trocar to prevent fluid leakage through port sites and closure of port sites with endoscopic gastrointestinal anastomosis staplers. Clearly, the development of this technique required several steps including a significant number of animals culminating with 1 strictured and 2 well healed patent vesicostomies. The authors should be congratulated for the well designed and pioneering study.

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Transperitoneal or extraperitoneal laparoscopic radical prostatectomy: does the approach matter?

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Purpose: The greater accuracy of apical dissection and reconstruction in our first 100 patients undergoing transperitoneal laparoscopic radical prostatectomy (TLRP) was not matched by a proportionate increase in the rate of return to normal continence compared with our prior open prostatectomy experience. We postulated that greater bladder dysfunction due to the almost total bladder dissection mandated by TLRP might be responsible and this might be rectified by the adoption of laparoscopic radical prostatectomy using an extraperitoneal approach (ELRP).

Materials and Methods: A total of 100 patients undergoing TLRP were compared with 100 undergoing ELRP. The groups were subdivided into halves to investigate the influence of any learning curve effect. All patients had clinical stage T3aN0M0 or less prostate cancer and they were operated on by a single surgeon.

Results: Mean operative time (238.9 vs. 190.6 minutes), blood loss (310.5 vs. 201.5 ml), postoperative hospitalization (3.8 vs. 2.6 nights) and catheterization duration (11.3 vs. 10.1 days) were significantly greater in the TLRP group. After the first 50 cases were excluded in each group statistical significance persisted only for operative time (218.3 vs. 184.2 minutes) and hospitalization (3.5 vs. 2.5 nights). The pad-free rate was significantly lower 3 months following ELRP (80% vs. 56%, $p = 0.02$). The overall 12-month pad-free rate for TLRP and ELRP was 90% and 96%, respectively. The overall 12-month erection rate for TLRP and ELRP was 61% and 82%, respectively.

Conclusions: ELRP is superior to TLRP with respect to operative time, hospitalization and early continence.

Editorial Comment

Since Guillonneau & Vallancien first described their successful series of transperitoneal laparoscopic radical prostatectomy this procedure disseminated world-wide.

Recently, few other centers developed the extraperitoneal technique mimicking the open approach. Although the anatomical features are more familiar to the surgeon the working operative space is more limited. Conversely, the ELRP can be performed with the patient in supine position and potentially decreases the incidence of ileus since the peritoneum is not violated.

Important points discussed in this manuscript: 1) LRP should be taught by a mentor/proctorship program, 2) Surgeons performing LRP must have enough experience with radical prostatectomies anatomical variations and its complications (more than 50 cases yearly), 3) According with the authors bladder mobilization in the TLRP group affected patients early urinary continence recovery compared to the ELRP. The authors tried to remove other factors out of the equation, i.e.; learning curve, prior obstructive problems and surgeries. The overall rate of positive margins were the same revealing that the dissection was performed uniformly in terms of technique but question remains if the last group of ELRP patients with higher clinical stage prostate cancer and higher positive margin rate had more incontinence than the rest. Certainly the observations are intriguing and provoking but better delineation of the pathophysiology is needed.

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