GH + E(2). The treatment groups received daily subcutaneous injections for 3 weeks. The effects of hormone treatment were examined by conscious cystometry at the end of the study. Voiding dysfunction was defined to include overactive bladder and sphincter deficiency.
Results: The sham rats had a mean (sd) voiding frequency of 3 (0.87) times in 10 min and a bladder capacity of 0.43 (0.13) mL with smooth cystometry curves. The number of rats in each treatment group (each group contained nine rats) that had voiding dysfunction was as follows: E(2), three; raloxifene, six; levormeloxifene, four; and controls, four ($P > 0.05$ among the groups). Only one rat in the GH-treated group and no rats in the GH + E(2)-treated group had voiding dysfunction, which was significantly less in the GH + E(2)-treated group than in the controls ($P = 0.041$).
Conclusion: This functional data suggest that the development of voiding dysfunction can be prevented by short-term administration of GH and GH + E(2) in our rat model. SERMs and E(2) alone seem to have no therapeutic effect.

Editorial Comment

This is a wished study by Dr. Lue and collaborators that have been working on this topic for the last years. They analyzed if short-term therapy with ultra-low dose of estrogen, selective estrogen receptor modulators (SERMs), and growth hormone (GH) can prevent the development of voiding dysfunction in a postpartum, postmenopausal voiding dysfunction rat model. By using conscious cistometry, developed in its own laboratory, the authors found that short-term therapy with E2, SERMs and GH suggest that, in the dosage and duration used, GH and GH + E2 seem to prevent the development of voiding dysfunction while E2 alone and SERMs do not have significant effects. With this paper, we are able to better understand the effect of these hormones on voiding, with the consequent clinical implications for treating and preventing post-partum and postmenopausal voiding dysfunction.

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RECONSTRUCTIVE UROLOGY

A collagen matrix derived from bladder can be used to engineer smooth muscle tissue

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We have previously demonstrated that a collagen matrix derived from lamina propria, commonly known as bladder submucosa (BSM matrix), is a suitable biomaterial for several urologic applications, including reconstruction of the bladder and urethra in experimental models and clinical trials. In the present study, we evaluated the physical properties of BSM as well as its biocompatibility, cellular interactions, and ability to support the formation of functional tissue in order to determine whether this biomaterial could serve as a matrix for urinary smooth muscle tissue engineering. BSM matrix resembles the extracellular matrix of bladder submucosa in its native structure, composition, and mechanical properties. BSM matrix supported normal

mitochondrial metabolic and proliferative functions of human urinary smooth muscle cells and did not induce cytotoxic effects in vitro. When implanted in vivo, BSM matrix promoted the regeneration of urinary smooth muscle tissues with contractility, which is a smooth muscle-specific tissue function. These results suggest that BSM matrix would be a useful biomaterial for urinary smooth muscle reconstruction.

Editorial Comment

Using scaffolds to regenerate tissue especially in the urological field has been the aim for the last decade. Which scaffold might be the best still seems to be not clear. The paper of Kim et al. investigated the native structure of Bladder Submucosa Matrix (BSM), seeded with smooth muscle cells as a composition and its mechanical properties. Compared to previous publications the extended investigation was performed in a tissue-engineered seeded fashion, but as Piechota et al. (1) previously demonstrated (and further investigated by Dahms et al. (2), the acellular Bladder Matrix Graft (BMG) fully regenerated and functioned as native bladder tissue.

The use of organ-specific scaffolds was extended to other urological organs such as urethra and ureter (3). However, the use of SIS® by Cook in the context of pre-seeding scaffold did not always demonstrate the expected success (4). Through the investigation of BSM, Kim et al. compared unseeded scaffolds; they found that BSM demonstrated a faster functional regeneration, thus underlining, depending on its thickness, that an organ-specific scaffold might be more favorable (5).

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Laparoscopic ureteroneocystostomy and psoas hitch for post-hysterectomy ureterovaginal fistula

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Purpose: We assessed the results of laparoscopic ureteroneocystostomy with a psoas hitch for iatrogenic lower ureteral injuries leading to a ureterovaginal fistula.
Materials and Methods: Between July 2003 and November 2007, 18 patients with iatrogenic lower ureteral injuries during hysterectomy leading to ureterovaginal fistula underwent laparoscopic ureteroneocystostomy with a psoas hitch. Of the patients 17 underwent abdominal or vaginal hysterectomy, while in 1 with a ruptured gravid uterus emergency hysterectomy was done for uncontrolled bleeding. Mean patient age was 35.5 years (range 23 to 45) and mean time to surgery since the injury was 2.2 months (range 1.5 to 3.5). Transperitoneal 3 or 4 port laparoscopic ureteroneocystostomy with a psoas hitch was performed.
Results: Of the procedures 17 were completed successfully. Intraoperative cardiac arrhythmia occurred in 1 patient due to pneumoperitoneum and hypercarbia, requiring open conversion. Mean operative time was 2.5 hours (range 1.9 to 2.8) hours, mean blood loss was 90 ml (range 45 to 150) and total hospital stay was 5.3 days (range 2.9 to 8). The nephrostomy tube was blocked on the table in all patients and it was removed on day 7. At an average followup of 26.4 months (range 3 to 52) postoperative excretory urography did not reveal obstruction in any patient. One patient had vesicoureteral reflux on voiding cystogram.
Conclusions: Laparoscopic ureteroneocystostomy with a psoas hitch for ureterovaginal fistula secondary to hysterectomy is safe and effective, and associated with a low incidence of postoperative reflux and obstruction.

Editorial Comment

Using a minimally invasive approach, a laparoscopic ureter reimplantation in an anti-refluxive fashion, is a logical approach if a fistula occurs after a transvaginal hysterectomy. Mondi et al. presented 18 cases using a laparoscopic ureteroneocystostomy in a psoas hitch technique with a no-refluxing Lich-Gregoir only technique, which seems to be very convincing and is supported with the recent publication of Patill et al. (1,2).

With the increased integration of laparoscopic surgery in our department, similar cases have been treated. From our recent experiences, we propose a modified approach: because of the fistula tissue we try to avoid any foreign material and comparatively use a clip at the distal ureter thermofusion to seal the ureter (3). Further, most commonly the fistula is not associated with an obstruction or even stricture of the ureter. A double-J-stent usually secures drainage of the kidney without the requirement of a nephrostomy tube. Only in those cases with a stricture a nephrostomy tube is required, which will be replaced intraoperatively while performing the ureteroneocystostomy into the bladder dome using a double-J-stent. After four weeks in particular, in women the double-J-stent can be removed without the need of anesthesia. In the context of mini-percutaneous nephrolithomy, we evaluated the patient's preference and concluded that the double-J-stents causes less pain, its removal is less traumatic to the patient than a nephrostomy tube and also needs to stay in place even if it is only for a week (4).

Overall we believe the laparoscopic approach to treat distal uretral fistulas or strictures are feasible. As the authors mentioned, the patient recovers faster. However, the laparoscopic approach with the implantation of the ureter into the ventral bladder wall - with a bigger distance to the former fistula location -, compared to the open procedure where the ureter is placed dorsally, needs to be evaluated over time and compared against the open procedure.

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