Editorial Comment

It is well known that the development of the male and female internal and external genitalia is dependent on a complex interaction of specific androgenic and nonandrogenic hormones. In this elegant experimental morphological study, the authors analyzed whether the level of the vaginal confluence with the urogenital sinus moves proximal from perineum to bladder neck as a function of prenatal androgen exposure in a mouse model.

The authors found that prenatal exposure to increasing levels of androgen causes a dose dependent change in the confluence of the urogenital sinus and vagina. They observed in this mouse model, a distal elongation of the common urogenital sinus and proximal migration of the bladder neck in respect to the fixed bony structures of the pubic arch. Although the molecular basis of urogenital sinus elongation and migration remains unexplained, the authors speculated that the complex hormonal environment found in patients with congenital adrenal hyperplasia or other abnormalities leading to androgen excess can result in wide spectrum anatomical variations of the vaginal confluence in the urogenital sinus.

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RECONSTRUCTIVE UROLOGY

Robotic assisted laparoscopic sural nerve grafting during radical prostatectomy: initial experience

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Purpose: Sural nerve grafting has been done in select patients undergoing radical prostatectomy with unilateral or bilateral wide excision of the neurovascular bundle in an effort to preserve potency. We describe a novel technique of laparoscopic sural nerve grafting after radical prostatectomy using the da Vinci (Intuitive Surgical, Mountain View, California) robot.

Materials and Methods: The procedure was performed successfully in 3 potent men 48, 49 and 59 years old, respectively. In patient 1 the entire procedure was performed robotically using a 6 port transperitoneal approach. In patients 2 and 3 the robot was used only for sural nerve grafting and urethrovesical anastomosis, while radical prostatectomy was performed by conventional laparoscopy. After the completion of radical prostatectomy with deliberate wide resection of the 2 neurovascular bundles in patients 1 and 3, and unilateral excision of the left neurovascular bundle in patient 2 a plastic surgery team harvested 10 to 15 cm of sural nerve from the left calf. Sural nerve grafts were interposed robotically by placing 4 to 6 interrupted perineural stitches of 6 or 7-zero polypropylene sutures.

Results: Mean operative time was 6.5 hours, mean blood loss was 216 cc and mean hospital stay was 2.3 days. Surgical margins were focally positive at the apex in the patients 1 and 3. During a followup of 7, 5 and 1 months patient 1 reported penile engorgement with sildenafil not sufficient for penetration, patient 2 with unilateral nerve preservation was potent without any medication and patient 3 did not achieve any degree of erection, respectively.

Conclusions: The da Vinci remote robotic system technically facilitates sural nerve grafting during laparoscopic radical prostatectomy. Long-term potency data are essential to validate the technical success.

Editorial Comment

Many pitfalls of laparoscopic surgery in recent years have been tried to overcome with the assistance of computerized robots. In the current paper an experienced group of laparoscopic surgeons from the Cleveland Clinic Foundation tried to laparoscopically reconstruct the peri prostatic autonomic nerve system resected during laparoscopic radical prostatectomy. In addition to optical magnification and illumination provided by normal endoscopic surgery they also took advantage of the da Vinci computerized robotic system enabling them to suture the nerve transplants with three dimensional magnification, improved manual dexterity, movement scaling and tremor elimination. In the few cases in which the autonomic nerve reconstruction was performed they achieved both a surgical and functional success.

The success is remarkable in several aspects. A procedure which requires otherwise microscopic or lens magnification if done in an open fashion and which requires special skills because of the depth and illumination of the operating field can be done laparoscopically this circumventing these problems. Furthermore functional restoration of potency was achieved despite the fact that sural nerve interposition was thought to be an unlikely successful method for re-innervation of the extremely fine and branching autonomic nerve fibers. What we definitely see in this paper is the possibility to perform laparoscopic surgery by benefiting from the endoscopic magnification and illumination in conjunction with the improved dexterity of robots. What still needs clarification is whether sural nerve grafting is really responsible for potency preservation or whether young age as in these patients, anatomical variations in autonomic nerves, or possible alternative physiological pathways for maintaining erections could be an explanation for the favorable results.

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Robotic-assisted laparoscopic radical cystectomy and intra-abdominal formation of an orthotopic ileal neobladder

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Purpose: To describe our technique of robotic-assisted laparoscopic radical cystectomy and intra-abdominal formation of an orthotopic neobladder (Hautmann) for treatment of transitional cell carcinoma of the bladder.

Methods: We describe our surgical technique in the worldwide first attempt to perform a robotic-assisted laparoscopic radical cystectomy and completely intra-abdominal formation of an orthotopic neobladder. The DaVinci System™ (Intuitive Surgical, Mountain View, CA, USA) was utilized to perform the procedure.

Results: Utilizing the DaVinci System the operation could be performed without any complications. Operating time was 8.5 hours, blood loss was 200 ml. The oncologic as well as the functional result of the reservoir were excellent.

Discussion: We here demonstrated that sophisticated laparoscopic procedures like the intra-abdominal formation of an orthotopic neobladder are accomplishable with robotic assistance.

Editorial Comment

Over the recent years experience with laparoscopic tumor ablation in urology has been increasing. In many centers worldwide adrenalectomy, total or partial nephrectomy and radical prostatectomy are now regularly performed. Although reports on radical cystectomy do exist, this procedure has always been thought to be problematic for minimal invasive surgery due to the necessity of a subsequent reconstructive urinary diversion.

In this paper by Beecken et al., the authors have managed to perform a laparoscopic radical cystectomy and an orthotopic ileal neobladder completely intracorporeally. Contrary to other reports the type of urinary diversion was similar to the urinary diversion used by open surgery. The difference lies in a different sequence of the procedure mainly for the neobladder. Although the time to perform such a procedure is respectable compared to some previous reports, it is still considerably longer than experienced surgeons would necessitate for an open procedure. Furthermore an expensive and sophisticated computerized robotic system available only in a few centers worldwide was used and most probably accounted for the success. It shows however that laparoscopic radical cystectomy and an orthotopic ileal neobladder will be improved with the development of new tools and that we are faced with the fact that in several years from now centers of excellence may perform also this procedure less invasive, and probably in a comparable time period. The increased cost of such equipment will have to be equated with reduced patients' hospitalization, morbidity and earlier return to work.

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UROLOGICAL ONCOLOGY

Long-term followup of a randomized trial of 0 versus 3 months of neoadjuvant androgen ablation before radical prostatectomy

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Purpose: In 1992 we initiated a national randomized prospective trial of 3 months of cyproterone acetate before radical prostatectomy compared to prostatectomy alone. Initial results indicated a 50% decrease in the rate of positive surgical margins. This decrease did not translate into a difference in prostate specific antigen (PSA) progression at 3 years. This report is on the long-term outcome (median followup 6 years) of this cohort.

Materials and Methods: This prospective, randomized, open label trial compared 100 mg cyproterone acetate 3 times daily for 3 months before surgery to surgery alone. Randomization occurred between January 1993 and April 1994. Patients were stratified according to clinical stage, baseline serum PSA and Gleason sum.