

Editorial Comment

Interstitial cystitis (IC) is often subdivided into 2 different subtypes: the classic “ulcerous” form of interstitial cystitis and the “early” or “nonulcer” form. The differences between the 2 subtypes are reflected in clinical manifestation and age distribution. It has also been demonstrated that the 2 subtypes respond differently to many treatment procedures (1). The main tool for differential diagnosis between the 2 forms of disease has been cystoscopy.

Classic IC presents at endoscopy with reddened mucosal areas. These are often associated with small vessels radiating towards a central scar that ruptures with increasing bladder distension. Histological specimens obtained from lesions demonstrate that classic IC is a destructive inflammation and some patients eventually develop a small capacity fibrotic bladder. Outflow obstruction of the upper urinary tract may also occur in the final stage of classic IC.

In nonulcer IC, the bladder mucosa is normal at initial cystoscopy. The development of glomerulations after hydrodistension is considered to be a positive diagnostic sign. Histologically, there are no or scant inflammatory signs in nonulcer disease (1).

In the present pioneer study, the authors demonstrated that all patients with classic IC showed high or very high levels of NO. None of the other patients had any significant increase in NO in the bladder. The NO level in patients with classic IC was not related to symptoms but rather to the assignment to this specific subgroup of IC. However, disease stage seemed to influence NO levels with the highest levels of NO found in patients in the initial phase of classic IC. The difference in NO levels between classic and nonulcer IC allows for subtyping of cases without performing cystoscopy.

Reference

1. Peeker R, Fall M: The impact of heterogeneity on the diagnosis and treatment of interstitial cystitis. *Int Braz J Urol.* 2002; 28: 10-19.

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RECONSTRUCTIVE UROLOGY

Creation of luminal tissue covered with urothelium by implantation of cultured urothelial cells into the peritoneal cavity

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Purpose: We established the culture condition of seeding urothelial cells onto a scaffold for implantation into the peritoneal cavity and evaluated the histology of implanted urothelial cells.

Materials and Methods: In part 1 of the study cultured porcine bladder urothelial cells were seeded onto 3 types of collagen gel made on microporous membrane, including collagen gel with or without cultured porcine bladder fibroblasts, or a feeder layer. The macroscopic and microscopic appearance of the gel with urothelial cells were examined in vitro. As an in vivo study, cultured porcine bladder urothelial cells were

seeded onto a collagen gel/sponge matrix with or without cultured fibroblasts, or a feeder layer. Urothelial cell survival on each matrix was evaluated 28 days after implantation onto the omentum or mesentery of nude rats. In part two of the study, rat urothelial cells were cultured and seeded onto fibrin gel/atelocollagen sponge matrix as an autologous implantation model. After 7 days of cultivation the matrix was folded with urothelial cells inside, implanted onto the mesentery, and serially evaluated.

Results: Gel containing cultured fibroblasts was shrunken and basement membrane formation was observed on the gel with cultured fibroblasts or the feeder layer in vitro. Urothelial cells cultured with the feeder layer better survived on the collagen based matrix and formed a hollow-like lumen when implanted into the peritoneal cavity. The regenerated urothelium in an autologous implantation showed the same histological features as normal bladder urothelium.

Conclusions: Selection of less degradable matrix and formation of basement membrane are critical for survival of implanted urothelial cells. The regenerated urothelium in an autologous implantation model seems to have the similar properties to the normal urothelium.

Editorial Comment

This paper is a direct continuation of studies initiated by Oberpenning et al (reference 2 in the paper) which demonstrated that urothelial and smooth muscle cell expanded in-vitro and seeded onto an acellular matrix could be used for bladder augmentation in a canine model. The authors report about the outcome of inclusion of a feeder layer for epithelial culture on autologue urothelial cell implantation. Thus, when implanted into the peritoneal cavity cystic tissues with an endoluminal surface covered with regenerated autologous urothelium could be created. Apart from that it is remarkable to note that stromal cells were found expressing alpha-smooth muscle actin and desmin despite the absence of smooth muscle cells seeded to the implanted matrix. Whether this phenomenon is due to homing of bone marrow cells or an unproven differentiation of stromal cells is not known but is worth studying in future projects.

Despite good looking results with regards to tissue engineered segments of the lower urinary tract in animal models too many questions remain to be solved before we are ready to use tissue engineering in the lower urinary tract on a regular basis. One of the problems, i.e. possible malignancy has been discussed in the paper, because perturbation of the implanted transitional cells was noted which may have been the result of undesirable stromal-epithelial interaction.

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Surgical management of infiltrating bladder cancer in elderly patients

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Objectives: To review the surgical therapeutic options in elderly patients with infiltrating bladder cancer.

Methods: A review of the literature relevant to cystectomy and transurethral resection for infiltrating bladder cancer in elderly patients was conducted using Medline Services.

Results: Thanks to progress in anaesthesia, intensive care and surgery, cystectomy now forms part of the classical treatments for bladder cancer in elderly patients, with acceptable mortality and morbidity rates. The recent series of cystectomies performed in patients over 75 years old report a mortality rate associated with the procedure of less than 4.5%. The global mortality rate in the same population ranges from 10 to 50%. These rates are now similar to those reported in the general population. The mean survival after cystectomy in patients over 75 years old is more than 2 years. Global survival at 5 years is between 37 and 68%. It is acknowledged by most authors that resection alone is associated with higher relapse and progression rates than cystectomy.

Conclusions: Cystectomy appears to be reasonable in elderly people who have a life expectancy of more than 2 years, provided that a rigorous pre-operative assessment and anaesthetic management are performed. Transurethral resection alone should be proposed only to patients with poor health status and/or very advanced age.

Editorial Comment

The subject of this paper-whether radical cystectomy for muscle-invasive bladder cancer is justified in older patients-has been addressed by several authors in recent years. When dealing with this question, first of all the term “elderly” or “old” has to be defined. In this paper, elderly patients were those beyond 75 years, other authors included only patients older than 80 years. However, even if a clear definition is made we still have to question if every 75 or 80 year old can be compared based on his year of birth. In the clinical setting, the biological age is of much greater importance. Consciously or unconsciously, we tend to select patients who we assume are fit for such a procedure. If we make the wrong assumption and some surgeons are probably better than others, patients will have a larger chance of complications. This makes it difficult to compare different studies as long as we do not have better ways to define the biological age and not the actual age.

Another important aspect in this patient group is not only whether the patient survives the surgical procedure but also whether he lives long enough to benefit from an oncological aspect, that is to say “would he have lived long enough to die really from bladder cancer”. And how does an increase of live expectancy of a few years weigh against an incontinent urinary diversion. We should consider cystectomy for localized bladder cancer in patients of advanced age, but the oncological benefit and quality of life in these patients must be put into strong consideration.

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UROLOGICAL ONCOLOGY

Simultaneous transurethral resection of bladder tumor and benign prostatic hyperplasia: hazardous or a safe timesaver?

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Purpose: We evaluated the effect of simultaneous transurethral resection of bladder tumor (TURBT) and benign prostatic hyperplasia (TURP) on recurrences at the bladder neck and prostatic urethra.