

could stratify risk of stone recurrence and predict patients at high risk of recurrence. From a review of 204 patients followed for 2 to 5 years with radiographic studies and history, a linear regression model was constructed to determine the importance of each factor in predicting stone recurrence. The factors of positive family history, multiple stones, gouty arthritis and SRPS correlated with stone recurrence rate. At an SRPS cut-off level of ≥ 7 , the sensitivity and specificity of calcium oxalate stone recurrence is 62% and 75%, respectively.

In this era of limited resources and costly medical care, stratification of risk is critical in order to allow identification of subgroups of patients more likely to suffer a defined event. Metabolic evaluation and indefinite medical therapy is costly. On the other hand, surgery is also costly, but the likelihood of experiencing a stone event requiring surgery is relatively low. As such, prophylactic treatment of patients after their first stone event may not be cost-effective. However if we can identify patients at highest risk of stone recurrence, medical evaluation and treatment in this group would avoid much suffering and expense and would likely justify the cost of treatment. This self-administered questionnaire provides a quick way to stratify patients, and although it will require further retrospective and prospective validation in larger patient groups, it represents a first step towards simple risk stratification.

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ENDOUROLOGY & LAPAROSCOPY

Hellstrom technique revisited: laparoscopic management of ureteropelvic junction obstruction

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Objectives: To present our experience with the treatment of adult ureteropelvic junction (UPJ) obstruction using a laparoscopic Hellstrom vascular relocation technique.

Methods: Transperitoneal laparoscopy was performed in 35 patients for the management of UPJ obstruction. In 9 cases, we identified crossing lower pole vessels and performed the Hellstrom technique. We discuss our indications, intraoperative techniques, and outcomes when performing only vascular relocation in these patients.

Results: All 9 patients presented with long-standing flank pain and were identified as having UPJ obstruction (7 primary, 2 secondary) on radiographic imaging. The intraoperative decision to perform the Hellstrom technique was based on the presence of the crossing vessels, a grossly normal appearance of the ureter and UPJ, and a small renal pelvis. The crossing vessels were completely mobilized, displaced cephalad, and fixed using intracorporeal sutures. The mean operative time and blood loss was 164 minutes and 15 mL, respectively. At a mean follow-up of 19 months (range 14 to 31), the patients were asymptomatic with no evidence of obstruction on Lasix nuclear renography.

Conclusions: Traditional treatment of UPJ obstruction, with or without crossing vessels, has been accomplished by pyeloplasty. Dismembered pyeloplasty is a standard method in cases of associated crossing vessels; however, we propose that the Hellstrom technique be considered in cases in which the ureter appears normal and the pelvic anatomy is unfavorable for transection and anterior reanastomosis of the ureter and

pelvis. These considerations are particularly relevant during the laparoscopic approach in which intracorporeal suturing and knot tying are technically challenging.

Editorial Comment

This article describes the laparoscopic version of an infrequently used option for repair of ureteropelvic junction obstruction. In the Hellstrom approach to ureteropelvic junction obstruction, pyeloplasty is not performed and instead the anterior crossing vessels are relocated cephalad (a mean of 2.3 cm in this series). Proponents of this technique argue that if there is no intrinsic ureteral obstruction, and the problem is simply anterior crossing vessels that allow the renal pelvis to herniate forward and kink off the ureteropelvic junction, then this “vasculopexy” will solve the problem with less surgical intervention. In an editorial following the article, Dr. Stephen Nakada expressed concern that cases of intrinsic ureteral abnormality might easily be missed with the subjective assessment of the intra-operative appearance of the ureter, and that performing vasculopexy rather than formal dismembered pyeloplasty with anterior relocation of the ureter might risk failure of the procedure. Indeed, the (open surgical) Hellstrom procedure fell out of favor years ago probably because of exactly this problem – it was applied in situations where there was in fact an intrinsic ureteral abnormality. That the authors’ intra-operative assessment was accurate enough that their procedure was successful in all nine patients is impressive. Even with my own fairly large experience with laparoscopic pyeloplasty, I would be concerned that I would be unable to make this assessment with a high degree of accuracy in the operating room. The authors cover themselves well in this regard, stating “If one is not completely convinced that the UPJ itself is normal, dismembered pyeloplasty should be performed.” A laparoscopic Hellstrom procedure appears to provide a good outcome in properly selected patients – I would just caution the reader that this selection might be very difficult and that the price of incorrect selection (a failed procedure) must be considered very carefully.

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Evaluation of overall costs of currently available small flexible ureteroscopes

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Objectives: To perform a meta-analysis of the currently available data regarding the durability of flexible ureteroscopes to establish cost estimates for the purchase and use of five currently available, smaller than 9F, ureteroscopes. Healthcare costs have become increasingly germane to the determination of disease management strategies. Improved ureteroscope technology has expanded the role of these instruments. However, the initial purchase costs and high maintenance costs have become problematic with these fragile instruments.

Methods: Ureteroscope durability data on the Storz 11274AA, Olympus URF-P3, Wolf 7325.172, ACMI AUR-7, and ACMI DUR-8 were collected from three prior studies. Combining the durability data and cost data regarding the initial purchase price and maintenance costs of these instruments, we calculated the overall costs associated with the use of each of the ureteroscopes for 25, 50, 75, and 100 cases during the first year (warranties included) and with subsequent use.

Results: The variability in the costs associated with the use of the currently available smaller than 9F ureteroscopes was significant. The initial instrument purchase price, durability, repair costs, and associated warranties all contributed to large discrepancies in the cost of performing ureteroscopy. In this model, during the first year of ownership, the projected cost of performing 100 ureteroscopic cases varied by a difference of 95% depending on the ureteroscope used.

Conclusions. Physicians and institutions that perform ureteroscopy should strongly consider the purchase price, durability, repair cost, and associated warranties before the purchase of small flexible ureteroscopes.

Editorial Comment

The most impressive advances in the surgical treatment of urolithiasis over the past decade have been in ureteroscopy. The holmium:YAG laser is a significantly superior flexible lithotrite, and ancillary instruments such as tip less nitinol baskets and improved ureteral access sheaths have contributed greatly as well. Certainly, however, the most prominent improvements have been with regards to the size and capabilities of flexible ureteroscopes. The 7 to 8F flexible ureteroscopes, with working channels in excess of 3F, allow routine access to all portions of the upper urinary tract. As pointed out in this article, these instruments come at a considerable price. Although the initial purchase price of these ureteroscopes are similar, ranging from \$11,995 to \$15,000 (USD), there is greater variability in the cost of major repairs, the degree of damage covered by the warranties, and – most importantly – the durability of the scopes. With the exception of the ACMI DUR-8 (the new Storz ureteroscope was not included in this analysis), the other four ureteroscopes have been shown in a previous study to last only 9.4 to 14.5 cases before repair is required. These figures were drawn from a head-to-head comparison of these ureteroscopes published previously, while the durability of the ACMI DUR-8 (25 cases before repair) was obtained from a meeting abstract that examined only that instrument. As such, the markedly improved figure for the DUR-8 could be due in part to other factors, but the concept that durability (as well as repair cost and warranty coverage) makes a large difference in the overall cost of using a small-caliber ureteroscope is valid. The authors give us the very interesting figure “on the basis of consistent data provided by all four manufacturers” that 70% of ureteroscopes sent in for repair have been damaged by user error - usually holmium:YAG laser damage to the working channel. The take-home message is: if you want to minimize the cost of flexible ureteroscopy, then determine the repair cost and warranty coverage of a ureteroscope, consider its reported durability, and be careful with the lithotrite.

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IMAGING

Clinical characteristics of ureteral calculi detected by nonenhanced computerized tomography after unclear results of plain radiography and ultrasonography

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