STONE DISEASE

Long-Term Outcome of Endopyelotomy for the Treatment of Ureteropelvic Junction Obstruction: How Long Should Patients be Followed Up?

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Purpose: To evaluate the long-term success rate of endopyelotomy for the treatment of ureteropelvic junction (UPJ) obstruction.
Patients and Methods: Between January 1995 and December 2003, 85 endopyelotomies (10 percutaneous, 75 retrograde) were performed in 77 patients with a mean age of 35.2 +/- 13.9 years. The mean number of procedures per patient was 1.14, with 69 patients undergoing a single procedure. Endopyelotomies were performed using either a cold knife (N = 26), Ho:YAG laser (N = 47), or hook electrode (N = 12). Treatment success was defined as symptomatic relief with radiographic resolution or stabilization of renal function, as judged by an excretory urogram or diuretic renogram. Kaplan-Meier analysis was used to determine the long-term probability of success.
Results: With a median follow-up of 37.3 months (range 3-98 months), the overall success rate was 67.5%, and the median time to failure was 7.7 months (range 1-50 months). Kaplan-Meier estimates of success were 87.8% at 6 months, 76.9% at 12 months, 72.2% at 18 months, 68.7% at 24 months, 64.8% at 36 months, and 61.6% at 60 months. The success rate was not significantly affected by the etiology, surgical approach, or incisional method. Similarly, the degree of preoperative hydronephrosis or renal function did not affect the success rate.
Conclusions: The success rate of endopyelotomy decreases as the follow-up increases. Although most failures were detected within 1 year of the procedure, it appears that follow-up of at least 36 months is required for patients who have undergone endopyelotomy for UPJ obstruction.

Editorial Comment

This study lacks standardization in surgical technique. As the cutting modality and size and duration of stenting varied, it is difficult to make recommendations regarding best surgical practices. Yet this study does address a question that has eluded us to date. How long should endopyelotomies be followed?

While the median time to failure was 8 months, only 7% of patients failed beyond 2 years. This suggests that one could focus postoperative imaging during the period when failure is most likely to occur. However, the authors do not report the presentation of the 7% of patients who failed beyond 2 years – were they symptomatic or silent obstruction? Answering this question is critical if one wishes to eliminate radiographic follow-up at 2 years postoperative.

The authors report that the degree of hydronephrosis and preoperative renal function did not predict success with endopyelotomy. Indeed, the authors report a 60% success rate in kidneys with less than 25% function. This is in sharp contrast to the body of evidence that supports the use of these two variables in patient selection for endopyelotomy.

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Impact of Shockwave Coupling on Efficacy of Extracorporeal Shockwave Lithotripsy

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Purpose: To evaluate the impact of a slow gated treatment rate on the efficacy of extracorporeal shockwave lithotripsy (SWL).
Patients and Methods: From August 1990 to July 2002, 40,462 SWL procedures were performed using the slow frequency electrocardiography (ECG)-gated lithotripter (82.5%) and fast frequency ECG-ungated (17.5%) modes for the Medstone STS lithotripter. Treatment characteristics, including the mode of SWL, location and size of the stone, re-treatment status, auxiliary procedures required, perioperative complications, and treatment outcomes, were recorded. The stone-free rate was reported by the treating physician on the basis of the finding of no residual stone fragments on a plain radiographic image.
Results: The treatment rate for the slow mode was a mean of 79.6 shocks/min, while the rate for the fast mode was 120/min. The total procedure time was 47.0 minutes for the slow mode and 40.6 minutes for the fast. The overall stone-free rate was higher for slow (66.9%) than fast (63.6%) procedures ($P < 0.001$). The stone-free rate for 1- to 10-mm stones was higher for the slow procedures (75.7%) than the fast procedures (70.7%; $P < 0.001$). Upper-ureteral stones responded better to slow treatment in terms of stone-free rate (79.5% v 72.6%; $P < 0.001$), re-treatment rate (6.5% v 8.0%, $P = 0.05$), auxiliary-procedure rate (6.1% v 8.9%; $P = 0.01$), and efficiency quotient (71 and 62). There was no significant difference in complication rates overall between slow and fast treatment. Conclusions: With a minimal increase in procedure time, greater efficacy can be obtained for the treatment of radiopaque stones with a slower shock-delivery rate. In particular, upper-ureteral calculi and calculi <10 mm benefit from a slower treatment rate.

Editorial Comment

Treating at a gated setting has been demonstrated to decrease the risk of cardiac dysrhythmias from 20% to 0.3% (Reference 15 in the article). In vitro and clinical trials have demonstrated that stone fragmentation and stone-free rates are superior with a slower (60 shocks/min) versus faster (120 shocks/min). This study suggests that a practical approach to slower treatments is to revert back to gating shockwave to the cardiac rhythm – thereby improving stone-free rates while preventing cardiac morbidity. Stones greater than 3 cm in size and distal ureteral stones did not benefit from a slower treatment protocol – as such, these stones are better suited for an endoscopic procedure.

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ENDOUROLOGY & LAPAROSCOPY

Reoperative Laparoscopic Pyeloplasty in Children: Comparison with Open Surgery

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