STONE DISEASE

Use of renal ultrasound to detect hydronephrosis after ureteroscopy

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Introduction: Ureteral obstruction is a potentially serious complication after ureteroscopy. Postoperative imaging with intravenous urogram and CT has been described as a means to detect asymptomatic or "silent" obstruction. We sought to evaluate the use of renal ultrasound to diagnose hydronephrosis after ureteroscopy in a large, contemporary series.
Materials and Methods: Of the 438 ureteroscopies performed by one staff surgeon at our institution from August 2003 to June 2008, 289 underwent a strict follow-up protocol that included renal ultrasound at approximately 1 month from the date of operation in patients without a stent or 1 month from the date of stent removal in patients with a stent.
Results: Of the 289 patients with proper follow-up, 27 (9.3%) had sonographic evidence of hydronephrosis. Fourteen patients were asymptomatic, and 13 patients experienced ipsilateral flank pain. A total of 4.8% of the patients (14/289) had silent hydronephrosis. The negative predictive value and positive predictive value of ipsilateral flank pain for hydronephrosis were 94% and 35%, respectively. There was no difference between the symptomatic and asymptomatic groups with respect to need for further surgery (38% vs. 21%, $p = 0.42$). The number of asymptomatic patients after ureteroscopy needing renal ultrasound to diagnose one case of hydronephrosis was 18.
Conclusions: This study demonstrates that hydronephrosis is present in a small percentage of patients after ureteroscopy. Hydronephrosis can be present in both symptomatic and asymptomatic patients and may warrant further surgery. Renal ultrasonography at 1 month after ureteroscopy permits appropriate detection of hydronephrosis and should be considered as an imaging option.

Editorial Comment

The authors excluded patients who underwent alternative postoperative imaging (CT scan, antegrade nephrostogram) - it would have been useful to report why these patients underwent imaging (ex. symptoms) and what the findings were. The authors did not evaluate intraoperative factors that could help predict those who may benefit from postoperative imaging (ex. impacted stones, ureteral perforation, need for balloon dilation). It is possible that a more selective approach to postoperative imaging could be considered. As one-third of patients with hydronephrosis had subsequent spontaneous resolution, it is possible that delaying ultrasonography to 6-8 weeks is warranted. The degree and chronicity of preoperative hydronephrosis might guide the need for nuclear renography instead of ultrasonography to define obstruction as opposed to calyectasis. This issue is not addressed by the authors, though they note that 15% of patients with hydronephrosis on ultrasonography were determined on follow-up to have chronic dilation as opposed to obstruction.

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