

## Cholecystographic documentation and follow-up of gallstone fragment migration during the percutaneous treatment of cholelithiasis

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**SUMMARY.** In this paper we evaluated the frequency, consequences of, and therapeutic approach to fragment migration after percutaneous treatment of gallstones. Fragment migration occurred in 10 (17%) of 58 patients undergoing either percutaneous contact dissolution or mechanical stone removal. Fragments impacted in the cystic duct in five patients, while fragments passed into the common bile duct (CBD) in six patients (one patient had both simultaneously). Cystic duct fragments were symptomatic in four of the five patients, three patients were symptomatic at the time of fragment detection and were treated immediately (two with further contact dissolution and one by flushing the fragment from the cystic duct to the duodenum). CBD fragments were asymptomatic and passed spontaneously in four of the six patients. Two patients with CBD fragments had endoscopic retrograde cholangiography and sphincterotomy to remove fragments, as they were unwilling to await possible spontaneous passage of fragments.

None of the following factors predisposed to the development of gallstone fragment migration: a large stone burden, the gallbladder volume, the presence of gallstone calcification, or the crushing of calculi prior to extraction. Eight patients with migrating fragments had an oral cholecystogram performed prior to stone removal and all had a functioning gallbladder.

The results of this study suggest that fragment migration is a potential, but unpredictable sequela of percutaneous treatment of cholelithiasis. The results also suggest that the need and timing for therapeutic intervention depend primarily upon the site of fragment migration. Cystic duct fragments usually require intervention while CBD fragments may pass spontaneously.

## The effectiveness of post-procedure criteria for discharge following outpatient percutaneous nephrostomy

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**SUMMARY.** Purpose: to evaluate the effectiveness of post-procedure discharge criteria by

assessing the incidence of procedure complications that require delayed hospitalization following discharge of outpatients undergoing percutaneous nephrostomy.

**Patients and Methods:** the criteria used for outpatient discharge following percutaneous nephrostomy were the absence of shaking chills, hypotension, uncontrolled hypertension, and dyspnea in an alert and cooperative patient who was accompanied by motivated and capable home care providers. Follow-up consisted of direct discussion with referring physicians, and review of medical charts, imaging films, and image-guided procedure reports for all ( $n=23$ ) outpatients who were discharged home following percutaneous nephrostomy at our institution between July 1991 and June 1994. The initial 17 patients were evaluated retrospectively whereas the last 6 patients were followed prospectively. Patient age ranged from 20 to 77 years with a mean of 49. Patients with benign disease ( $n=12$ ) and malignancy ( $n=11$ ) were treated. The spectrum of procedure complexity ranged from external percutaneous nephrostomy ( $n=15$ ) to external nephroureterostomy ( $n=7$ ) and internal nephroureteral stent placement ( $n=1$ ) with tube size ranging from 8 to 12 F. No patients had coagulopathy but five patients had infected urine at the time of the procedure.

**Results:** none of the outpatients who were discharged after meeting post-procedure criteria died as a result of procedure complications or required later hospital admission for observation or treatment of peri-procedure complication.

**Conclusion:** the results suggest that the post-procedure discharge criteria described herein are effective in maintaining the safety of the outpatient percutaneous nephrostomy process.

### **Combined use of the blunt needle and carbon dioxide for percutaneous nephrostomy**

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**SUMMARY.** We describe a modified method for percutaneous nephrostomy which combines using carbon dioxide to 'opacify', and an 18-gauge blunt needle to enter, targeted posterior calyces. This technique was successfully used during a clinical trial in 50 selected patients. Technical success was 100% with a very low complication rate. This method, as well as its possible advantages and disadvantages, will be discussed.

### **Embolization of ruptured iliac artery aneurysms**

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**SUMMARY.** Spontaneous rupture of iliac artery aneurysms is uncommon but is associated with a high surgical mortality. We report two cases which were treated successfully by tran-