

## Clinical Note

### Cecal fistula after percutaneous nephrolithotomy ended by hemicolectomy

Tawfiq Ba'adani, MD, Mohammed Al-Kata'a, MD,  
Tawfiq Makhlafi, MD.

Percutaneous nephrolithotomy (PCNL) has been settled as one of the modalities for treating renal stones. It is a safe procedure with complications varying from 5-8%.<sup>1</sup> One of these complications is injury to the adjacent organs like colon, which represent 0.6%.<sup>2</sup> In most cases, these complications respond to conservative treatment except for peritonitis or sepsis.<sup>3</sup>

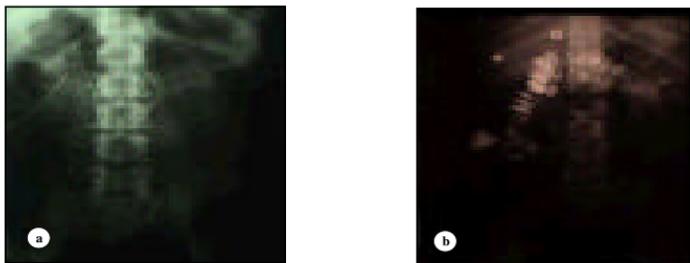
We present a case of cecum perforation, which ended by hemicolectomy one month later as the patient develop pelvic abscess even though the perforation was retroperitoneal.

A 60-year-old male patient with persistent right renal pain and hematuria for years. Sonography was carried out, which revealed a stone of 3 cm in size in the renal pelvis and lower calyceal stone 1 1/2 cm with moderate back pressure. Kidney, ureter and bladder (KUB) radiograph and intravenous urography were carried out and revealed the same picture as the sonar scan with good delineation of the pelvic-calyceal system that was suitable for PCNL. The other kidney was normal with serum creatinine of 1.2 mg/dL and hemoglobin of 14.8 gm. Patient was generally healthy and no previous history of surgical intervention apart from

transurethral resection of the prostate 3 years earlier. The patient was prepared for right PCNL in the prone position under general anesthesia.

Ureteric catheter no. 6 was fixed and the patient was turned to prone position. During localization of the kidney, extravasation occurred wherein we were guided by the kidney stone. The rest of the operation passed smoothly with disintegration of the stones and removal of the fragments. Nothing was unusual intraoperatively, thus, nephrostomy tube no. 22F was left. Operative time was 90 minutes without blood transfusion and he recovered smoothly from anesthesia. On the first postoperative day, the abdomen was soft with mild tenderness to the side of the PCNL. A KUB radiograph was carried out which postoperatively revealed that he was stone free (**Figure 1a**). The nephrostomy tube was removed as the urine coming out was already clear. Ureteric catheter 48 hours later was also removed and the patient was discharged on the third day.

The site of the nephrostomy was dry and without any fecal material during hospitalization. Early in the morning of the fourth day, the patient returned to the hospital soaked of feces at the site of the tract, intravenous (IV) fluid was then started allowing only oral fluids. The skin started to excoriate and desquamate, thus, we inserted a tube to the colon (no. 22F) for one week without closure of the fistula. On the eight day fistulectomy through the tube was carried out and revealed that its site is in the cecum, but the kidney or ureter did not occurred (**Figure 1b**) which means that cecal urinary



**Figure 1** - Post operative kidney, ureter and bladder (KUB) radiograph and fistulography: **a**) stone free KUB. **b**) cutaneous colonic fistula "fistulography".

connection was closed. We continued the same regime with antibiotics for another week without improvement. Soaking of the skin was frequent and excoriation increased and trial of colostomy bag application was difficult as the site was unsuitable, so we tried to insert a Folly catheter 26F with inflation of its balloon by 7 cc making the soaking of the skin decreased. The patient defecate normally, but one week later after removal of the catheter, the condition worsened and the patient started to develop pain in the right iliac fossa. Diclofenac sodium injection was then administered to the patient.

Sonar scan carried out earlier showed no extravasation or collection, but that was carried out at the end of the third week, which showed 2 collections, one 6 x 4 cm in the pelvis and another one, 2 x 3 above it, in the right iliac fossa. Laparotomy was carried out on the 25th day and right hemicolectomy with ileo-colic anastomosis was performed using 2 layers closure.

Intraoperatively, we found adhesions around the cecum. In the adjacent colon, a fistula tract of 1 cm in diameter and 2 abscesses (one below the cecum and another beside the tract) were found. Excision of the right colon and cecum with anastomosis of the ileum and transverse colon in 2 layers was performed. A 3/0 vicryl sutures was used for the first layer while 2/0 vicryl sutures was used for the 2nd layer, after spatulation of the ilium to avoid discrepancy. A 500 cc of blood was given, the peritoneum was free and 2 drains was carried out, one in the pelvis and another one on the right side were left. Laparotomy and tract was then closed.

The patient continued on IV fluid for 5 days. The first drain was removed after 3 days and the 2nd after 5 days. Postoperative period passed smoothly. Augmentin was given and the patient started oral fluids on the 6th day. The patient was discharged on the 10th day after passing stool and in good condition.

Classically PCNL is carried out in prone position and the puncture is carried out just 2 cm below the last rib, where the puncture is more lateral and the patient is slim, thus, the retroperitoneal fat becomes more deficient and the colon becomes more posterior. This procedure makes the colon becomes

more in the way of the puncture and more liable to injury. Normally, the colon is situated antero-medially to the kidney. Hadar and Gadollin<sup>4</sup> reported findings of retrorenal colon in 0.6% of the evaluated cases. In our case, the patient was without any history of previous surgery, so the colon was in the retrorenal position and it was in the way of the puncture. The procedure was smooth and the colonic perforation was not discovered during or postoperatively. The patient did not develop postoperative abdominal rigidity, tenderness or leakage. Thus, the patient was discharged. It was one day after discharge that we discovered the perforation of the colon when the fecal material was soaked in the site of the puncture. We started conservative treatment as the perforation was retroperitoneum, but the fistula did not heal. Sonography performed earlier did not reveal any collection or abscess, but this occurred 3 weeks later. Excoriation was marked as the fistula was in the right side. Surgical laparotomy and right hemicolectomy and drainage of the abscesses with ileo-transverse anastomosis and intra-peritoneal drainage was then carried out.

The authors believe that the perforation occurred during the operation, when the colon was in the retrorenal position. In addition, the cause of the failure was due to the pelvic sepsis, which was treated conservatively.

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*From the Department of Urology, Sana'a University, Medical College, Yemen. Address correspondence and reprint requests to Dr. Tawfiq Al-Ba'adani, Associate Professor, Al-Thawra Hospital, PO Box 18682, Sana'a, Yemen. Tel. +967 71188609. E-mail : drtawfik@hotmail.com*

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