

A Giant Ureteral Stone

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A 55-year-old woman suffered from right flank pain and had a right giant ureteral stone with hydronephrosis. Ureterolithotomy was performed. The ureteral stone was 11cm long and weighed 45gm.

Key Words : Ureter, Ureteral Stone, Hydronephrosis.

INTRODUCTION

In general, ureteral calculus is single and less than 2 cm in length. Occasionally, ureteral stones are multiple and can be as large as 5 cm. However, ureteral stones larger than 10 cm or weighing more than 50 gm are extremely rare (Sabnis et al., 1992). We report a case of giant ureteral stone.

CASE REPORT

A 55-year-old woman presented with right flank pain, general weakness, nausea, indigestion and a chilling sensation which she had suffered for 10 days. She had suffered from intermittent right flank pain for the previous 10 years.

At examination, the right kidney was neither palpable nor tender. Urinalysis revealed severe pyuria but no bacterial growth in urine culture. The urine pH was 7.0. The blood urea nitrogen and serum creatinine levels were normal. A plain abdominal film showed a long calcified density (11 cm×1.5 cm) suggestive of a giant ureteral stone in the pelvic area (Fig. 1). Excretory urogram showed a normal left kidney but a marked right hydronephrosis (Fig. 2A). Ureterolithotomy was performed. At operation, the ureter was incised longitudinally against the

stone about 5 cm. The stone was impacted and the ureteral wall was very thickened and adhered severely to the surrounding tissue due to inflammatory reaction. The stone was removed en masse by manipulating its attachments. Then, a self-contained

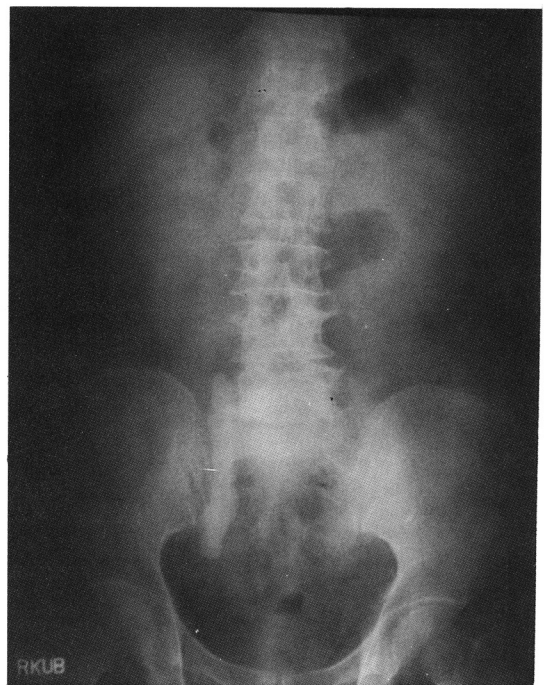


Fig. 1. KUB shows a long radiopaque density(11cm×1.5cm)suggesting a giant ureteral stone in the pelvic area.

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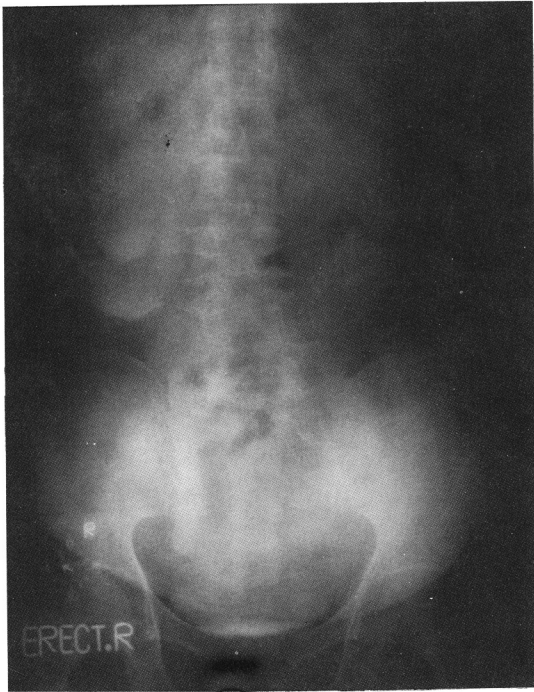


Fig. 2A. Preoperative excretory urogram shows a marked hydronephrosis of the right kidney.



Fig. 2B. Postoperative excretory urogram shows marked improvement of the hydronephrosis.

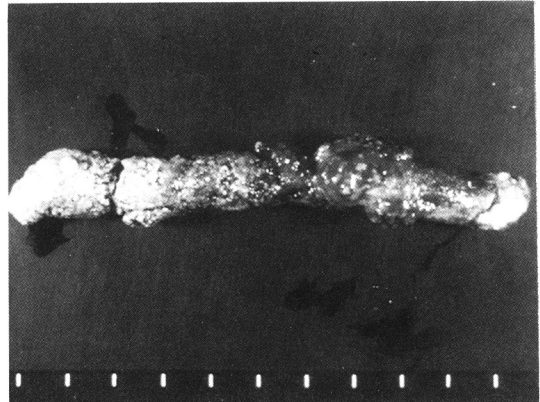


Fig. 3. The removed ureteral stone measured 11cmX2cm X1.5cm and weighed 45gm.

double J stent was inserted into the ureter after insuring the ureteral patency by passing a 6F ureteral catheter downward and upward through the ureterotomy. The ureteral wall was approximated with interrupted sutures of 4-0 chromic catgut. The removed stone was yellowish to dark in color and its surface was irregular. Histology of the ureteral mucosa showed chronic inflammation with no evidence of malignancy. The ureteral stone measured 11 cmX2 cmX1.5 cm, weighed 45 gm (Fig. 3). The composition of the stone was magnesium, ammonium, calcium and carbonate apatite. *Staphylococcus epidermidis* was isolated from crushed stone material. She was discharged without specific problems on the 9th postoperative day. The double J ureteral catheter was removed 4 weeks later and follow-up excretory urogram was taken 3 months after the ureterolithotomy.

DISCUSSION

A calculus recently expelled from the kidney is usually round or ovoid, and ureteral stones of less than 4 mm in diameter are more likely to be passed (Drach, 1982). However, after the stone has resided in the ureter for some time the longitudinal diameter becomes greater than the transverse diameter resulting in an elongated shape (Drach et al., 1986). Stones larger than 1 cm in diameter or weighing more than 0.1 gm are less likely to be passed (Sutor and Wooley, 1975). Giant ureteral calculi (more than 10 cm in length or 50 gm in weight) are extremely rare. Giant ureteral stones are generally

formed in patients who have refused treatment for many years. Our patient had neglected symptoms of intermittent right flank pain for 10 years, and finally came to us when she had severe flank pain with nausea. A few cases of giant ureteral stones have been reported so far. In 1922, Heath found a 65.8 gm ureteral stone (Heath, 1922), and in 1924, Tennant reported a 66 gm stone (Tennant, 1924). In 1992, Sabnis et al reported a giant ureteral stone measured 13 cm in length and weighing 90 gm. The left kidney connected to the ureter where the stone resided was not opacified on excretory urogram even after 24 hours. They found left pyonephrosis on ultrasonogram, a dilated tortuous ureter with the stone in the lower half on nephrostomogram and performed nephroureterectomy. The stone we experienced was only 2 cm smaller in size but was much lighter than Sabnis stone. This might be due to the difference in the chemical composition of the stones. We followed up the right kidney by excretory urography 3 months after the

ureterolithotomy, which showed marked improvement of hydronephrosis (Fig. 2B). Ureteral leak and stricture due to the long incision on ureter could be expected. However, there was no prolonged leak and the follow-up excretory urogram showed good drainage.

REFERENCES

- Drach GW . *Transurethral ureteral stone manipulation*. *Urol Clin N Am* 1982 ; 10 : 709-717.
- Drach GW . *Urinary lithiasis*. In : Walsh PC, Gittes RF, Perlmutter AD, Stamey TA, eds. *Campbell's Urology*, 5th ed. Philadelphia : Saunders 1986 ; 1094-190.
- Heath PM . *Large ureteral calculus*. *Br J Surg* 1922 ; 10 : 53.
- Sabnis RB, Desai RB, Bradoo AM . *Giant ureteral stone*. *J Urol* 1992 ; 148 : 861-2.
- Sutor DJ, Wooley SE . *Some data on urinary stones which were passed*. *Br J Urol* 1975 ; 47 : 131-135.
- Tennant CE . *Ureteral stone of unusual size*. *JAMA* 1924 ; 82 : 1122.