

CASE REPORT

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Acute renal failure in bilateral urinary tract tuberculosis

Accepted: 4 February 1997

Abstract A case of bilateral urinary tract tuberculosis presenting with acute renal failure is reported. It is believed to be the first reported instance of the disease presenting in this form. The patient was managed with preliminary high diversion followed by bilateral replacement of the ureters with ileal loops that were anastomosed end-to-side and then implanted into the bladder.

Key words Genitourinary tuberculosis · Ileal ureter · Urinary diversion

Introduction

Genitourinary tuberculosis (TB) is uncommon in children and usually presents with cystitis. Presentation with acute renal failure (ARF) has not been previously reported. We report a boy with bilateral urinary tract TB and ARF.

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Case report

A 12-year-old boy presented with a single episode of haematuria, fever, urinary frequency, burning on micturition, pedal oedema, and abdominal distension of 2 months' duration. Oliguria progressed to anuria 4 days prior to admission to this hospital. The higher mental functions were normal although the patient had asterixis. The cardiovascular and respiratory systems were within normal limits. Abdominal examination revealed moderate ascites and mildly tender, 3-cm hepatomegaly. The external genitalia were normal. Investigations on admission revealed a haemoglobin level of 5.4 g/dl, total leucocyte count of 3,800/mm³, and adequate platelets. Blood urea nitrogen (BUN) was 166 mg/dl, serum creatinine 8.6 mg/dl, sodium 135 mEq/l, and potassium 6.2 mEq/l. Ultrasound (US) examination revealed bilateral massive hydronephrosis with an empty bladder. The ureters appeared dilated.

Based on these clinical findings, a diagnosis of renal failure secondary to obstructive uropathy was made. US-guided percutaneous nephrostomy was attempted but was not successful. The patient was stabilised with peritoneal dialysis and then a high urinary diversion was performed with a left loop ureterostomy and a right nephrostomy. The post-operative course was stormy due to renal failure complicated by hypocalcaemic seizures, brain oedema, and grade 4 coma. The right nephrostomy drained about 1,500 ml urine per day from the immediate post-operative period, whereas the output from the left ureterostomy was negligible. The BUN decreased to 40 mg/dl, serum creatinine to 1.5 mg/dl, and the serum electrolytes stabilised. He recovered consciousness completely within a week.

A voiding cystourethrogram done subsequently was within normal limits. A right nephrostogram revealed hydronephrosis with pelviureteric junction obstruction. A gamma-hippuric acid scan revealed bilat-

eral scarred kidneys with patchy isotope uptake. The patient was re-explored 1 month after the first surgery; bilateral pyeloplasty was planned. However, at surgery the renal cortex was found to be satisfactory in both kidneys but the ureters had very thick walls. When the right ureter was cut open, the lumen was completely obliterated along its entire length and the renal pelvis contained a large amount of xanthogranulomatous material that was highly suggestive of TB. The right ureter was excised and replaced with a 20-cm isoperistaltic loop of mid-ileum. On the left side a nephrostomy was fashioned. The left renal function improved; the urine output increased to 1,000 ml/day within a week. A diagnosis of TB was first thought of at this stage and anti-tuberculous therapy (ATT) with ethambutol, isoniazid, and rifampicin was started. Histopathology of the right ureter revealed caseating granulomas and confirmed the clinical suspicion. A Mantoux test done subsequently was also strongly positive.

Three months later the patient was again re-operated. The left ureter had multiple strictures in response to the ATT; it was resected and replaced by another isoperistaltic ileal loop, which was anastomosed end-to-side with the right ileal ureter. The latter was implanted into the bladder in a 10-cm-long submucosal tunnel and a psoas hitch was carried out. The third post-operative period was uneventful. He now passes urine in a good stream. The urine is clear of infection without prophylactic antibiotics; serum creatinine has stabilised at 0.7 mg/dl. Arterial blood gases and serum electrolytes are normal. The patient has resumed growth.

Discussion

The presenting symptoms of genitourinary TB are usually those of cystitis. The patient reported here

presented with ARF, although he also had haematuria and burning on micturition. However, these symptoms were not marked. Usually only one renal unit is affected. If the opposite renal unit is infected, it is either due to vesico-ureteral reflux on that side or because of a second focus of infection by the haematogenous route. The ureter becomes secondarily infected from the kidney. In an extensive review of the literature, we could not find any report of a patient presenting with acute renal shutdown as a result of ureteral TB [1].

Complete obliteration of the right ureter along its entire length by the tuberculous process was another unusual feature of this case. A similar pathology presumably affected the left side as well in the acute phase, resulting in ARF. Ureteral TB, as mentioned above,

is secondary to renal TB, the infection occurring through the urine. There is initial oedema and inflammation of the mucosa, which then spreads deeper. Tubercular follicles form on the surface; these later ulcerate, spread, and coalesce. Healing of the lesion takes place with fibrosis, which on contraction gives rise to the characteristic strictures and shortening of the ureter as seen on the left side in this patient. The right ureter was involved completely throughout its length and had thick walls without any grossly visible lumen. The patient was not on any ATT at the time of surgery on the right ureter, and this may have been the florid stage of ureteral TB.

Finally, ureteral replacement by ileal loops in TB has been mentioned previously in only five patients; in all these cases the clinical features and

operative findings were not described in detail [2, 3]. The case reported here seems to be the first documented case in which bilateral complete ureteral replacement with ileal loops has been done for TB presenting with ARF.

References

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