Case Report

The appendix – still a useful conduit

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Ureteric defects have been repaired in several ways; however, when the defect is extensive, options are limited, and substitution with an intestinal loop or renal autotransplantation may be the only option.[1] In the last 25 years, 10 studies have reported using the appendix for ureteral replacement.[2-11] However, only 3 of these describe appendiceal interposition in children. We report on a 10-year-old boy who underwent ureteral replacement with the appendix for chronic calculus obstruction.

Case history

A 10-year-old boy presented with a long history of intermittent mild right flank pain, having been previously treated for recurrent attacks of urinary tract infection. Clinical examination was unremarkable; urinalysis was normal. Haematological and biochemical investigations were also normal.

The control film of the intravenous urogram demonstrated a radio-opacity obscuring almost the entire right ureter. Although excretion of contrast was prompt, the right kidney showed some cortical thinning and a delayed pyelogram phase. There was moderate hydronephrosis and marked hydroureter, extending to a stricture just proximal to the ureterovesical junction.

The left system was completely normal. Renal scintography utilising Tc-DMSA indicated split renal function to be 30% right and 70% left. Cystoscopic examination of the urethra and bladder was normal. At laparotomy, the ureter was found to be dilated and thickened with two large calculi occupying most of its length. Owing to the length of the diseased segment, direct end-to-end anastomosis was not possible. We therefore evaluated the length, mobility and vascular supply of the appendix.

The appendicular arteries were preserved, and the right colon and the caecum were mobilised. The appendix was transected across the base of the caecum. The diseased ureteral segment was then resected. The appendix was anastomosed to the renal pelvis and the distal end was anastomosed to the bladder in free refluxing fashion. Histological studies demonstrated only nonspecific inflammation and fibrosis.

Follow-up intravenous urogram 3 months later showed persistent right hydronephrosis with delayed but satisfactory drainage. Six months postoperatively a diuretic renogram using Tc–DTPA was performed that demonstrated delayed excretion on the right side but good drainage following administration of furosemide. Split renal function had improved to 37.5% on the right side.

Discussion

In 1912 Melnikoff[12] was the first to report substitution of the ureter by the vermiform appendix. The majority of subsequent cases reported involved traumatic ureteral injury. Advantages in utilising the appendix include its convenient location in relation to the right ureter, the reduced calibre of the appendix and its natural peristalsis which decrease the risk of urinary stasis and decrease any associated electrolyte disturbance associated with small bowel segments.[2,3]
Possible limiting factors are previous inflammation and scarring, the quality of the meso-appendix, and its length and calibre. Appendix interposition is a convenient, simple and effective option when faced with the dilemma of ureteric replacement in adults and children and in trauma and non-trauma settings.

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