



The management of symptomatic simple renal cysts in children



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ABSTRACT

Renal cysts are being increasingly diagnosed in children due to the increasing use of ultrasound scanning (USS). Most are asymptomatic, but they may present with flank pain, haematuria, palpable mass or even urinary tract infections or urosepsis. There is a wide range of management options for symptomatic cysts, the choice of which depends on patient factors as well as surgeons' preference. In this case series, we present our experience in the management of five cases of symptomatic renal cysts which have been treated in varying ways, ranging from minimally invasive procedures to drain and sclerose the cysts, to more invasive procedures to excise and derroof the cysts.

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A review of patients with symptomatic simple renal cysts was undertaken retrospectively from the authors' prospectively maintained database. Five patients were identified (three female, two male). [Table 1](#) summarises the features of the five patients identified, and their differing management plans.

1. Case reports

1.1. Patient 1

An 11 year old female presented to an adult centre with recurrent left loin pain and suprapubic pain especially during micturition. Initial ultrasound scan (USS) showed several upper pole cysts on the left, the largest measuring 1.6 cm in diameter, with normal right kidney and bladder (images unavailable). Urodynamic study was normal and showed no vesicoureteric reflux. Dimercaptosuccinic acid radionuclide (DMSA) scan showed bilateral upper pole photopaenia which was more marked on the side of the cyst with a split uptake of 48% and 52% in the left and right kidneys respectively.

At 15 years of age, symptoms of persistent recurrent left loin pain led to the decision to proceed with ultrasound guided drainage of the cyst, during which 2 ml of clear serous fluid was aspirated. This resulted in improvement in loin pain but not complete resolution.

Further magnetic resonance (MR) imaging raised the possibility of a right sided *para*-calyceal cyst (5 mls in volume), along with the left sided cortical cyst which had re-accumulated (9 mls in volume) ([Fig. 1](#)). The patient's symptoms were much improved, and therefore no further intervention was performed.

1.2. Patient 2

A five year old female presented to our paediatric urology clinic with a history of lower and upper urinary tract infections, along with backache over the previous year. Upon further questioning a history of daytime urgency and occasional nocturnal enuresis was revealed. She was commenced on prophylactic antibiotics and given lifestyle advice regarding overactive bladder symptoms.

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Table 1
Summary of patients' demographic details, diagnosis and management.

Case	Sex	Age at presentation	Presenting complaint	USS findings	Size (mls)	Treatment	Follow up
1	F	11y	Loin pain and recurrent UTI	Simple cortical cysts left and right kidneys	10 ml	Needle aspiration of left cyst, conservative management of right cyst	Recollection on MR scan (9 ml) Minor intermittent left loin pain therefore no further intervention.
2	F	4y	Recurrent UTI	Single renal cyst with no involvement of collecting system.	370 ml	Doxycycline sclerotherapy via pigtail tube	Asymptomatic small residual cyst at follow up USS (30 ml).
3	F	12y	Loin pain	6 cm single renal cyst mid to upper pole of left kidney, no connection to collecting system	100 ml	Aspiration and drainage via pigtail tube	Asymptomatic after initial aspiration. Residual cyst (5 ml).
4	M	13y	Recurrent loin pain	6 cm cyst right renal pelvis – no connection to collecting system	130 ml	Open excision	Asymptomatic. Post-op USS – complete resolution with small mid-pole scar.
5	M	14y	Incidental finding on USS post trauma. Hypertension	10 cm × 9.5 cm × 10.2 cm simple cyst right kidney, no hydronephrosis.	500 ml	Laparoscopic deroofing.	Asymptomatic. Post-operative USS – Irregular shaped unilocular cyst 4.1 × 3.9 × 3.9 cm (33 ml).

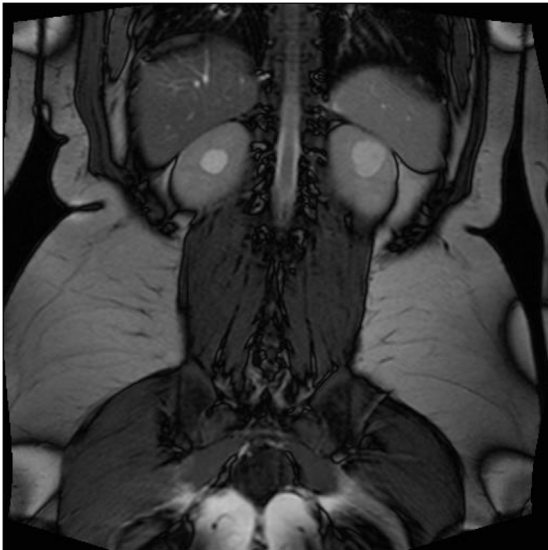


Fig. 1. MR abdomen, showing possible right sided *para-calyceal* cyst, and re-accumulated left sided cortical cyst.

Initial USS performed revealed a large cystic structure measuring $9.7 \times 8.0 \times 8.2$ cm (370 ml) centrally within the left kidney (Fig. 2) with a markedly dilated central collecting system. Functional imaging showed a split function of 42% on the left side and 58% on the right side with very good emptying on both sides without any obstruction (Fig. 3).

The scans showed that the collecting system was non-dilated and non-obstructed. Regular monitoring over the subsequent 12 months showed a fluctuating but steady increase in size of the cyst, up to $10.4 \times 10.3 \times 8.5$ cm (Fig. 4). This increase in dimensions was reflected in reported worsening of loin pain, and increase in frequency of urinary tract infections.

The decision to attempt drainage of the cyst, and delineate the relationship to the collecting system was made. A 6F pigtail tube was inserted under ultrasound guidance and the fluid drained from the cyst. Contrast was then infused under radiological control and no connection with the collecting system was seen (Fig. 5).

A novel use of doxycycline was proposed to sclerose the renal cyst. Current practice within our hospital uses doxycycline as a sclerosing agent for cervico-facial lymphatic malformations in paediatric cases. Using these guidelines, 200 mg (10 mg/ml) of

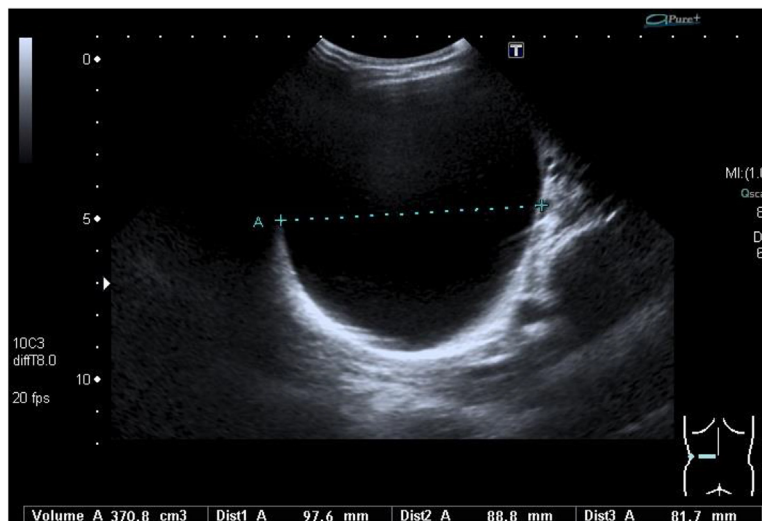


Fig. 2. USS showing large $9.7 \times 8.0 \times 8.2$ cm (370 ml) cystic structure within the left kidney.

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