UROLITHIASIS

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The prevalence of urolithiasis in children varies from around 1–5% in Asia, 5–10% in Europe to 15% in North America. Investigations include serum electrolytes, urinalysis, urine culture and stone analysis. Common metabolic risk factors include high oxalate and calcium levels and low levels of citrate in the urine. Therapy aims to alter these levels to reduce recurrence. Approximately 25% of stones are caused by a UTI from urease-producing bacteria, Proteus mirabilis or Klebsiella pneumoniae . Anatomic anomalies leading to urinary stasis and urolithiasis include ureteropelvic junction obstruction, poly cystic kidney and neurogenic bladder. Children may present with flank or abdominal pain, gross haematuria, dysuria, nausea or vomiting. Stones are easily detected with ultrasound. Non- contrast computed tomography scans are very sensitive but involve ionising radia tion. Small stones may pass with generous oral hydration and analgesia. Some stones with associated infection require intra venous hydration and antibiotics. α -Blockers and calcium channel blockers may reduce d ysmotile ureteric contractions initiated by a stone while preserving helpful expulsive peristal tic activity . Reimaging may confirm the passage of a stone. Intervention may be required to manage pain, obstruction and treatment-resistant stones. Extracorporeal shock wave lithotripsy (ESWL) can safely and e ff ectiv ely fragment stones smaller than 2 /uni00A0 cm using focused, high-energy shock waves delivered under general anaesthesia. Ureteroscopy allows frag mentation and removal of stones smaller than 2 /uni00A0 cm from the ureter or kidney but is avoided in those younger than 5 years. Percutaneous nephrolithotomy (PCNL) can be used to extract stones from the kidney through a dilated tract. PCNL is used for stones larger than 2 /uni00A0 cm, ESWL-refractory stones smaller than 2 /uni00A0 cm and multiple stones. Summary box 20.1 Urolithiasis /uni25CF /uni25CF -

Children with urolithiasis should be evaluated for metabolic risk factors Urological management depends on the size of calculi, age, number of stones and the presence of obstruction, infection or /uni00A0 pain Figure 20.2 (a) Subcoronal hypospadias with dorsal hooded prepuce. (b) 5-Fr feeding tube in hypospadiac meatus. (c) Urethroplasty. (d) Creation of a terminal neo-meatus with skin closure. (e) Healed penis after hypospadias repair. Figure 20.3 Penopubic meatus (arrow) in epispadias in a boy.

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