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Surgical urologic problems

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Congenital malformations of the genito urinary tract are common. Management of these problems in the neonatal period is best undertaken by a team consisting of a specialist surgeon (paediatric urologist or paediatric surgeon), paediatric nephrologist and paediatric radiologist working in conjunction with a neonatologist.

Incidence

The following figures represent an estimate of the incidence of some paediatric genito urinary conditions-based on experience in a specialist paediatric urological unit in the United Kingdom.

Congenital phimosis 50-60 per thousand males (Sufficient to justify circumcision)
Undescended testis 8-16 per thousand males
Hypospadias 3-5 per thousand males
Vesico ureteric reflux (estimate) 10 per thousand
Pelvi ureteric junction obstruction 0.5 per thousand
Neuropathic bladder 0.2 per thousand
Posterior urethral valves 0.2 per thousand (Males)
Bladder exstrophy 0.03 per thousand

Clinical Presentation

Most urological abnormalities present in one of three ways, i.e.

1. Visible or palpable clinical sings
2. Urinary infection
3. Prenatal or incidental ultrasound finding

1. Visible or Palpable Clinical Signs

The visible anomalies include bladder exstrophy, genital abnormalities in the male (hypospadias) and the female (prolapsed ectopic ureterocele) and in infants of indeterminate gender (ambiguous genitalia-for investigation). The prune belly syndrome is readily evident at birth as are the characteristic facies and complications of Potter's syndrome.

Palpable lesions generally consist of abdominal masses. A high proportion of neonatal abdominal masses originate within the genito urinary tract. Those in the loin or upper abdomen are usually renal in origin and include multicystic dysplastic kidney, hydronephrosis (PUJ obstruction) and, rarely, tumours such as mesoblastic nephroma. A lower abdominal or suprapubic mass in a male neonate is likely to be the bladder-likely diagnosis posterior urethral valve obstruction. In the female neonate hydrocolpos may present as a supra pubic mass-as may an ovarian cyst.

2. Urinary Infection

This is uncommon in the first few days of life. When it does occur it is generally part of a blood borne infection rather than asecnding bacteruria. In the later neonatal period urinary infection is generally due to obstruction or reflux. In the male psterior urethral valve obstruction and vesico ureteric reflux are the most common causes. In the female one should look for a duplex system with upper pole obstruction or a ureterocele.

3. Asymptomatic Presentation-Prenatal Diagnosis or Incidental Finding

Prenatal diagnosis is revolutionisign paediatric urology in Northern Europe and North America. Eighty percent of neonates with prenatally diagnosed uropathies are asymptomatic and their urological disorder would have gone undiagnosed without the maternal ultrasound scan findings. Research is needed to define the role of prenatal

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diagnosis in clinical management. Urological abnormalities may also be identified as incidental findings during the investigation of other congenital anomalies, eg oesophageal atresia.

Investigation

Ultrasound is by far the most useful investigation in the neonatal period. Voiding cystography and endoscopy are of greater relative importance in the neonatal period than in later childhood. In contrast imaging which is dependent upon renal function eg intravenous urography, isotope renography, is potentially unreliable during the period of poor renal function (transitional nephrology) in the first month of life. Suspected obstructive uropathy is best investigated by the use of dynamic isotope renographyeg Tc 99 DTPA. The investigation of reflux nephropathy and the localisation of ectopic kidneys is best accomplished by static imaging with 99 Tc DMSA. Intravenous urography has a limited role, but has a specific place to play in the demonstration of ureteric anatomy-particularly in relation to duplex systems.

Treatment

Paediatric urology is a rapidly evolving specialty. It is difficult to summarise the management of the wide range of disorders in a brief summary.

The principles of management can be defined as follows:

1. Preservation of renal function
2. Prevention of symptoms and ill health-particularly in the context of urinary infection
3. Where appropriate-preservation of continence
4. Where appropriate-psychological and cosmetic considerations-the importance of the 'body image" in childhood and adolescence.

Complex reconstructive surgery in the neonatal period is technically challenging. In many instances it is preferable to defer surgical intervention or to perform a temporary procedure (cutaneous vesicostomy) to decompress obstructed or refluxing upper tracts rather than attempt definative surgery in the neonatal period.