20.1 Penile Cysts

A variety of cystic lumps can be recognized in the penis, either congenital or acquired. Diagnosis of most of them is straightforward based on clinical appearance, but imaging can be required, especially in large lesions, to confirm diagnosis and to assess relationships with adjacent penile structures.

20.1.1 Median Raphe Cysts

These uncommon benign lesions are due to entrapment of epithelial cells during fusion of the labial scrotal folds. They can occur anywhere along the penile or scrotal raphe from the anus to the urinary meatus and are usually asymptomatic, but can get secondarily infected (Cardoso et al. 2005). When located on the border of the urethral meatus, which is the predominant site, they are also known as parametal cysts (Otsuka et al. 1998). Most are present from birth and remain undetectable until adolescence or adulthood, occurring as a solitary freely movable nodule on the ventral surface of the penis.

Histopathologically, the luminal surface wall of all cysts consists of pseudostratified columnar epithelium with large polygonal cells developing apocrine metaplasia in the free border. The content of all cysts was clear mucinous fluid. At ultrasound they usually appear as simple cysts, with typically anechoic content (Pavlica 1998).

20.1.2 Epidermoid Cysts

These lesions result from the proliferation of epidermal cells within a circumscribed space of the dermis. They are composed of keratin producing epithelium and can be distinguished from dermoid cysts, which contain skin and skin appendages, and from sebaceous cysts.

Clinically, epidermoid cysts appear as firm, oval or lobulated nodules of variable size located either on the dorsum of the penis or, less frequently, on the ventral aspect of the penile shaft (Rattan et al. 1997). They are more often encountered in childhood, but can occur also in middle age and in the elderly.
These lesions are usually slowly growing and asymptomatic, but occasionally can grow rapidly and get inflamed. Large epidermoid cysts may interfere with intercourse and cause problems with walking or wearing underwear. They can also interfere with urination.

Therapy consists of surgical removal of the mass. Imaging is often required in patients with large, rapidly growing epidermoid cysts to confirm the cystic nature of the lesion and assess the relationship with adjacent organs.

At ultrasound (Fig. 20.1) epidermoid cysts appear as ovoid or lobulated masses with well-defined margins, with relatively echogenic content with hypoechogenic foci. Calcifications are occasionally identified. No vascularity is recognized at color Doppler interrogation.

Ruptured cysts may have more lobulated contours and show perilesional Doppler signals. Calcified cysts appear as solid hypoechogenic masses with multiple calcified foci associated with dense digital acoustic shadowing.

At magnetic resonance imaging (Fig. 20.1), epidermoid cysts present with well-circumscribed masses lacking internal contrast enhancement. On T1-weighted images signal intensity is similar or higher compared to muscle, while signal intensity is high on T2-weighted images. Irregular low-signal intensity areas are recognized on both T1- and T2-weighted images.