Phimosis

In phimosis the inability to retract the foreskin over the glans penis is due to a narrow ring in the prepuce. Several factors have been suggested to aid in the gradual dilation of this ring: histological changes in the prepuce, hormonal factors and stretching due to erections. While erections occur even antenatally, these may be insufficient to stretch the foreskin if it is relatively long, and therefore relative phimosis can be present for a prolonged period [19].

Epidemiological studies of the natural course of phimosis are difficult, as they are affected by treatment of a subgroup of subjects. Nonetheless, the incidence of phimosis is 9-20% in five to thirteen year-olds and just 1% in males aged sixteen to eighteen years [19, 20].

Preputial adhesions

Another cause of non-retractability of the prepuce are adhesions of the foreskin to the glans, and this must be distinguished from phimosis. Usually when adhesions are present, partial retraction is possible and the meatus can be visualised [20]. Adhesions are a physiological phenomenon of variable duration, present in 63% of six to seven year-olds and 3% of sixteen to seventeen year-olds without phimosis [20]. Progressive separation of the inner prepuce from the glans is associated with build-up of epithelial debris (smegma) and aided by penile erections. During this process smegma can accumulate into nodules that may be mistaken for cysts. When released from between the skin layers smegma can resemble purulent discharge, especially when mixed with urine. There may temporarily be focal erythema. In the absence of other signs of infection, this should not be confused with balanitis.

Once adhesions between the glans and inner prepuce are resolved there may be ballooning of the foreskin during voiding, particularly if the opening of the prepuce is still relatively narrow. Ballooning is not a sign of obstructed voiding and uroflows have been shown to be normal with ballooning [21]. Therefore, ballooning may be a physiological phase, and it should only be considered a problem in case of (recurring) balanitis.

Paraphimosis

In paraphimosis the foreskin has been retracted and cannot be brought back down to cover the glans of the penis. In children it is most likely due to manipulation, with an incidence reported to be as low as 0.2% [18]. The risk of paraphimosis is higher if there is relative phimosis. The narrow ring in the retracted prepuce may constrict the shaft at the level of the sulcus, leading to edema of the glans and retracted foreskin. Impaired perfusion may lead to necrosis of the prepuce and ultimately of the glans. Paraphimosis must be regarded as a medical emergency requiring urgent treatment [22].

Balanitis/balanoposthitis

Balanoposthitis may be defined as erythema and swelling of the glans (balanitis) and/or foreskin (posthitis), with discharge of pus. It should not be confused with focal irritation due to retention of droplets of urine under the foreskin. Balanoposthitis may be seen in 6% of uncircumcised boys [18, 23].

Balanitis xerotica obliterans

Balanitis xerotica obliterans (BXO) is a non-painful chronic inflammatory disease which may affect the glans, foreskin, meatus and urethra. As such it is a genital form of lichen sclerosus et atrophicus [19]. Balanitis xerotica obliterans may lead to scarring, phimosis and urethral outflow problems. Histological analysis of the prepuces of children and adolescents undergoing circumcision for medical reasons shows signs of BXO in 35%-53% [24]; in boys younger than ten years this is 17% [25, 26].

Inconspicuous penis

There are several types of concealed or inconspicuous penis, which should be differentiated from truly small penis such as micropenis with abnormal size of the corporeal bodies or even aphallia.

- Buried penis and megaprepuce are congenital anomalies in which the skin is folded abnormally around the shaft. The opening of the prepuce can be narrow, prohibiting retraction similar to regular phimosis, but may also be normal. Occasionally buried penis may be due to abnormal prepubic fat distribution, which may be self-limiting with growth or weight loss.
- In webbed penis the penoscrotal angle is abnormal due to the scrotum being attached high on the ventral side of the shaft.
- Trapped penis is an iatrogenic form of buried penis which may be caused by resection of too much skin during circumcision [27].