US of the Postoperative Penis

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CONTENTS

16.1 Background 133
16.2 Common Postoperative Complications 133
16.3 Straightening Operations 134
16.3.1 Shortening Procedures 134
16.3.2 Lengthening Procedures 134
16.4 Prosthesis Implantation 136
16.5 Vascular Surgery for Impotence 137
16.6 Circumcision 139
16.7 Penile Augmentation Procedures 140
16.8 Shunt Surgery for Ischemic Priapism 140
16.9 Sex Reassignment Surgery 141
16.10 Urethral Surgery 141
16.11 Follow-Up of Patients with Penile Tumors 142
16.12 Diagnostic Role of Other Imaging Modalities 142
References 145

16.2 Common Postoperative Complications

As occurs in surgical procedures elsewhere, penile hematoma, other postoperative fluid collections and infection are the most common complications of penile surgery. In the course of time, hematomas present with different ultrasound features (Doubilet et al. 1991). Acutely, their content can appear echogenic; then, they become hypoechogenic and organize presenting with complex echogenic areas, anechoic regions and septations. Lymphatic and serous collections are uncommon and usually appear anechoic.

Grey-scale ultrasonography allows evaluation of the relationships between postoperative fluid collections and the normal penile anatomical structures (Bertolotto et al. 2005). In particular, the Buck’s fascia becomes appreciable as a layer distinct from the tunica albuginea when fluid extravasation accumulates between them. The Colles’ fascia is barely visible in pathological conditions as well, but it is possible to assess whether a fluid collection develops in the space between the Buck’s and the Colles’ fascia when it is identified above the deep dorsal vessels.

High-flow priapism has been reported as a rare complication of penile surgery. Cavernosal artery injury may be produced during insertion of the needle used to obtain the hydraulic erection (Liguori et al. 2005) and, in patients with ischemic priapism, during aspiration of the blood entrapped within the corpora cavernosa (McMahon 2002). Also surgical shunting procedures in patients with ischemic priapism can occasionally complicate with cavernosal artery injury and high-flow priapism. The site and flow characteristics of the arterial cavernosal fistula can be evaluated at color Doppler ultrasonography, which demonstrates extravasation of blood from the lacerated artery presenting with a characteristic color blush of variable size. Duplex Doppler interrogation of the lesion shows high-velocity, turbulent flows (Bertolotto et al. 2003).
Straightening Operations

As described in Chapter 15, surgical correction of penile curvature can be either approached with shortening or with lengthening procedures. In patients with congenital or acquired penile bending, shortening procedures provide excellent results in terms of preservation of erectile function, but the result is loss of penile length because straightening is obtained with excisions or plications of the tunica albuginea at the opposite site of the curvature. Lengthening procedures with grafting are indicated in patients with severe curvature resulting in severe shortening, narrowing or hourglass deformities. In these operations the diseased tunica albuginea is replaced by a variety of autologous tissues, cadaveric tissues and synthetic materials. In patients who underwent straightening surgical procedures, grey-scale and color Doppler ultrasonography allows an excellent evaluation of postoperative anatomical changes and complications (BERTOLOTTO et al. 2005).

16.3.1 Shortening Procedures

As described in Chapter 15, a shortening procedure was first described by Nesbit in 1965 to correct congenital penile curvature and was subsequently used also in patients with Peyronie’s disease (NESBIT 1965). Following the Nesbit’s operation, grey-scale ultrasound allows identification of the albugineal excisions as interruptions of the echogenic interface of the normal tunica albuginea (BERTOLOTTO et al. 2005). The albugineal sutures are visible as echogenic knots (Fig. 16.1). These features are better visualized in the early postoperative period, because the absorbable sutures are intact and a small amount of fluid is often present that eases their identification. A modification of the Nesbit operation was described by YACHIA (1990). Postoperative ultrasound findings are similar to the Nesbit operation.

In patients with corporeal plication ultrasonography shows small lumps next to the albugineal sutures extending within the corpora cavernosa (BERTOLOTTO et al. 2005). In patients with normal erection before surgery after shortening procedures, postoperative erectile dysfunction is uncommon. When present, color Doppler interrogation allows evaluation of the penile arteries and identification of leakage pathways.

16.3.2 Lengthening Procedures

Grey-scale ultrasonography allows identification of albugineal sutures after lengthening operations as well (BERTOLOTTO et al. 2005). As described for shortening operations, their visualization is better in the early postoperative period. In these patients the albugineal patch is usually identified as an interruption of the normally appreciable hyperechoic interface of the tunica albuginea. The appearance of the graft is different depending on its composition (Fig. 16.2). Dermal grafts, for instance, are in general hyperechoic and thicker than the normal tunica albuginea, while the saphenous grafts appear less echogenic (BERTOLOTTO et al. 2005). Also these findings are better appreciable early after the operation. Regardless of composition, albugineal grafts become progressively thinner with time, and their appearance becomes similar to the surrounding native tunica albuginea within 4–6 months.

Causes of surgical failure or complications following lengthening operations can be evaluated with grey-scale and color Doppler ultrasonography. In particular, residual or recurrent plaque can be identified in patients with Peyronie’s disease (Fig. 16.3), and epidermoid cysts have been described in dermal grafts (Fig. 16.4) developing from inclusion of surface epithelium (SAVCA et al. 1999). In patients with postoperative penile narrowing, indentation or bulging, ultrasound allows to confirm contracture or relaxation of the graft with cavernosal tissue herniation.