Penile reconstruction is usually performed in transgender patients and after penile amputations, usually postoncologic. Less frequently, phalloplasty is performed to treat micropenis, in the context of epispadias or hypospadias. A myriad of surgical techniques have been described for penile reconstruction, none of which is ideal. The reconstruction must allow sexual intercourse, voiding, and restore self-image.

Microvascular techniques are the standard of care for total penile reconstruction. Radial and/or fibular free flaps are popular techniques. The glans penis is usually simulated at the tip to improve cosmesis. In the unusual patient with micropenis and a relatively normal glans penis, retaining the glans and using it in the phalloplasty may improve cosmesis and sensation.

We present a case of total penile reconstruction in a cripple hypospadias micropenis with a double free flap and transfer of the original glans penis.

**CASE REPORT**

A 40-year-old man presented with a cripple penis after multiple surgeries for hypospadias, with marked negative psychological impact (depression with suicidal ideation). The penile shaft was short,
heavily scarred, and with multiple fistulae. The glans was normal in size (Fig. 1).

In the first stage, the glans penis was dissected as a free flap based on the dorsal vessels, and the remnants of the penile shaft were resected. A standard radial forearm phalloplasty flap was constructed. The glans penis was transferred to the distal portion of the radial flap, connecting 1 dorsal penile artery end-to-side to the distal radial artery, the dorsal penile vein to a distal subcutaneous vein, and the dorsal penile nerves to distal branches of the medial and lateral antebrachial cutaneous nerves (Fig. 2). The composite penile free flap was transferred to the perineum. A vascular loop between the greater saphenous vein and the femoral artery was used as recipient vessel. The dorsal penile nerves of the stump were repaired to the proximal lateral and medial antebrachial cutaneous nerves.

Three months later, a free osteocutaneous fibular flap was performed to provide rigidity. The margo medialis of the fibula was removed, and the tip was rounded to reduce the volume and avoid distal erosion (Fig. 3). The bone was fixed to the stump of corpora cavernosa with a heavy suture.

The evolution was uneventful, with acceptable cosmesis, sexual intercourse ability, and dramatic psychological improvement (Fig. 4).

**DISCUSSION**

Since its introduction by Chang and Hwang, the tube-in-tube design of the radial forearm flap has become a popular technique for phalloplasty. The advantages of thin, relatively nonhairy skin for urethral reconstruction, and potentially excellent sensory reinnervation outweigh the donor scar and the need for a secondary stiffener. The inclusion of a portion of radial bone within the flap provides less than satisfactory stiffness and increase the risk of fracture. Penile prostheses do poorly in total phallic reconstruction, and the same is true for bone or grafts.
Vascularized bone seems to be a better choice, although at the expense of increased complexity and donor morbidity.\textsuperscript{5,6} The resection of the margo medialis of the fibula reduces the cross-section of the bone without impairment of vascularity (Fig. 3).

The microsurgical transfer of the original glans to the reconstructed penile shaft was originally described by Cheng et al.\textsuperscript{7} but the technique and results are difficult to evaluate in the pictures provided. The glans penis was used as a pedicled flap after a traumatic injury by Sengezer et al.,\textsuperscript{5} although the limited rotation arch is a significant drawback. Microsurgical glans transfer is rarely indicated and technically demanding, but it provides an excellent aesthetic result and erogenous sensation.

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