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Letter to the Editor

Correspondence to the editorial comment for "Surgical and functional outcomes of Dorsal Inlay Graft urethroplasty in revision vs primary hypospadias repair in the pediatric age"

I read both the editorial commentary [1] and the article on "Surgical and functional outcomes of dorsal inlay graft urethroplasty in revision vs primary hypospadias repair in the pediatric age" [2]. Although it has been stated that the strength of the article lies in the surgical descriptions and images, I would like to criticize and raise questions about the aims of hypospadias repair and grafting of the ventral surface of the glans and their relevance to normal anatomy.

First, it is true that the aim of hypospadias repair is to obtain a straight penile shaft with the external meatus at the tip of the glans. However, this does not mean that the urethra in the penis has a straight, uniform configuration and diameter. The male urethra features the glanular urethra (navicular fossa), which lies vertically in the glans penis and is wider and slightly higher than the penile urethra. This slightly rising inclination is ensured by the lower median septum (of the septum glandis), which also represents the ventral fibrous ligamentous connection of the glans to the shaft of the penis. These are important features of the male urethra that result in changes in the volumetric shape, velocity and pressure of urine just before it exits the external urethral meatus [3].

Second, the dual embryonic development of the male urethra proves that the glans is not anatomically extended expansion of the corpus spongiosum [4,5]. As we have previously showed, the corpus spongiosum gradually terminates at the mid-glanular level where it meets the navicular fossa [6]. Therefore, the ventral surface of the glans, which is commonly described as a "groove" but is actually the malformed navicular fossa, is not the extension of the urethral plate of the penile shaft. Glans should be considered as a separate anatomical structure which is connected to the shaft of the penis with the ligamentous connections (distal ligament, septum glandis, and lower median septum).

Another "well-established" procedure, which is a part of DIG (Dorsal Inlay Graft) urethroplasty, is the (deep) incision of the glans on the midline to facilitate tubularization of the glans. As with all hypospadias repair techniques, DIG urethroplasty not only ignores the reconstruction of the septum glandis (lower median septum) between the glans wings, but also has detrimental properties to the structural anatomy of the glans. The deep incision into the glans is exactly the same procedure as the direct visual internal urethrotomy, which has been reported to cause erectile dysfunction in patients with multiple attempts at hypospadias repair [7]. In my opinion, grafting this incision should be viewed as irreversible damage to the distal ligament. Because DIG urethroplasty has potentially deleterious effects on the glans-shaft connection and glans stability, the erectile function of the authors' patients (particularly redo patients) should also be evaluated. I believe that hypospadias repair surgeries are, as in DIG urethroplasty, the most questionable procedures performed without consideration of normal anatomy. Furthermore, although they are not anatomical, these procedures are unfortunately referred to as "well-established" procedures.

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