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Letter to the Editor

Notes from the underforeskin - Comment on "Technical nuances of the concealed penis"

"Technical nuances of the concealed penis repair" is a well-demonstrated video article by Dr Zaontz and Dr Long [1]. The surgical details of the penile shaft are clearly visible in the video; the authors dissect the dartos layers in the midline to deglove the penis (2:52–2:57 min), a method commonly used in the surgical treatment of concealed/buried penis. Buried penis is usually defined as a proximal retraction of the corporal bodies due to abnormal connections of the penile skin and dartos tissue to the Buck's fascia. These connections are often referred to as abnormal "bands" or abnormal "lateral bands" of dartos, but it is unclear what they describe. In order to correct a buried and/or webbed penis, it is important to know the anatomical tissues and layers surrounding the penile shaft.

The "dartos" is not a true fascia, but rather a subcutaneous connective tissue between the dermis and the Buck's fascia [2]. The dartos tissue of the penile shaft consists of superficial and deep layers and also extends into the foreskin. We have shown the structural framework of the penis, which consists of collagen tissues and the fibrous ligamentous structures. The thick and loose superficial layer of the dartos tissue lies under the skin, abundant with collagen fibers, blood vessels, nerves and lymphatics, the deep layer is based on the Buck's fascia, which is thin and dense. When preparing the foreskin (e.g. hypospadias surgery), it is important to preserve the superficial (subdermal) dartos to prevent skin necrosis (Fig. 1). The loose component of the superficial layer of the dartos tissue is without blood vessels (so-called areolar tissue), which is responsible for the high degree of mobility of the penile skin over the Buck's fascia. We have also described the simple separation of the inner and outer layers of the foreskin by dissection performed through this loose compartment to perform anatomical modeling of the foreskin for glanular urethra reconstruction in hypospadias [3]. The so-called "dysgenetic bands" are an abnormal composition of the two layers of the dartos and the abnormal connection between them and the Buck's fascia. The two layers of dartos tissue and their disarrangement in the buried penis are well described [4].

The band referred to by the authors as the "frenular band" is actually the connective tissue between the septum glandis (lower median septum) and the frenulum, which matures during the first five years of life and becomes visible during adolescence. The ventral septum between the wings of the glans (septum glandis-lower median septum) provides a loose connection between the two and contributes to the adaptive configuration of the glanular urethra and the slit meatus during micturition [5,6]. Therefore, cauterization of this tissue can lead to fibrosis and/or meatal stenosis and functional impairment. In the authors' video, its division does not seem to have any influence on the degloving and/or relief of the penile shaft. Therefore, we believe that leaving this developing "band" untouched would not affect the authors' technique.

Another important anatomical site of the foreskin is the "paraphimotic band," which the authors used as the name for their technique. It is the place where two layers of dartos fuse and is rich in connective tissue and capillaries but without any loose component (*) (Fig. 1). Obviously, this is the least stretchable part of the foreskin, which forms a constricting band when the foreskin is retracted.

Penile malformations can have devastating consequences for the child and his family. The human penis has many fine tissues that must

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Fig. 1 Longitudinal cross section of the glans of a 25-week-old fetus showing collagen fibers and capillaries. The staining of the tunica albuginea which forms the distal ligament (DL), and the septum glandis (SG) around the glanular urethra (GU), is clearly visible. The dartos tissue of the foreskin has a thicker outer layer (DOL) than the inner one (DIL) with a looser component (DLC). The loose dartos tissue ends in the preputial ring, but the collagen and muscle fibers of the outer and inner dartos tissue appear to fuse and become denser. Note also the dense collagen fibers of the inner dartos layer. (Masson's trichrome stainingX40) Copyright© Hüseyin Özbey-2024.

be defined during surgery to understand what is being corrected anatomically. Unfortunately, the penis is one of the organs whose normal anatomy is least understood. We believe this explains why there are so many treatment techniques for the same penile malformation.

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Conflict of interest

None.

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