



## Letter to the Editor

### Response to the comment on “Hypospadias repair with the glanular-frenular collar (GFC) technique”



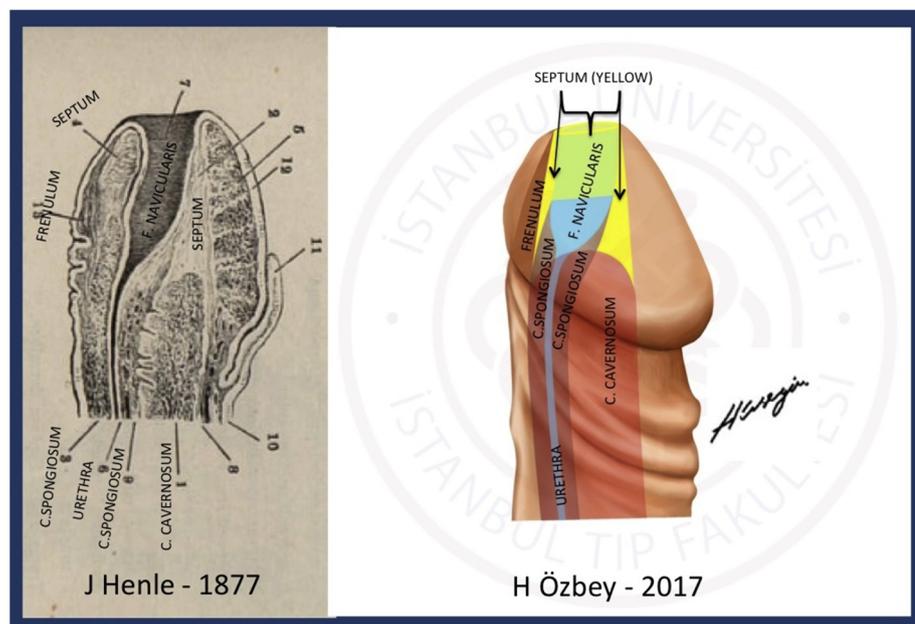
by van der Putte [2]. As a result, the glans wings merge in the ventral midline, but they are separated by the septum and the frenulum, and do not attach to each other in the deeper layers. These features of the septum glandis and the frenulum have clearly been recently documented with an MRI study [3]. The male urethra is NOT a tubular structure with uniform configuration and diameter, and has distinct attachments in the glans penis with the ‘fossa navicularis’. In hypospadias surgery, the standard method for decades has been tubularization of the neourethra over a catheter or stent and approximation of the dissected glans wings on the midline to enclose the neourethra. The GFC technique takes into account, for the first time, the anatomical features of the glanular urethra, in particular the ‘fossa navicularis’, ‘septum glandis’ and the ‘frenulum’ [4–6].

To summarize:

- 1- When the GFC technique is dubbed a frenuloplasty, it immediately becomes obvious

We thank the correspondents for the opportunity to underline the basics of the human penis anatomy. It is on this premise that the Glanular-Frenular Collar (GFC) technique has prompted a revision of current urethroplasties.

In normal human penis anatomy, the corpus spongiosum covers the urethra up to the mid-glanular level. After that level, a fibrous tissue (septum glandis) surrounds the glanular urethra (fossa navicularis), connects the upper and lower median septum and holds the glanular urethra in the midline as a suspensory ligament (Fig. 1) [1]. Traversing the wings of the glans penis, the septum glandis is connected to the frenulum, which is an epidermally lined fibrous tissue included in the formation of the ventral aspect of the distal (glanular and subcoronal) urethra, as proposed



**Figure 1** Anatomy of the human penis showing distinct attachments of the glanular urethra (fossa navicularis) with the “septum glandis” and the “frenulum”.

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- that the technique has been misconceived. The technique aims to restore the functional anatomy of the glans with formation of the 'septum glandis' and frenulum between the glans wings, replicating the embryologic development of the terminal urethra.
- 2- The GFC technique allows a tension-free tubularization of the glanular urethra, afforded by the limited spongioplasty. The space provided for the re-formation of the fossa navicularis is supported by loose connective tissue (septum and frenulum) ventrally. The ventral aspect of the glans penis should not be covered (compounded) by the glans wings over its full length, in order to accommodate the frenulum.
  - 3- The GFC technique doesn't necessitate glans dissection, is neither limited, nor extensive. Subepithelial approximation has been found to be anatomically and physiologically sufficient.
  - 4- We accept that novel techniques may be difficult to comprehend on paper alone and, for this reason, two GFC workshops were recently organized in Istanbul in conjunction with the 20th and 21st Hypospadias study days of the Turkish Society for Sexual Development and Hypospadias. We would like to invite our colleagues to attend, observe and discuss their experiences with us in forthcoming meetings.

## References

- [1] Henle J. Anatomischer Hand-Atlas zum Gebrauch im Secirsaal (Band 6). Eingeweide. Braunschweig: Available via University Library Heidelberg; 1877. Available from: <http://digi.ub.uni-heidelberg.de/diglit/henle1877bd6/0093>.
- [2] Van der Putte SCJ. Hypospadias and associated penile anomalies: a histological study and a reconstruction of the pathogenesis. *J Plast Reconstruct Aesthet Surg* 2007;60:48–60.
- [3] Özbey H, Kumbasar A. Glans wings are separated ventrally by the septum glandis and frenulum penis: MRI documentation and surgical implications. *Turk J Urol* 2017;43:525–9.
- [4] Özbey H, Etker Ş. Hypospadias repair with the glanular-frenular collar (GFC) technique. *J Pediatr Urol* 2016;13:34. <https://doi.org/10.1016/j.jpurol.2016.09.016>. e1-34.
- [5] Özbey H. Consequences of extensive glanular dissection. *J Pediatr Urol* 2017;13:227–8. <https://doi.org/10.1016/j.jpurol.2016.08.009>.
- [6] Özbey H. Re. "Pre-incision urethral plate width does not impact short-term tubularized incised plate urethroplasty outcomes". *J Pediatr Urol* 2018;14:200–1.

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