

Original article:

Glans dehiscence after TIP urethroplasty: Can the extended glans dissection be the solution?

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Abstract

Background: The Tubularized-incised plate urethroplasty (TIP) is currently, one of the most common techniques used in the repair of hypospadias. The glans dehiscence and urethro-cutaneous fistula are the most common complications of this technique.

Aim: This study envisages the impact of extended glans dissection on incidence of glans dehiscence and urethrocutaneous fistula.

Materials and Methods: This is a retrospective study including 58 patients of distal hypospadias who were operated in the same institute by two pediatric surgeons using two different techniques of hypospadias repair viz. classical Snodgrass urethroplasty and Snodgrass urethroplasty with extended glans dissection as per surgeon's choice. The results were evaluated for the two groups with respect to incidence of glans dehiscence and urethrocutaneous fistula.

Results: The Classical technique was used in 32 patients. The Snodgrass urethroplasty with extended glans dissection was done in 26 patients. The glans dehiscence developed in four cases with classical technique and in one case of extended glans dissection group. The urethrocuteaneous fistula developed in eight cases with classical technique and in five cases of extended glans dissection group. The odds ratio of developing glans dehiscence was 3.57 (P value 0.26) and developing urethrocuteaneous fistula was 1.4 (P value - 0.60).

Conclusion: The chances of both glans dehiscence and urethrocutaneous fistula reduce with extended glans dissection technique but could not be proved statistically significant.

Key word: Hypospadias, Snodgrass urethroplasty, Glans dehiscence, Urethrocutaneous fistula, TIP Urethroplasty

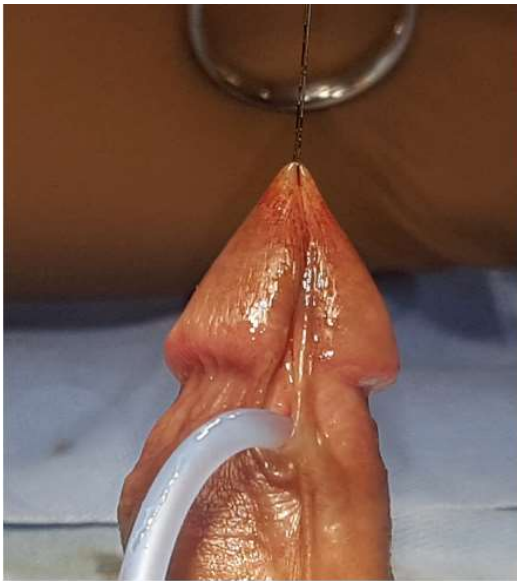
Introduction:

Hypospadias is one of the most common congenital anomalies. The mean prevalence per 10000 births were: Europe 19.9 (range: 1-464), North America 34.2 (6-129.8), South America 5.2 (2.8-110), Asia 0.6-69, Africa 5.9 (1.9-110), and Australia 17.1-34.8. Recent evidence suggests that the incidence and severity of hypospadias has increased over the last 30 years.(1) The reconstruction of this common anomaly is considered to be a challenging field in pediatric surgery and multiple reconstruction techniques have been described till date.

The Tubularized-incised plate urethroplasty (TIP) is currently, one of the most common techniques used in the repair of hypospadias. This technique has certainly revolutionized reconstructive surgery of hypospadias.(2) It has shown superb results in the surgical treatment of primary, redo, distal and proximal hypospadias.(3) The authors hereby compare the two techniques of TIP urethroplasty.

Materials and methods:

This is a retrospective study carried out in tertiary care hospital. The total 58 patients of distal hypospadias were studied retrospectively from hospital records for the type of technique used for reconstruction and incidence of the glans dehiscence and urethrocutaneous fistula. The patients were operated by two pediatric surgeons using two different techniques of hypospadias repair viz. classical Snodgrass urethroplasty and Snodgrass urethroplasty with extended glans dissection as per surgeon's choice. None of the patients were given pre operative testosterone injections. The results were evaluated for the two groups with respect to incidence of glans dehiscence and urethrocutaneous fistula. The odds ratio and p value was used to compare incidence of complications in the two groups. The mean follow up for both the groups was 6 months.



Results:

Total 58 patients of distal hypospadias were included in study. The Classical technique was used in 32 patients. The Snodgrass urethroplasty with extended glans dissection was done in 26 patients. The glans dehiscence developed in four of 32 cases (12.5%) with classical technique and in one of 26 cases (3.8%) of extended glans dissection group. (Table-1) The urethrocuteaneous fistula developed in eight cases (25%) with classical technique and in five cases (19.2%) of extended glans dissection group.(Table-2) The odds ratio of developing glans dehiscence was 3.57 (P value - 0.26) and developing urethrocuteaneous fistula was 1.4 (P value - 0.60).

Discussion

The most of the techniques for hypospadias repair include glansplasty with glanular surface enhancement and dissection of the glans wings. In fact, glansplasty forms one of the objectives of any hypospadias repair. Any technique which does not involve glansplasty is considered to be inferior.

The glans dehiscence with splaying of urinary stream is an inherent complication with techniques that employ glansplasty. It was also noted that Glans dehiscence is more common with glans diameter less than 14 mm. Extended glans dissection has been described earlier in cases of glans diameter less than 14 mm. (4) Authors do not find any contra-indication for such extensive dissection in cases of wide glans as well. In fact, such a wide dissection shall improve the chances of successful glansplasty. Thus, we have applied this technique to all types of glans; wide or otherwise. The dissection of tips of corporal bodies away from glans further eases the glans wings approximation. The extended Glans Dissection technique banks on the anatomical fact that significant supply to glans is received from the dorsal perforators originating from the dorsal artery of penis. Dorsal artery of penis perforates Bucks fascia on the dorsal aspect near the corona and penetrates the glans. These perforators penetrate glans by skirting the corporal bodies along their dorsal aspects.(5) Thus, a plane can be developed circumferentially between the two corporal bodies and the glans without damaging its blood supply. This plane can be harnessed to separate the glans from the corporal bodies to such an extent that only the dorsal attachment of corporal bodies remain. Even the tips of the corporal bodies can be separated away from glans as no blood supply to the glans is received from the corporal bodies.

The Separation of tips of corporal bodies away from glans is the modification described by us in this study and it further eases the glans wings approximation.

The incidence of glans dehiscence was lesser from 4 in 32 (12.5%) in classical technique to 1 in 26 (3.8%) in extended glans dissection where we employed the above mentioned technique. The Urethrocuteaneous fistula rate also decreased with this technique. But, the rate of decrease of urethrocuteaneous fistula was less than the decrease in the incidence of glans dehiscence.

Though, there was decrease in incidence of glans dehiscence and urethra cutaneous fistula, the decrease is not statistically significant. This probably could be attributed to small sample size of the study. Thus, we plan to study the results of this technique on a larger scale.

Conclusion:

The odds of complication of both glans dehiscence and urethrocutaneous fistula in an operated case of distal hypospadias by extended glans dissection technique are insignificant. But the chance of occurrence of glans dehiscence is minimal (0.26) in comparison with the chance of urethrocutaneous fistula (0.60).

References

1. Springer A, van den Heijkant M, Baumann S. Worldwide prevalence of hypospadias. *J Pediatr Urol.* 2016 Jun;12(3):152.e1-7.
2. Snodgrass WT, Bush N, Cost N. Tubularized incised plate hypospadias repair for distal hypospadias. *J Pediatr Urol.* 2010 Aug 1;6(4):408–13.
3. Cook Anthony, Khoury Antoine E., Neville Christopher, Bagli Darius J., Farhat Walid A., Salle Joao L. Pippi. A multicenter evaluation of technical preferences for primary hypospadias repair. *J Urol.* 2005 Dec 1;174(6):2354–7.
4. Snodgrass W, Bush N. Recent advances in understanding/management of hypospadias. *F1000Prime Rep* [Internet]. 2014 Nov 4 [cited 2019 Apr 7];6. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4229727/>
5. Hsu G-L, Hsieh C-H, Wen H-S, Chen Y-C, Chen S-C, Mok MS. Penile Venous Anatomy: An Additional Description and Its Clinical Implication. *J Androl.* 2003;24(6):921–7.