

Title: Outcomes of double-breasted spongioplasty as additional tissue coverage in tubularized incised plate urethroplasty

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ABSTRACT (upto 300 words)

Statement of the Problem: Modern hypospadiology is constantly developing new ideas to improve functional outcomes particularly in the setting of heavily burdened tertiary care institutions of low-middle income countries in order to avoid burden of redo surgery. Tubularized incised plate urethroplasty (TIPU) with neourethral covering by vascularized tissue (dartos flap, corpus spongiosum) is presently the most common procedure performed. Aim of this study was to evaluate the effectiveness of double-breasted spongioplasty (DBS) as additional tissue coverage in TIPU by comparing it with TIPU without spongioplasty.

Methodology & Theoretical Orientation: We conducted a prospective comparative study from September 2022 to October 2023 on 120 midshaft and distal hypospadias cases aged 1 to 12 years. Group A ($n = 60$) underwent TIPU without spongioplasty; Group B ($n = 60$) underwent TIPU with DBS. Pre-operative patient parameters were categorized according to Glans- Meatus-Shaft (GMS) Score. Follow-up was 4 months to one year. Complications like urethrocutaneous fistula (UCF) and meatal stenosis (MS) were recorded. Functional outcomes were assessed using Hypospadias objective scoring evaluation (HOSE).

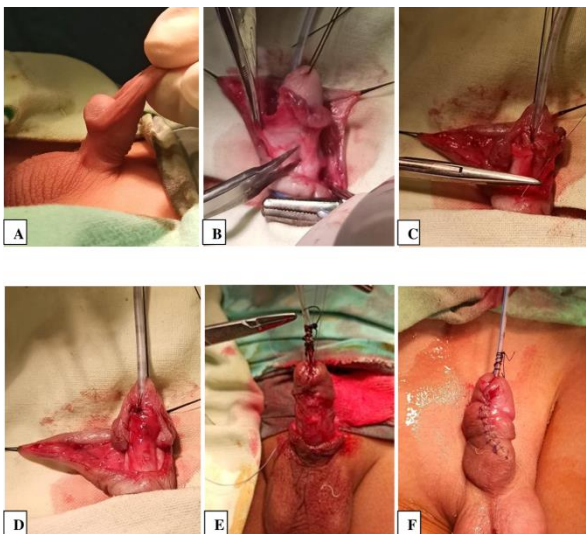


Figure 1. Surgical steps showing double breasted spongioplasty (A) preoperative photograph demonstrating ventral curvature (B) mobilizing the urethral plate and corpus spongiosum (C) suturing of the right spongiosum lateral to suture line of urethroplasty (D) cylindrical neourethra after spongioplasty (E) demonstrating straight penis following dartos coverage (F) final picture.

Findings: Average age was 5.68 ± 2.26 in group A and 6.40 ± 2.10 in group B. Group A had mean GMS 5.32 ± 1.09 ; Group B had 5.45 ± 1.12 ($p = 0.49$). In group A, 4 (6.66 %) had MS, 5 (8.33 %) had UCF; in group B, 5 (8.33 %) had MS, 2 (3.33 %) had UCF ($p > 0.05$). Dorsal plication for ventral curvature was avoided in 7 patients after DBS. Surgeon evaluated mean HOSE was 14.73 ± 1.87 in Group A and 15.40 ± 1.26 in B ($p = 0.02$); in group A, 83.33 % while in group B 95 % cases had acceptable HOSE (≥ 14) ($p = 0.04$).



Figure 2. Postoperative photographs (A) 3rd month follow-up evaluation of hypospadias operated in Fig. 1. graded as acceptable functional outcome per HOSE (B-C) spongioplasty outcome at 6 month follow-up in a different patient (D) meatal stenosis noted in an otherwise intact repair post spongioplasty (E-F) post-operative hypospadias without spongioplasty

Conclusion & Significance: First time comparative analysis of Double-breasted spongioplasty in TIPU showing that it is a novel method having better functional outcomes when compared with TIPU without spongioplasty and may also correct ventral curvature of mild to moderate severity without any additional surgical step.

BIOGRAPHY (upto 200 words)

Chandni is a surgeon from Pakistan, having recently completed her residency in Pediatric Surgery from The Children's Hospital, Pakistan Institute of Medical Sciences (PIMS). She is currently working as Junior Registrar in the same department. Her research interests are particularly in the field of Pediatric Urology. PIMS is a high volume tertiary care center receiving patients from within the city as well as referred cases from the periphery. Hypospadias, an already notorious entity for post op complications poses a special challenge towards management hence Chandni's research focused on aiming towards increasing the success rate of corrective surgery in the setting of social issues such as multiparity and poverty. She has published this manuscript after a year of research with fruitful results.

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