

Study of Clinical Efficacy of Dartos Flap in Tubularised Incised Plate Urethroplasty in Hypospadias Repair Surgery

Dr. Archit Tayal (Pg), Dr. Yashpal Monga (Ms, Mch); Dr. Amit Bhatnagar (Ms, Mch); Dr. M. K. Maheshwari (Ms, Hod)

Abstract

INTRODUCTION - Hypospadias refers to incomplete urethral development that results in a meatus located anywhere from the proximal glans to the perineum. Tubularized incised plate method has rapidly become a procedure of choice for hypospadias. In hypospadias repair, vascularity of the repaired site is a major concern. Hence, some vascularized flaps like dartos fascia and tunica vaginalis flap were introduced, which were placed on the neourethra as the second layer.

AIMS AND OBJECTIVES – To evaluate clinical efficacy, limitations and study complications in Hypospadias/fistula repair using dartos flap.

MATERIAL AND METHODS – Our study includes a total of 25 patients, all above 3.5 years, who came to CSSH hospital in the last two years for hypospadias repair.

Patients below 3.5 years or with glandular or coronal hypospadias were excluded from our study.

RESULTS – Maximum number (36%) of patients were between the age group of 9-14 years with 28% having distal penile hypospadias and 60% associated with chordee. The main surgical complication as development of urethrocutaneous fistula was seen in only 3 out of 25 patients.

CONCLUSION – Dartos flaps require greater expertise in the hands of the surgeon and have the advantage of local availability hence do not require another incision or extension of the incision. Dartos flap maintained a good vascularity giving a good cosmetic outcome and a good stream urine from the tip of the penis with no peripheral leakage.

Keywords – hypospadias, dartos flap, urethroplasty, urethrocutaneous fistula, chordee

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I. Introduction

Hypospadias refers to incomplete urethral development due to incomplete fusion of urethral folds that results in a meatus located anywhere from the proximal glans to the perineum.

Tubularized incised plate method was first described by Snodgrass in 1994 and has rapidly become a procedure for various types of hypospadias. The principal advantage of this technique is the excellent cosmetic appearance with the minimum scarring in the urethra. In any reconstructive surgeries like hypospadias repair, vascularity of the repaired site is a major concern.

II. Aims And Objectives

- To evaluate clinical efficacy of dartos flap as second layer in Hypospadias repair.
- To evaluate limitations dartos flap in Hypospadias repair.
- To study complication in Hypospadias/fistula repair using dartos flap as an interposition layer.

III. Materials And Methods

Inclusion criteria :- Boys more than 3.5 years old, Patients with or without chordee.

Exclusion criteria: - Glandular, coronal hypospadias, Age less than 3.5 years, Post- circumcised patients, Patients with a history of herniotomy, orchidopexy or orchidectomy were excluded

Study included 25 patients who underwent dartos flap repair for hypospadias surgery. Age, location of urethral meatus, urethral plate, and occurrence of fistula in previously operated cases and past history of surgery were noted. We followed up the patients weekly for first month, then every 3rd month for 1 year, thereafter, every 6 monthly for 1 year or whenever a patient experienced a problem. We called the patients if they did not show up for the follow-up.

Wound infections, development of meatal stenosis, scrotal disorders, were regarded as surgical complications. Development of Urethrocutaneous Fistula was considered as 'The Main Surgical Complication'.

All patients underwent thorough examination by taking history, clinical examination, blood investigations, KUB Ultrasonography, and other relevant investigation if necessary.

SURGICAL TECHNIQUE

In this technique, Magnification (2.5× Loupes), fine instruments and bipolar electrocautery were used. The urethral plate was tubularized over an appropriate sized catheter using 6-0 polyglactin suture. The epithelium was not included in the bites, thus ensuring inversion of all epithelium toward the lumen of the urethra.

The dartos was used to cover the ventral suture line. It was harvested from the dorsal prepuce and the penile skin with meticulous dissection between the dartos and the skin. The dartos fascia was then swung ventrally over the neourethra and tacked with 6-0 polyglactin sutures. The distal part was thinned to cover the glanular portion of the neourethra. Excess skin was excised and the dorsal skin was transposed ventrally from both sides to provide a neat circumcised look. Light compression dressing antibiotic impregnated gauze was done. Intravenous antibiotics were given for 3 days, followed by oral antibiotics. Dressing and the catheter were removed on the 7 day. Later the children were followed up periodically.

OBSERVATIONS AND RESULT

	No of patients	Percentage
Distal penile	7	28%
Midshaft	2	8%
Proximal penile	6	24%
Penoscrotal	3	12%
Scrotal	0	0%
Perineal	1	4%
Previously operated/ fistula	6	24%

Complication	No of patients	Percentage
Wound dehiscence (Glanular, Subglanular, external meatus)	1	4%
Edema	2	8%
Acute bleeding	1	4%
Hematoma (Penile)	0	0%
Scrotal Haematoma, Abscess	0	0%
Scrotal complication (Balinitis Xerotica Obliterans)	0	0%
Stricture	2	8%
Meatal stenosis	0	0%
Testicular complication (testicular retraction)	0	0%

	NO OF PATIENTS	PERCENTAGE
URETHROCUTANEOUS FISTULA	1	4%

IV. Results

Our study consisted 25 patients who underwent dartos flap repair for hypospadias correction. The results of the study were that maximum number of patients between the age group of 9-14 years, consisting of 36% of the total patients. Post-operative complications were wound dehiscence among 4% patients, edema among 8% each, while stricture was seen in 8% patients. The main surgical complication was regarded as development of urethrocutaneous fistula in only 4% patients. There were no scrotal or testicular complications associated with dartos repair patients.

V. Conclusion

Dartos flap can be used as a second layer for tubularised incised plate urethroplasty for hypospadias repair. Dartos flaps required greater expertise in the hands of the surgeon hence an experienced surgeon is required with expertise in intrinsic work. Dartos based flaps have the advantage that they are available locally and do not require another incision or extension of the incision. Dartos flap repair has lead to decreased incidence of scrotal and testicular complications. A limitation of this study is our relatively small size with an average follow-up of 18 months may not be adequate to fully demonstrate all complications and thus may falsely lower our complication rate.

Final Conclusion

Dartos flap repair is a good alternative as an interposition cover of neo-urethral tube, which helps in reduction of fistulae rate in variety of hypospadias procedures, with minimal complication rate as compared to other flap. The duration of operating time subsequently decreased with more frequent operations and with surgeons experience.

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