ORIGINAL ARTICLE

# POST-OPERATIVE COMPLICATION'S OF DUCKETT'S URETHROPLASTY IN ANTERIOR HYPOSPADIAS WITH CHORDEE

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## ABSTRACT

**Background:** Hypospadias is a common congenital urological problem with the incidence of one in three hundred male children. It is usually associated with chordee. Generally hypospadias with chordee is managed in two stages. In this we studied post-operative complications of Duckett's urethroplasty with chordee for hypospadias, to have a scientific proof that it is a safe, economical and easy procedure.

**Material & Methods:** This descriptive study was conducted at Department of Urology Lahore General Hospital Lahore affiliated with Postgraduate Medical Institute Lahore from 1st January 2015 to 31December 2015 during which Duckett's urethroplasty was done for 42 male children with hypospadias with chordee. Post-operative complications were observed in these children till 6 months of their post-operative period. Data entry and analysis was done by using SPSS 17.

**Results:** Mean age of patients was 6.28 years, with range of 2-12 years. None of the patients was found to have operative site infection or totally disrupted tube till they were followed up for a period of 6 months. Whereas at 1st month of follow-up 4.76 % of the patients had Urethrocutaneous fistula. Meatal stenosis was found in 4.76% of the patients at 3rd month of their follow-up.

**Conclusion:** Duckett's technique has good post-operative results. It can be opted for patients of hypospadias with chordee as a single staged procedure when combined with urethroplasty.

**KEYWORDS:** Duckett's urethroplasty; Hypospadias; post-operative complications; Meatal stenosis; Urethrocutaneous fistula.

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## INTRODUCTION

Hypospadias is an abnormal urethral opening located on the ventrum of the penis proximal to the tip of the glans penis. Hypospadias occurs in 1:300 male children. [1] The earliest medical text describing hypospadias dates back to the second century AD and was the work of Galen, the first to use the term descriptive locations include anterior (glanular, subcoronal and distal penile), middle ( mid shaft) and posterior (proximal penile, penoscrotal , scrotal and perineal) hypospadias. It is anterior in 50% of cases, middle in 20%, and posterior in 30%, the subcoronal position is the most common overall. [2] This genitourinary malformation, particularly proximal forms, involves the spectrum of abnormalities, including ventral curvature of the penis.[3]

Chordee is a condition in which the head of the penis curves downward or upward. The curvature is usually most obvious during erection. Chordee is commonly observed in the presence of hypospadias. Incidence of chordee is 4–10% of male births. One-fourth of hypospadias patients have chordee. Literature finds that chordee is mostly associated with severe hypospadias .[4] Early correction of chordee will have the positive impact on sexual relationship, confidence, self-esteem and sexual function in the future.[5]

Modern anesthetic techniques, fine instrumentation, sutures, dressing materials and antibiotics have improved clinical outcome and have in most

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cases allowed surgical treatment with a single-stage repair.[6] The surgical goal in hypospadias repair is to construct a straight penis with the urethral meatus as close as possible to the normal site.

Over 300 different types of repairs have been described in the medical literature. The commonly used single stage technique for hypospadias with chordee is Duckett's urethroplasty. Early experience in the technique revealed complications such as meatal and neourethral stenosis and fistula .[7] Early postoperative complications noted are: urethrocutaneous fistula in 20%, meatal stenosis in 8.5%, glandular dehiscence in 2%, and complete disruption of urethral tube in 3%. Complications occur more in more proximal type of hypospadias particularly in those with severe chordee.[8]

The procedures like Snodgrass, Mathieu's, MAGPI, Bracat, Thiersch-Duplay and Mustarde are only suitable for hypospadias without chordee. In cases where chordee is present two stage procedures are in vogue. But single staged procedures are better regarding economical point of view, patient burden on hospitals and patient and his family sufferings, provided it has comparable results with those of two staged procedures. Duckett's urethroplasty is one of the single staged repairs for hypospadias with chordee. We followed our patients for 6months after doing their Duckett's urethroplasty and documented their post-operative complications.

## MATERIAL AND METHODS

Fourty two male patients with anterior hypospadias with chordee were selected from outpatient department of the urology department Lahore General Hospital, Lahore. Patient's age was 2 year to 16 year(mean age= 6.28years). Detailed history and physical examination was followed by laboratory investigations. Blood complete, urinalysis, ultrasonography were done for associated urological anomaly. Prothrombin time (PT), activated partial thromboplastin time (APTT), bleeding time and platelets count were done to exclude the patients with bleeding diathesis.

All patients were operated under general anesthesia with adjunctive caudal or a penile block. A tourniquet was applied to maintain a bloodless field. Through an artificial erection chordee was confirmed.

Fine traction sutures were placed in the glans. A ventral midline longitudinal incision was marked from the hypospadias opening to the distal circumcising incision at the coronal level. The abnormal urethral meatus was marked circumferentially for planned incision as well. The urethral plate was incised, penile shaft degloved, and the penis was assessed for curvature. Curvature that persisted after release of skin and tethering subcutaneous tissue required division of the urethral plate. Curvature as reassessed after the above measures. After urethroplasty a transversely oriented rectangle of Preputial skin was marked at a length 30% more than the distance from the hypospadias opening to the glans tip and approximately 20 mm in width. Pedical of the rectangle prepuce was dissected from the outer layer of prepuce and dorsal penile skin, the flap (rectangle) was tubularized over 8-Fr Silastic catheter to form neourethra. The anastomosis was performed in a running, subcuticular layer. Neourethera was transferred to the penile ventrum. Glanuloplasty was done. The proximal anastomosis was done. The distal extent of neourethera was fixed to the glans. Polyglycolic acid 6/0 size was used for tubularization. Repair was done over a catheter.

Patients were maintained on antibiotic prophylaxis. Catheter was removed after 10 days. Patients were followed-up till 6 months for complications at 1st, 3rd and 6th month.

## RESULTS

A total of 42 patients were studied. Mean age of all patients was 6.82 years.

**Table-1: Operative site infection. (n=42)**

| | 1st month | 2nd Month | 3rd Month |
|---|---|---|---|
| **Yes** | 0 (0%) | 0 (0%) | 0 (0%) |
| **No** | 42 (100%) | 42 (100%) | 42 (100%) |

No one of the patients had operative site infection during their follow up.

**Table-2: Meatal stenosis. (n=42)**

| | 1st month | 2nd Month | 3rd Month |
|---|---|---|---|
| **Yes** | 0 (0%) | 2 (4.76%) | 0 (0%) |
| **No** | 42 (100%) | 40(95.23%) | 42 (100%) |

At 1st month of follow-up none of the patients had metal stenosis. At 3rd month 2 patients developed meatal stenosis. All these patients with meatal stenosis were managed by meatoplasty, therefore, none of the patients had meatal stenosis at 6th month.

**Table-3: Urethrocutaneous fistula. (n=42)**

| | 1st Month | 3rd Month | 6th Month |
|---|---|---|---|
| **Yes** | 2 (4.76%) | 0 (0%) | 0 (0%) |
| **No** | 40 (95.23 %) | 42 (100 %) | 42 (100 %) |

At 1st month two patients came back with urethrocutaneous fistula. None of the patients developed urethrocutaneous fistula there after till 6th month.

**Table-4: Total Disruption of the urethral tube. (n=42)**

| | 1st month | 2nd Month | 3rd Month |
|---|---|---|---|
| **Yes** | 0 (0%) | 0 (0%) | 0 (0%) |
| **No** | 42 (100%) | 42 (100%) | 42 (100%) |

Total disruption of urethral tube was observed in none of the patients till 6th month.

## DISCUSSION

Surgical options of treatment of hypospadias are more than 300 in number. Hypospadias is mostly associated with chordee. Generally urologists opt for a 2 staged procedure in such cases. But in that case patient has to undergo number of interventions and more is the burden on economy and hospitals as well. Patients usually want to be treated definitively in a single admission. Duckett's urethroplasty is one of the single staged procedure for hypospadias with chordee. It has acceptable post-operative complications.

Post-operative complications are common in surgeries for hypospadias. These range from an urethrocutaneous fistula to total tube disruption.[9] These are difficult surgeries regarding their post-operative results.

Yu B, et al found that 5 % of their patients of Duckett's urethroplasty developed stenosis causing poor stream. According to another study 0.2 % of the patients developed stenosis after Duckett's urethroplasty. In our study none of the patients had meatal stenosis after 1 month. After 3 months only 2 patients (4.76%) had meatal stenosis.[10,11]

Yu B, et al also reported that 10% of the patients develop urethrocutaneous fistulae after Duckett's urethroplasty while Jiang XZ et al reported that 8.4 % of the patients develop urethrocutaneous fistula after Duckett's urethroplasty.[10, 11] In our study urethrocutaneous fistula was found in 4.7 % percent of the patients at 1st month which were repaired and then after none develop urethrocutaneous fistula. We used colle's facia as an intervening layer between skin and neourethra to decrease the chances of urethracutaneous fistula.

Jehangir Ahmed reported that 3 patients out of 100 patients (3%) developed total disruption of tube after Duckett's urethroplasty.[12]

However in our study no one of the patients developed totally disrupted tube till six months of post-operative period. Literature also shows a very low rate of total disruption of the tube in Duckett's urethroplasty. Yu B, Zhou J and their colleagues reported a success rate of 85% after Duckett's urethroplasty.[10]

## CONCLUSION

Duckett's has shown low rate of postoperative complications. Therefore it can be opted for patients of anterior hypospadias with chordee as a single staged procedure when combined with urethroplasty.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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AUTHORS' CONTRIBUTION

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|---|---|
| Conception and Design: | IUR, SA, GK |
| Data collection, analysis & interpretation: | IUR, SA, GK |
| Manuscript writing: | IUR, SA |