

## Surgical Management of Imperfectly Descended Testes

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### ABSTRACT

**Background:** Imperfectly descended testes is one of the most frequent congenital anomalies of the genitourinary system. Almost 4% of boys are born with one or both testes incompletely descended. There are different surgical ways to approach imperfectly descended testis.

**Objectives:-** This Study was performed to know frequency and effectiveness of various surgical techniques performed for imperfectly descended testes.

**Design:** This was a prospective case series study.

**Setting:** Surgical Unit III Ward: 4 of Liaquat University Hospital Jamshoro.

**Study period:** From 10<sup>th</sup> October 2013 – 9<sup>th</sup> October 2014.

**Sample size:** 30 patients

**Methodology:** Patients was admitted according to inclusion criteria were examined and diagnosis was made after biochemical and imaging investigations. Patient was kept on list for surgery. Postoperative complications & hospital stay associated with each of these procedures were evaluated and also Post operative ultrasound scrotum and semen analysis was advised at 03 months interval and effects of procedure on size, vascularity, semen quality and quantity was evaluated compared with preoperative reports. All data was collected and analyzed.

**Results:** Mean age was 13 years with SD + (4.741) with age range from 2 years to 19 years. 24 (80%) patients had one sided undescended testis 15 (50%) were on right and 09 (30%) on left side, & 06 (20%) patients had absence of Testis on both sides. Surgical procedure like Supra scrotal Orchidopexy done in 12(40%), Ombredanne's Orchidopexy done in 12 (40%) and two stage fowler stephen Orchidopexy done in 6 (20%). Success rate of Supra scrotal orchidopexy, was 91.10%, for Ombredanne's orchidopexy 83.33% and for two stage fowler Stephens's orchidopexy 80.3%. Total complication rate 13.33%

**Conclusion:** All surgical procedures performed for imperfectly descended testis have good success rate but supra scrotal orchidopexy had slightly higher then two stage fowler Stephen and Ombredanne's operation.

**Key words:** Imperfectly descended testis, Infertility and Testicular tumor.

### INTRODUCTION

The testes are two specialized egg-shaped organ of male reproductive and endocrine system.<sup>1</sup> A normal testis develops in the celomic cavity and begins to descend in to scrotum at 36 weeks, arresting of testis along there pathway of descent this condition is called imperfectly descended testes.<sup>2</sup> The imperfectly descended testes are one of the most common congenital anomaly of the genitourinary system.<sup>3</sup> Almost 4% of boys are born with one or both testes incompletely descended. And 50% of these reach to the scrotum during the first month of life, but full descent after that is very rare.<sup>4</sup> Almost 1–2% of boys have imperfectly descended testes, and condition is more common on the right side i.e.; in 50% patients. and in 30% patients this pathology found on left side and About 10–20% patients bilateral imperfectly descended testes are found in other term this condition is known as hidden testis or (cryptorchidism).<sup>5</sup> There are different surgical ways to approach imperfectly descended testis. The approach chosen is determined by the position of the testis and the surgeon's expertise. The palpable testis can be approached from scrotal, sub inguinal, inguinal, or supra inguinal.<sup>6</sup> The non palpable testis can be approached

through laparoscopically inguinal, supra inguinal.<sup>7</sup> The 1<sup>st</sup> surgical Orchiopexy was attempted in 1820 by Rosenmerkal,<sup>8</sup> anyway, the first registered attempt was performed by James Adams in the London Hospital in 1871,<sup>9</sup> and In 1877 Annandale performed the 1<sup>st</sup> successful Orchiopexy<sup>10</sup> Jordan et al (1992) first described the technique of laparoscopic orchiopexy, and all modern techniques are similar.<sup>11</sup> But Successful surgical placement of the testes in the scrotum is based on the principles originally described by Bevan in 1899.<sup>12</sup> These include sufficient mobilization of the testis and spermatic vessels, correction of the hernial sac, and fixation of the testis in to the scrotum.<sup>12</sup> This Study was conducted to assess the frequency and efficacy of different surgical techniques employed for imperfectly descended testes in our setup.

### SUBJECTS & METHODS

**Objective of study:** This Study was performed to know the frequency and effectiveness of various surgical techniques for imperfect descended testes in our setup.

**Design of study:** prospective case series study.

**Setting of study:** surgical unit III ward: 4 of Liaquat University Hospital Jamshoro.

**Study period:** From 10<sup>th</sup> October 2010 – 9<sup>th</sup> October 2011.

**Sample size:** 30 admitted patients of imperfectly descended testes.

**Inclusion criteria:** All patients of imperfect descended testis above the age of 02 years

**Exclusion criteria:** All patients of imperfect descended testis below age of 02 years. All patients with retractile testis. Patients unfit for surgery due to co morbid illness, Patient did not consented for study, Patient lost to follow up, Patient of imperfect descended testes developed malignant changes and Patients with imperfectly descended testes whose testes become atrophic either spontaneously or secondary to trauma.

**Data collection procedure:**

All patients of imperfect descended testis who fulfill the inclusion criteria were admitted in surgical unit III of LUMHS, Jamshoro. Detailed history, through examination was performed with especial focus on location of imperfectly descended testis; presence, position & size of normal as well as imperfectly descended testes. Presence of any additional swelling in abdomen or neck, and Jaundice and Investigation to assess general fitness and to diagnose disease was performed. Patient was kept on list for surgery. Specific procedures performed in these cases. Postoperatively patient was discharged once they were able to tolerate feed well and mobilized. Follow up visits were advised at 10<sup>th</sup> postoperative day, at 1 month, 3 month and 6 months. Postoperatively patients were evaluated for any postoperative complications like wound infection, hematoma or discharge from wound or (retraction back) presence of undescended testis in dortous pouch after surgery. Size of testis at dortous pouch was also evaluated clinically as well as with imaging investigations. Post operatively ultrasound scrotum and semen analysis was advised at 03 months interval and effects of procedure on size, vascularity, semen quality and quantity was evaluated compared with preoperative reports. All this data was collected on preformed proforma. A data analysis was performed using SPSS version 16. Mean with standard deviation was calculated. Specific tests like Chi-square test, student's T test were applied and P value was calculated and found significant if it is <0.05.

## RESULTS

**Age:** Mean age of these patients was 13 years with SD + (4.741) with age range from 2 years to 19 years. 50% of patients in this study belonged to age less than 13 years at the time of presentation.

**Clinical findings:** 24 (80%) patients had unilateral undescended testis in which 15 (50%) were on right side and 09 (30%) on left side, amongst these 21 (70%) palpable and 03 (10%) were not palpable & 06 (20%) patients had absence of Testis on both sides amongst these 09 (30%) palpable 03 (10%) were non palpable clinically.

**Operative techniques:** Total 12 (40%) testes from which 11 (36.6%) patients with unilateral imperfectly descended testes and 1 (3.33%) from bilateral imperfectly descended testes found at scrotal neck and superficial inguinal ring underwent orchiopexy through trans/supra scrotal

approach. Success rate of trans/supra scrotal orchidopexy, was 91.10%,

Total 10 (33.3%) patients were operated by standard Ombredanne's orchidopexy. Three operated testes ascend back, these patients were re operated & their testis placed back into Dortous pouch after 06 months. Success rate of Ombredanne's orchidopexy was 83.33%

Total 08 (26.6%) patients were operated by two stage fowler Stephens's orchidopexy. In first stage Laparoscopy was performed & the spermatic vessels were clipped 3-4 cm proximal to the testes. In second step lower midline Laparotomy was performed in these patients & testis were mobilized & retrieved into scrotum & fixed in dortous pouch 3 months later. In 2<sup>nd</sup> stage approached by supra scrotal incision they testis were successfully placed into the scrotum within a dortos pouch. Success rate for two stage fowler Stephens's orchidopexy 80.3%.

**Complications:** Total 04 (13.3%) patients developed postoperative complications includes wound infection in 01 (3.33%) patient, postoperative ileus in 01(3.33%) patient, postoperative chest infection in 01(3.3%) patient. 02 (6.66%) patients developed diminishing of size of testis from preoperative level at 06 months follow up visit.

## DISCUSSION

**Age:** Mean age of patients in our study was 13 years with SD + (4.741) with age range from 2 years to 19 years. 50% of patients in this study belonged to age less than 13 years at the time of presentation. While in study by Iqbal N et al<sup>3</sup> mentioned age ranged from 2.5 to 13 years (mean 5.2) and study by Igarashi A et al<sup>2</sup> observed that only 3% of cases were resolved under age 12 months when histological modifications occur, 32% of cases between 1 and 4 years, 45% case at group 5- 10 years and 20% after 11 years old.

**Clinical findings:** During clinical examination in our study Fifteen (50%) of them on right side, 09(30%) on left side & 06 (20%) patients had poorly developed scrotum with absence of Testis on both sides. Sheikh A<sup>4</sup> noted IDT on the right in 52.2%, on left in 30% and bilateral undescended testis in 17.5%. Kurz D<sup>1</sup> reported that the IDT was on the right in 63% patients, on left side in 18.5% and bilaterally undescended testis in 18.5%.

**Operative techniques:** Total 12 (40%) testes from which 11 (36.6%) patients with unilateral imperfectly descended testes and 1 (3.33%) from bilateral imperfectly descended testes found at scrotal neck and superficial inguinal ring underwent orchiopexy through trans/supra scrotal approach. At follow up visits So the success rate of supra scrotal orchidopexy recorded was (91.1%) Jack S Elder<sup>5</sup> performed supra scrotal incision orchiopexy in 120 patients with undescended testis and reported a 95.8% success rate. Mohey A<sup>6</sup> Supra Scrotal orchiopexy was performed successfully (97.6%) in traditional inguinal orchiopexy, with success rate of 89.7%.

Total 10 (33.3%) patients were operated by standard Ombredanne's orchidopexy. Three operated testes ascend back, these patients were re operated & their testis placed back into Dortous pouch after 06 months. Success rate of this procedure was recorded in our study is 83.33% when we compare it with the study Arena<sup>14</sup> In the past decade, success of standard orchiopexy for inguinal testes has been >95%. For abdominal testes, success for orchiopexy

has been >85-90%. Another study by Chen Y et al <sup>15</sup> shows the overall success rate of standard orchiopexy was 79.5%. Median patient age at orchiopexy was 12 months and mean followup was 16 months. Of the patients 117 had a patent processus vaginalis at surgery. Ombredanne's orchidopexy was performed in 92 testes with 89.1% success.

Total 08 (26.6%) patients were operated by two stage fowler Stephens's orchidopexy. In first stage Laparoscopy was performed & the spermatic vessels were clipped 3-4 cm proximal to the testes. In second step lower midline Laparotomy was performed in these patients & testis were mobilized & retrieved into scrotum & fixed in dortos pouch 3 months later. In 2<sup>nd</sup> stage approached by supra scrotal incision they testis were successfully placed into the scrotum within a dortos pouch. While study by Shah M et al <sup>8</sup>, The pooled estimate of success rates was 80% for single stage Fowler-Stephens orchidopexy (95% CI 75 to 86) and 85% for 2-stage Fowler-Stephens orchidopexy (95% CI 81 to 90). The pooled odds ratio of single stage vs 2-stage Fowler-Stephens orchidopexy was 2.0 (95% CI 1.1 to 3.9) favoring the 2-stage procedure.

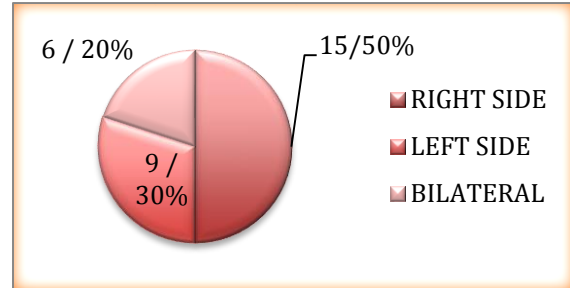
**Postoperative complication:** Postoperative complications rate in our study was 13.3%, Shah M<sup>8</sup> in his study shows complication rate was 12.5%.

**CONCLUSION**

All surgical procedures performed for imperfectly descended testis have good success rate but supra scrotal orchidopexy had slightly higher then two stage fowler Stephen and Ombredanne's operation. While considering overall benefits in terms of improvements in size & character of imperfectly descended testis, betterment in quality & quantity of semen analysis & hormones one always need to consider effect of pre operative location, size & character of imperfectly descended testis & its

association with the procedure. Also strong consideration is required to know association of these procedures & parameters to unilateral Vs bilateral imperfectly descended testis.

Graph # 01:- Graphical Representations of Different Sides of IDT (n=30).



Graph # 02: Graphical Representations of Different Sites of IDT According to Clinical and Scan Findings (N=30)

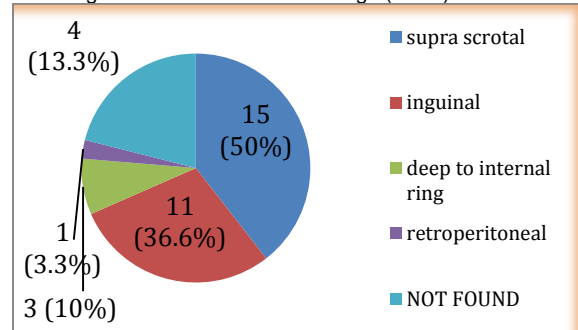
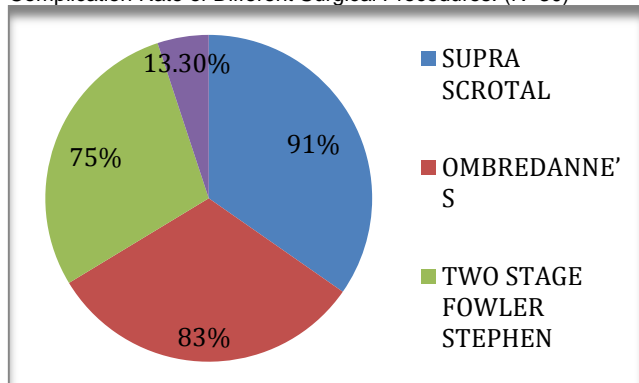


Table # 01:- Different Surgical Procedures with Success Rate and Complication Rate N=30

Surgical procedures	No: of patients with %	Recorded success	Name of complication	No of patients with %	Total complication rate
Supra scrotal orchidopexy	12 (40%)	(91.1%)	Wound infection	01 (3.33%)	13.33%
Ombredanne's orchidopexy	12 (40%)	(83.33%)	Post operative ilius	01 (3.33%)	
Two stage fowler stephen orchidopexy	6 (20%)	(75%).	Post operative chest infection	01 (3.33%)	
Orchidectomy	00		Testes ascend back to retroperitoneal area	01 (3.3%)	

Graph # 03:- Graphical Representation of Success Rate and Complication Rate of Different Surgical Procedures. (N=30)



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