

## Single incision Trans Scrotal versus Standard Inguino-Scrotal Orchidopexy in Children with Palpable Undescended Testis: Our experience from April 2007 to April 2010

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### ABSTRACT

**Objective:** To compare the efficacy and complications of single incision trans scrotal versus standard inguinal orchidopexy in children with palpable undescended testes.

**Methodology:** This randomized controlled trial was conducted at the Paediatric Surgery Department Bahawal Victoria Hospital Bahawalpur from April 2007 to April 2010. Children aged 9 months to 12 years, diagnosed as cases of palpable undescended testes were randomized into two groups. In group A orchidopexy was performed through single scrotal incision and in group B by standard two incision inguinal approach. The groups were compared for operative time, hospital stay, scrotal hematoma, wound infection, and secondary ascent.

**Results:** Each group had 134 cases. Mean operative time and hospital stay in group A and B were 28.32±0.92 minutes and 47.83±0.76 minutes (p value 0.0001) and 1.027±0.205 days and 3.023±0.203 days (p value 0.0001) respectively. There was no significant difference in the formation of scrotal haematoma, wound infection and secondary ascent of testis between the two groups. The conversion rate of surgery in group A was 7.46%.

**Conclusion:** Trans scrotal orchidopexy is the simple, effective and less invasive technique as compared to the standard two incision inguinal approach.

**KEY WORDS:** Scrotal orchidopexy, Inguinal orchidopexy, Undescended testes.

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### INTRODUCTION

The undescended testis is one of the most common birth anomalies of boys.<sup>1</sup> A true undescended testis has had its descent halted somewhere along the path of normal descent. The incidence of undescended testes is about 4% at birth with bilateral involvement in 15% of these cases and it drops to about 1% by one year of age.<sup>2</sup>

The management of UDT depends upon the location of the testes. Various modes of treatment are available for palpable undescended testes. Hormonal therapy may be helpful in few patients. The success of hormonal therapy may be around 20% as compared with 95% anatomical correction by orchidopexy.<sup>3,4</sup> The surgical treatment of a palpable undescended testis has been a two incision inguinal

approach which has been a standard procedure for a long time. Single high scrotal incision was first described by Bianchi & Squire in 1989 and has been used with good results. A low approach using a median scrotal incision has also been described with comparable results.<sup>5</sup> The scrotal orchidopexy has shown good anatomical and cosmetic results at six month follow up.<sup>6</sup>

The objective of our study was to compare the efficacy and complications of single incision low trans scrotal versus standard two incision inguinal orchidopexy in children with palpable undescended testes.

### METHODOLOGY

This randomized controlled trial was conducted at the Department of Paediatric and Neonatal Surgery, Bahawal Victoria Hospital Bahawalpur from April 2007 to April 2010. The study was approved by the ethical committee of the institution and informed consent was taken from the parents. All patients from 9 months to 12 years of age having palpable undescended testes in the inguinal canal or external to the superficial inguinal ring were included in the study. Patients suspected to have disorders of sex differentiation, whose parents were not willing and those lost during follow up were excluded from the study.

All children were randomized into two equal groups by lottery method. In group A, orchidopexy was performed through single low scrotal incision. The scrotum was opened and retraction was made to visualize the testis. Testis and spermatic cord were mobilized by dividing and ligating patent processus vaginalis, brought into the scrotum and fixed. In group B, standard two incision inguino-scrotal approach was used. Testis and spermatic cord were mobilized after opening the inguinal canal and brought down into the scrotum after doing herniotomy. Subdartous pouch was created through scrotal incision and testis fixed there. In patients with bilateral palpable undescended testes, only one side was operated one time and right side was operated first.

All the cases were followed up to 12 month after the surgery. The efficacy of two different surgical approaches were compared in terms of Success of procedure, operative time, duration of hospital stay, scrotal haematoma, wound infection, testicular atrophy and secondary ascent. Mean and standard deviation were calculated for the variables operative time and hospital stay. Percentages were calculated for the variables scrotal hematoma, wound infection and secondary ascent. The quantitative data was compared by t test and qualitative data by chi square tests. P value less than 0.05 was taken as significant. Statistical analysis was done using SPSS version 11.

### RESULTS

There were 134 patients in each group. The mean age of children in group A was  $3.444 \pm 2.2177$  and in group B  $3.455 \pm 2.2315$  ( $p$  0.967). There were eight patients with bilateral undescended testes in group A and 6 in group B.

Scrotal orchidopexy was successful in 92.53% of patients (124 out of 134). Only in 7.4% of patients (10 out of 134) the scrotal orchidopexy required conversion into two incision inguinal approach due to tearing of hernial sac and inadequate mobilization. Other variables like secondary ascent, scrotal hematoma, wound infection, operative time, and hospital stay are given in the Table-I.

### DISCUSSION

Undescended testis or cryptorchidism is best defined as a testis that cannot be manipulated to the bottom of the scrotum without undue tension on the spermatic cord. The optimal age for orchidopexy is between 6 months to one year. When orchidopexy is done in a pediatric surgical center, a younger age does not increase the risk of complications.<sup>7</sup> The inguinal approach is standard for orchidopexy of undescended testis palpable in the inguinal canal. Scrotal approach for orchidopexy was first described by Bianchi and Squire in 1989 and has regained popularity in recent studies.<sup>8</sup> Bianchi described

Table-I: Comparison of efficacy and complications between two groups.

Variable	Group A n=134	Group B n=134	P value
Scrotal haematoma	03(2.2%)	06(4.4%)	0.309
Wound infection	02(1.4%)	06(4.4%)	0.151
Mean operative time	28.32±0.92min	47.83±0.76min	0.0001
Mean hospital stay	1.027±0.205 days	3.023±0.203 days	0.0001
Secondary ascent	03(2.2%)	02(1.4%)	0.652

trans scrotal orchidopexy through high approach; recently a low scrotal approach has also shown promising results.

The main advantage of scrotal approach is avoiding an extra incision and less operative time. The mean operative time in our study for unilateral undescended testis was significantly shorter for the low transcrotal orchidopexy,  $28 \pm 10$  SD than for the inguinal orchidopexy,  $47 \pm 12$  min. A Comparable study conducted by Cloutier J et al showed mean  $\pm$  SD for low trans scrotal orchidopexy  $28 \pm 10$  and for inguinal orchidopexy  $37 \pm 12$  minutes with a p value less than 0.0001.<sup>9</sup> Similarly a shorter operative time of 18 minutes has been described for scrotal incision orchidopexy in a study carried out by Dayance M et al.<sup>10</sup> The operative time and hospital stay was also significantly shorter in scrotal incision orchidopexy ( $40.5 \pm 25.9$  min,  $2.1 \pm 0.8$  days respectively) than inguinal incision orchidopexy ( $62.3 \pm 35.6$  minutes,  $2.51 \pm 0.7$  days) with a p value of less than 0.001.<sup>11</sup> Our study also shows the same results regarding hospital stay. It was  $1.027 \pm 0.205$  days vs.  $3.023 \pm 0.203$  in inguinal approach. Trans scrotal orchidopexy has the advantage of a shorter operative time and more cosmetically appealing results compared with the two incision inguinal approach.<sup>5</sup>

Conversion rate, from single scrotal incision to inguinal approach was 7.4%. Slightly lower rate of 5.5% and 5.8% were found in two studies because of inadequate mobilization.<sup>9,12</sup> The results of our study are comparable to the Cloutier J et al and study by Callewaert PR et al, concluding that the single incision trans scrotal orchidopexy is safe and effective alternative to the standard two incision inguinal approach in cases of palpable undescended testes.<sup>9,5</sup>

Scrotal hematoma in Trans scrotal orchidopexy was 2.2%, resolved spontaneously, without injury to the testis and 4.4% in inguinal orchidopexy. This is slightly higher as compared to a study carried out in Colorado school of medicine that shows hematoma in only one out of 85 patients (1.17%) for scrotal incision orchidopexies.<sup>13</sup> Infection rate in scrotal orchidopexy was 1.4% and in inguinal orchidopexy was 4.4%. Wound infection rate of 3.3% was found in one western study, which was successfully treated with antibiotics.<sup>14</sup> The most common complication after orchidopexy, especially in infants is wound infection.<sup>15</sup>

Long term follow up in our study (up to 12 months) showed 03 cases (2.2%) to have testicular reascent after single scrotal incision orchidopexy. This is slightly higher than one study carried out in Colorado that reports 1 out of 85 patients (1.17%)

operated through trans scrotal approach.<sup>14</sup> Another western study shows no secondary reascent in 160 cases operated through same technique and followed for one year.<sup>9</sup>

## CONCLUSION

Trans scrotal orchidopexy is an effective, less invasive and highly acceptable cosmetically as compared to the standard inguinal approach for the treatment of palpable undescended testis.

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