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ORIGINAL ARTICLE

Compare the Outcomes of Orchidopexy with and without SAC Ligation in Children with Palpable Testicals: A Retrospective/Cross-Sectional Study

SYED AZHAR HUSSAIN[1], ZAKIR HUSSAIN RAJPAR[2], KASHIFUDDIN QAYOOM SOOMRO[3], SHOUKAT ALI MUGHAL[4], AFHAN QAYOOM SHAIKH[5], AIJAZ SHAIKH[6]

[1]*Senior Registrar, Department of Urology, Liaquat University of Medical and Health Sciences, Jamshoro*
[2]*Associate Professor, Department of Urology, Liaquat University of Medical and Health Sciences, Jamshoro.*
[3,4]*Assistant Professor, Department of Urology, Liaquat University of Medical and Health Sciences, Jamshoro.*
[5,6]*Consultant urologist, Department of Urology Liaquat University hospital Hyderabad, Hyderabad.*
Correspondence to: Syed Azhar Hussain, Email: axharshah@gmail.com, Cell: +92 3332607673

ABSTRACT

Objective: To compare the outcomes of orchidopexy with and without sac ligation in term of operative time and development of inguinal hernia in children presented with palpable testis.

Study design: Retrospective/cross-sectional

Duration and place of study: Department of Urology, Liaquat University of Medical and Health Sciences, Jamshoro during from the period June 2022 to July 2023.

Methodology: Eighty patients were chosen for this investigation and divided into two equal groups 40 patients in each group. Group A comprised cases where orchidopexy was executed without dissection and ligation of the peritoneal sac, whereas Group B encompassed patients in whom sac ligation was conducted. The average surgical duration was documented for each instance. Post-operative follow-ups were conducted at one, four, eight, and twelve weeks. Patients were assessed for post-operative hernia during each follow-up, and the findings were documented.

Results: The mean age of patients in Group A was 5.62±2.04 years, whereas in Group B it was 5.43±1.88 years. The study results indicated that 50 (62.5%) individuals exhibited left unilateral cryptorchidism, whereas 30 (37.5%) patients presented with right unilateral cryptorchidism. The average surgical time for patients in the no sac ligation group was 24.32±2.83 minutes, whereas in the ligation group it was 37.46±3.24 minutes. Statistically, the two groups exhibited a very significant difference with a p-value of 0.001. No post-operative hernias were seen in any patients from either group.

Conclusion: Based on the findings of our research, we came to the conclusion that orchidopexy without sac ligation requires less time during the operation and does not pose any danger of post-operative hernia.

Keywords: Orchidopexy, Palpable Testicles, Sac Ligation, Operative Time, Inguinal Hernia

INTRODUCTION

Cryptorchidism, often known as undescended testis (UDT), is one of the most prevalent congenital anomalies. Cryptorchidism impacts the urogenital system, with an incidence of 3 to 4 percent in full-term neonates and 30 percent in preterm males, predominantly on the right side[1]. Palpable UDT constitutes eighty percent of the total, whereas impalpable UDT comprises twenty percent[2]. The majority of patients with congenital undescended testes will have the testis descend spontaneously during the first three months of life. Conversely, between 0.8 and 1.1 percent of boys will experience UDT during their lifetime[3]. The presence of UDTs is linked to illnesses such as cancer and male infertility; hence, early surgical intervention is considered crucial for reducing the risk of these outcomes[4].

UDT, often known as cryptorchidism, is a procedure routinely performed by pediatric surgeons around. The patient's age at surgery significantly influences the treatment approach for UDTs, as does the state of the contralateral testis. Laparoscopy is widely employed in the management of impalpable testis and in palpable cases that are challenging to relocate to the scrotum without causing distress[5].

Surgery constitutes the principal element of the treatment. Laparoscopic surgery is recommended as a diagnostic and therapeutic approach for cases when the testes are either non-palpable or situated within the abdominal cavity[6]. Laparoscopic orchidopexy can be executed using the conventional method, the newly developed single incision multiport approach, or the single or two-stage Fowler-Stephens procedures. This is due to the absence of substantial changes between the two treatments regarding the size, location, vascular supply, or atrophy rate of the testes. Nonetheless, concerning the palpable inguinal testes, a disagreement persists over the surgical method and technique[7-8].

Certain authors endorse the traditional inguinal incision, whilst others propose the Bianchi single high scrotal incision for the primary palpable undescended, gliding, or trapped testes. Both incisions are deemed excellent. The closure of the sac during inguinal hernia surgery is both superfluous and time-consuming[9-10]. Moreover, it has been shown that orchidopexies excluding sac ligation conserve operative time and are efficient, uncomplicated, and secure.

This study aims to evaluate the mean surgical duration in pediatric patients with visible testes undergoing orchidopexy, comparing cases with and without sac ligation, and to determine the incidence of post-operative hernia.

METHODOLOGY

This retrospective/cross-sectional study was conducted Department of Urology, Liaquat University of Medical and Health Sciences, Jamshoro during from the period June 2022 to July 2023.

This study included 80 patients divided into two equal groups. Patient selection was non-probability purposive sampling. The study comprised children under 12 with palpable undescended testes scheduled for single-stage orchidopexy. This study excluded patients with non-palpable testes, staged or laparoscopic procedures, orchidopexy history, ambiguous genitalia, comorbidities like neural tube defects, cardiac anomalies, storage diseases, and pre-operative hernias. Parents or guardians gave informed consent for this study. Name, age, gender, and contact number were recorded on a custom proforma. The patients were randomly divided into two groups using a computer-generated random number database. Group I included orchidopexy without peritoneal sac dissection and ligation, whereas group II included sac ligation. All operations were performed by the researcher under general anesthesia. Average surgery duration was recorded for each case. Operative time was from incision to skin closure, excluding anesthetic induction and recovery. The proforma documented each patient's operation time. Post-op follow-ups were done at 1, 4, 8, and 12 weeks. At each follow-up, post-operative hernia was examined and recorded.

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Data analysis was done using SPSS version 24. Age and operational duration mean and standard deviation were calculated using descriptive statistics. For qualitative factors including gender, side, and post-operative hernia, frequency and % were calculated. An independent samples t-test was used to compare operational durations between two groups, with a significance threshold of p-value < 0.05.

RESULTS

The mean age of patients in Group A was 5.62±2.04 years, whereas in Group B it was 5.43±1.88 years. The study results indicated that 50 (62.5%). 22 (55%) in group A and 28 (70%) individuals in group B exhibited left unilateral cryptorchidism, whereas 30 (37.5%), 18 (45%) in Griup A and 12 (30%) patients in Group B presented with right unilateral cryptorchidism.

Table 1: Baseline characteristics of all the included patients

Characteristics	Group A (Without Sac Ligation)	Group B (With Sac Ligation)	Total
Mean Age (Years)	5.62±2.04	5.43±1.88	-
Anatomical Side			
Left	22 (55%)	28 (70%)	50 (62.5%)
Right	18 (45%)	12 (30%)	30 (37.5%)
Total	40 (100%)	40 (100%)	80 (100%)

The average surgical time for patients in the no sac ligation group was 24.32±2.83 minutes, whereas in the ligation group it was 37.46±3.24 minutes. Statistically, the two groups exhibited a very significant difference with a p-value of 0.001. No post-operative hernias were seen in any patients from either group. (Table 2)

Table 2: Comparison of operative time and post-operative hernia between both groups

Characteristics	Group A (Without Sac Ligation)	Group B (With Sac Ligation)	P-Value
Mean Operative Time (Minutes)	24.32±2.83	37.46±3.24	0.001
Inguinal Hernia			
Yes	0	0	-
No	40 (100%)	40 (100%)	-
Total	40 (100%)	40 (100%)	-

In Group A (Without Sac Ligation) recurrent UDT was found in 1 (2.25.5%) while in Group B (with Ligation) 3 (7.5%) patient had recurrent UDT. There were no significant difference was observerd between both groups with p-value 1.026. (Figure 1)

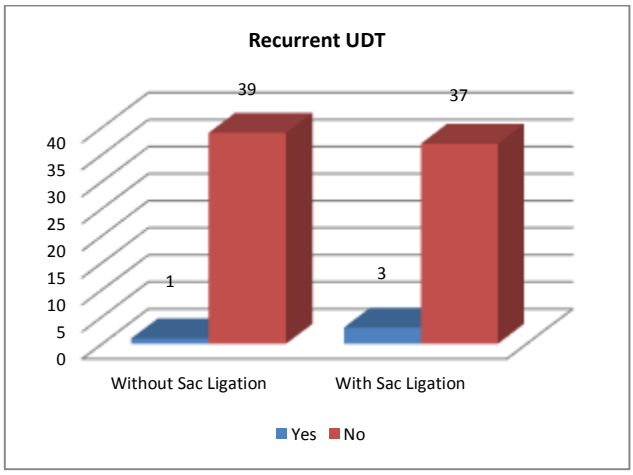

Figure 1: Comparison of Recurrent UDT among both group

DISCUSSION

Testis that has not yet descended is the most frequent urological condition that affects youngsters. Over the course of the past century, a number of novel approaches and modifications have been offered for the treatment of original surgical procedures. The sac ligation procedure was deemed mandatory up until the past decade during orchidopexy, despite all of the changes that have taken place. On the other hand, there is a significant amount of controversy about sac ligation in pediatric patients who are having inguinal orchidopexy. In the opinion of the specialists, there is no requirement to ligate the hernial sac. The purpose of the study was to compare the outcomes of orchidopexy with and without sac ligation in pediatric patients who had undescended testes. The outcomes were evaluated in terms of operative time, postoperative inguinal hernia, and recurrence of undescended teste complications. In order to obtain the desired results, a total of eighty patients were included in the research project and were split into two groups, which were designated as Group A and Group B. While the sac was ligated in Group A, it was not ligated in Group B. Group A was the controlled group. Cryptorchidism can manifest itself in a number of different ways, including eretractile testis, testicular agenesis, ascending testis syndrome, and testicular mal-descent[11]. Surgery at the appropriate time is the definitive therapy for this illness. Regarding the age at which the corrective surgery need to be performed, there is a widespread consensus that has been achieved. It is of the highest significance to discover and treat the patient as early as possible, preferably between the ages of six and twelve months, in order to lessen the likelihood of the patient losing their germ cells and to increase their fertility index[12,13].

In the current study, we discovered that the average age of patients in Group A was 5.622.04 years, whereas the average age of patients in Group B was 5.43±1.88 years. 62.5% of the participants in the survey were found to be fifty. Twenty-two people in group A (55%) and twenty-eight individuals in group B (70%) displayed left unilateral cryptorchidism. On the other hand, thirty patients in group B (37.5%), eighteen patients in group A (45%), and twelve patients in group B (30%) presented with right unilateral cryptorchidism. According to the findings of a study that was conducted by Ama nollahi and Kashanian[14], which are comparable to the findings of our own study, the majority of patients who underwent orchidopexy (with or without sac ligation) were between the ages of 1-4 years old. However, 10.9% and 5.5% of the patients were between the ages of 5-8 years old and 9-12 years old, respectively. In a different study, it was found that the average age of the patients was 4.36 years and 10 months. On the other hand, a study conducted by Noor-ul-Ferdous and colleagues (2018) revealed that the average age of patients was 2.8 years and 2.3 months[15].

In our study the average surgical time for patients in the no sac ligation group was 24.32±2.83 minutes, whereas in the ligation group it was 37.46±3.24 minutes. Statistically, the two groups exhibited a very significant difference with a p-value of 0.001. No post-operative hernias were seen in any patients from either group. Many of studies demonstrated that sac ligation had more operative time as compared to without sac ligation[16-18].

We found in our study that in Group A (Without Sac Ligation) recurrent UDT was found in 1 (2.25.5%) while in Group B (with Ligation) 3 (7.5%) patient had recurrent UDT. There were no significant difference was observerd between both groups with p-value 1.026. A study conducted by Rehman W et al [19] showed similarity to our study findings in which there were no statistical difference between ligation and no ligation groups regarding recurrent UDT.

CONCLUSION

Our research findings indicate that orchidopexy without sac ligation necessitates less operating time and does not provide a risk of post-operative hernia.

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