

SINGLE SCROTAL INCISION ORCHIDOPEXY FOR PALPABLE UNDESCENDED TESTIS

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ABSTRACT

Objective: To retrospectively assess the results of single scrotal incision orchidopexy (SSIO) performed at our centre with ligation of the patent processus vaginalis in children having palpable undescended testes (UDT).

Study Design: Quasi-experimental with retrospective data

Place and Duration of Study: Department of Paediatric surgery Military Hospital Rawalpindi, from April 2007 to December 2011.

Patients and Methods: After making a single transverse incision at superior scrotal border, the testis was identified; gubernaculum and the sac were dissected to the highest level and divided. The testis was placed into the scrotum and fixed to the scrotal fascia/skin. All patients were assessed at 2 weeks, 2 months and 6 months post operatively, and then yearly.

Results: A total of 38 orchidopexies were performed in 33 patients. The patients' age ranged from 14 months to 7 years (mean: 2.1 years). Bilateral UDT were found in 5 patients (15.1%). Operative time ranged from 20 to 45 minutes (mean: 36 minutes). The single scrotal incision technique was successful in all 38 cases (100%). All testes were easily fixed in the scrotum. Two patients (5.2%) developed scrotal haematoma and one patient (2.6%) developed stitch abscess. All showed good anatomical and cosmetic results up to a minimum of six months of follow-up.

Conclusion: Single scrotal incision orchidopexy for palpable undescended testis is a simple and safe technique. It has shown to consume shorter time and give good cosmetic results.

Keywords: Gubernaculum, Orchidopexy, Patent processus vaginalis, Scrotum, Testis, Undescended testis.

INTRODUCTION

Undescended testis (UDT) is the commonest male endocrine disorder in children¹. The testes arise in the abdominal cavity in the eighth week of life, descend through the inguinal canal in 36th week and reach the scrotum in the 38th week. The rate of UDT varies from 9.2% to 30% in premature and from 3.4% to 5.8% in full term babies². One study found the incidence to be 2.7% at full term, dropping to 1.22% by 6 months of age, but with no further change at 1 year³. The majority of UDTs descend within the first 3 months of age⁴ and about 20 % of UDTs are not palpable⁵.

The traditional orchidopexy was described by Schuller (1881) and Bevan (1899/1903) and the concept is still used. It involves two incisions, giving an initial incision to mobilize the testis, followed by a second scrotal incision,

pulling down the testis and fixing it in the dartos pouch. Ligation of the hernial sac is considered necessary to avoid recurrence of hernia and adequate mobilization of the testis.

Single scrotal incision orchidopexy (SSIO) was first described by Bianchi and Squire in 1989⁶. They showed that if the UDT is palpable, it often has a normal vascular pedicle but shorter processus vaginalis. Thus the hernial sac can be delivered using a higher than normal single scrotal incision. The testis is separated from the sac, sac is transfixed as high as possible and the testis is fixed in the dartos pouch. This approach also allows us to detect atrophic testis or testicular remnants, and is emerging as an alternative initial surgical approach to impalpable UDT⁷. Thus only a single incision is made which is less painful, has better cosmetic outcome and less operative time is used than the traditional orchidopexy⁸.

The purpose of this study was to see the results of SSIO in selected cases of UDTs.

PATIENTS AND METHODS

We carried out this quasi-experimental

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study with retrospective data from April 2007 to December 2011 in the Paediatric Surgery Department at Military Hospital Rawalpindi on patients that met our inclusion criteria. This was a single operator based (CAS) study. Only UDT palpable at or distal to the external inguinal ring were included in the study. A confirmatory pre-operative examination was also done when the baby was anaesthetized. Exclusion criteria included the presence of clinical hernia, fixed ectopic testes and previously operated cases. All surgeries were carried out under GA, following the Bianchi's procedure. A transverse scrotal incision was made (Fig-1). The gubernaculum and sac were identified. Sac was carefully dissected off the vas and vessels, and divided at the highest level. The testis was placed in the scrotum, fixed to dartos fascia with an absorbable suture through tunica albugenia and skin was approximated with subcuticular or closed with absorbable sutures (Fig- 2 and3).

All patients were given a single preoperative dose of injection cefuroxime. Post-operative analgesia was obtained with nalbuphine injections and oral ibuprofen syrup. All patients were re-evaluated at two weeks, two months, and six months after surgery, with advice for yearly visits till puberty. Data analysis was carried out using SPSS verion 14.

RESULTS

A total of 33 patients underwent SSIO during the study period. Five of them had bilateral UDT (15.2%), hence a total of 38 SSIOs were performed during this time period. The ages ranged from 14 months to 7 years with mean of 2.1 years. The average operating time was 36 minutes (range 20-45 min).

At two weeks follow up 2 patients (5.3%) had developed scrotal hematoma but it settled without any intervention. One patient (2.6%) developed stitch abscess (due to subcuticular vicryl suture), which resolved on removal of the stitch. No major wound infection was seen and all testes were in position of placement.

At two weeks, two and six months and then yearly follow up, all patients demonstrated satisfactory results; with good position, no retraction, no atrophy, no hernia and very acceptable cosmetic results.

DISCUSSION

Orchidopexy is one of the commonest paediatric surgical procedures. Complications associated with UDT are atrophy, torsion, inguinal hernia and the possibility of degeneration into a testicular neoplasm^{9,10,11}. Orchidopexy is indicated mainly for the potential avoidance of infertility and early detection and treatment of testicular cancer. The traditional orchidopexy is a two-incision procedure which involves identification, separation and ligation of the inguinal canal contents and placement of the testis in the scrotum.

Most UDTs are palpable distal to the external inguinal ring, which is a short distance from the scrotum. Thus, a direct scrotal approach is very plausible. Bianchi and Squire first suggested this minimally invasive single scrotal incision orchidopexy fifteen years ago. Although this technique was slow to pick up but recent trends show its increasing acceptance, with excellent results in selected patients, as shown by our study.

SSIO has been found to be successful in case of both primary (congenital) and secondary (acquired) UDT. Mostly, these testes are outside of a hernial sac, which makes them amicable to mobilization. The single incision is cosmetically more appealing and also decreases the operation time; 36 minutes in our study which compares favourably with the reported studies¹². This technique causes minimal anatomic disruption and much less dissection, which in turn also causes lesser post operative pain. Takahashi et al¹³ also showed the added advantage of SSIO in terms of preservation of the regional vasculature and suggested it to be an excellent alternative to the standard pexy.

Similarly, Callewaert et al⁷ showed that the advantages of SSIO are shorter operative time, a cosmetically appealing single incision; less pain and suggested that this approach can be used

for the inguinal incision. Complications and recurrences have rarely been reported. All these favourable factors are more profound in children at 2 or around 2 years of age. Thus



Figure- 1: Incision in the upper scrotum.



Figure-2: Testis after mobilization and division of sac.



Figure-3: Final result.

even in the more difficult cases of impalpable UDT. Surprisingly, it even allows successful orchidopexy of abdominal testes, provided an open processus vaginalis is present. Moreover an increased trend is observed towards scrotal approach than inguinal and trans-inguinal abdominal approach for UDT in the recent papers¹⁴.

Cloutier et al¹² compared modified mid raphi scrotal incision with standard Bianchi and conventional inguinal approach in patients with palpable UDT and showed that it was an excellent alternative especially for bilateral UDTs, as was confirmed by good results in our 5 bilateral cases. Low scrotal approach can also be used even in cases of UDT after groin surgery, an endeavour not without some apprehension¹⁵.

High ligation of the processus vaginalis is mandatory in the classical Bianchi's procedure. However, Lias and Ferrow¹⁶ showed that it was not only time consuming but also led to more complications. Similarly, Handa¹⁷ found that there is no increased recurrence of hernia without ligation of the processus vaginalis and it is equally safe, simple and effective. We however, followed the classical Bianchi's procedure with ligation of the sac.

Other studies^{18,19} in the past have also shown that atrophic testis can be readily identified via the primary scrotal incision, thus recommending the scrotal incision as the initial incision, and in these cases obviating the need

patients should be selected after thorough assessment and pre-op examination under GA for confirmatory evidence. An added attraction is that this procedure can be reversed to the traditional technique anytime the surgeon deems worthy a second inguinal incision.

CONCLUSION

Conclusively, SSIO is safe and equally effective technique for a palpable UDT. Moreover it has shown to cause less pain, consume shorter time and give better cosmesis because it is done through a single scrotal incision. It is easy to perform and quick to learn with reproducible results in all hands.

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