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Prescrotal Orchiopexy for the Palpable Undescended Testicle (UDT): Initial Experience and Comparison with The Standard Inguinal Approach

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Abstract:

Objective: To review our initial experience with prescrotal orchipexy, to illustrate this surgical approach, and to compare it with the standard two incision inguinal approach.

Material and Methods: This is a single institution retrospective comparative review of 135 patients (pts) who underwent orchiopexy for UDT over 4 years. Pts undergoing the standard inguinal orchiopexy were compared to those undergoing the emerging single-incision prescrotal approach in regards to operative time, complications and cosmesis.

Results: The study was completed on 96 pts who met the inclusion criteria. Group A (72 pts, 75%) underwent the standard two-incision inguinal orchiopexy while Group B (24 pts, 25%) underwent the single-incision prescrotal orchiopexy. Average age at surgery was 3.2 years, with a mean follow up of 13 months. Average operative time was 56 minutes for Group A and 32 minutes for Group B, by using SPSS significant P value difference ($p < 0.05$) was calculated . All patients from the two groups had uneventful postoperative period with one pt in Group A who had a scrotal wound infection. None of the pts in Group B need conversion to the inguinal approach. At last follow-up, all patients in both groups had testicles in the scrotum with no atrophy. While the cosmetic appearance in Group A was acceptable, cosmesis in Group B was superior.

Conclusion: Prescrotal orchipexy is a safe alternative to the standard inguinal orchiopexy for the palpable UDT. Our study demonstrates similar outcome, shorter operative time and superior cosmesis.

Keywords: undescended testicle, single incision, orchiopexy

Introduction

Undescended testicle (UDT) is among the most common conditions encountered in pediatric urology (1). With 80% of UDT being palpable, and 60% being distal to the external inguinal ring, open orchiopexy at an early age remains the mainstay surgical management (2). The benefits of surgery include reduction of testicular atrophy and trauma attributed to abnormal location, early cancer detection, and avoidance of a psychological impact of an empty scrotum. Classically, the two-incision inguinal orchiopexy has been performed, preferred and perpetuated as the gold standard approach in pediatric centers worldwide. Worth noting, Bianchi and Squire introduced the single-incision prescrotal approach in 1989 (3). This approach has potentially shorter operative time, less postoperative pain and better cosmetic result. Additionally, accumulating literature (4, 5, 6, 7) demonstrates favourable applicability of this approach to acquired cryptorchidism or testicular ascent, redo orchiopexy and communicating hydroceles. Herein, we review our initial experience with applying prescrotal orchiopexy to palpable UDT and compare it to a matched group of pts undergoing the traditional inguinal approach.

Material and Methods

This is a single institution retrospective comparative review of all pts who underwent orchiopexy for primary palpable unilateral UDT between January 2008 to December 2011. Pts undergoing the standard inguinal orchiopexy were compared to those undergoing the emerging single-incision prescrotal approach. Of a total of 135 pts, 39 were excluded: 4 pts had intra-abdominal testicle, 15 pts had high testicles located preoperatively at the level of internal ring, and 20 pts were lost to follow up. The study was completed on 96 pts. According to surgical approach, we divided patients into 2 groups. Group A, the control group involved 72 pts (75%) who had standard two-incision inguinal orchiopexy, while Group B involved 24 pts who had single-incision prescrotal orchiopexy. Charts were reviewed for demographic data, laterality, preoperative testicular location, operative time, presence and ligation of the processus vaginalis (hernia sac), postoperative testicular location complications and cosmesis.

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Operative Techniques: All pts had a regular examination under general anesthesia to confirm the location and diagnosis of a true undescended testicle rather than a retractile one. The soap test was done selectively to facilitate palpation in equivocal cases. Group A underwent the standard inguinal orchiopexy as described by **Hutcheson et al (8)**. Group B underwent the modified **Bianchi et al (3)** approach where a 1.5 to 2 cm. incision is done at the most lateral rugal fold of the scrotal junction to the perineum **(Figures 1).** A blunt subdartos pouch is created. Dissection towards the external inguinal ring is done until the testicle is encountered. The active role of the assistant in retraction and exposure while milking the testicle towards the incision is crucial. Gubernacular and cremasteric attachments are released to gain mobility to the spermatic cord. In cases where a hernia sac is present, it is dissected off the cord and suture ligated **(Figure 2,3),** similar to the inguinal approach. The testicle is fixed in the dartos pouch with one suture of 3-0 vicryl. The prescrotal incision is closed **(Figure 4).** No retroperitoneal dissection was done in the prescrotal approach.

Results

The study was completed on 96 pts who met the inclusion criteria. Group A (72 pts, 75%) underwent the standard two-incision inguinal orchiopexy while Group B (24 pts, 25%) underwent the single incision prescrotal orchiopexy. Average age at surgery was 3.2 years, with a mean follow up of 13 months (range 15 - 53 months). Average operative time was 56 minutes for Group A and 32 minutes for Group B ($p< 0.05$). In Group A, 59 pts (79%) had associated hernia sac, similar to pts in Group B: 19 pts (79%) (p-value: not significant). Ligation of the hernia sac was technically feasible in all patients of both groups. All patients had an outpatient procedure, regardless of approach. All patients from the two groups had uneventful postoperative period with one pt in Group A who had a scrotal wound infection. None of the pts in Group B needed conversion to the inguinal approach. At last follow-up, all patients in both groups had testicles in the scrotum with no atrophy. While the cosmetic appearance in Group A was acceptable, cosmesis in Group B was superior.

DISCUSSIONTraditionally, inguinal orchiopexy has been considered the surgical gold standard for treatment of palpable UDT. Although it has been almost 15 years since **Bianchi and Squire (3)** introduced the single incision scrotal technique, this approach has not gained widespread reception among pediatric urologists. This reluctance may be conceptually attributed to a presumed difficulty in performing high ligation of the patent processus vaginalis. The impact of processus vaginalis ligation on the success of the orchiopexy is controversial. **Parsons et al (9);** reported that in 20% of their prescrotal orchiopexy series a patent processus vaginalis was identified and they proceeded with an inguinal incision to ensure its ligation. **Mohta's A et al (10)** found that non ligation of a hernia sac did not have untoward effect on long-term outcome of orchiopexy. We still advocate ligating a patent processus vaginalis whenever present, which we found feasible in the prescrotal approach. A hernia sac can be pulled down through the external ring to be ligated and allowed to retract through internal ring without necessarily incise the external oblique fascia.Whenever needed to allow the testicle to lie comfortably in the scrotum, extra spermatic cord mobility can be achieved by opening the inguinal canal through the same prescrotal incision. **While Al-Mandil M et al and his colleagues (11)** at sickkids hospital in Toronto/ Canada reported a low risk of inguinal hernia (3%) after prescrotal orchiopexy was reported, none of our pts were found to have hernia for the length of follow-up.

We encourage surgeons accustomed to inguinal orchiopexy to implement the prescrotal approach.Examination under anesthesia before making any incision is a crucial predictor of success with the single incision. Initially, selecting the prescrotal approach for the low lying inguinal testis is reasonable, with progressive application to higher palpable inguinal testicles as the surgeon becomes more confident with the concept of working distal to the external ring. Some other pediatric urology surgeon adopting the prescrotal approach does not preclude surgeons from reverting to an inguinal incision until they are able to complete the procedure with the prescrotal exposure

Conclusion

For the palpable UDT, the single-incision prescrotal orchiopexy is a viable minimally invasive alternative to the classical two-incision inguinal orchiopexy. It is safe, with shorter operative time, better cosmesis and possibly less pain.

Figure 1: Examination under Anesthesia

Figure 2 : Draw site of incision preoperatively

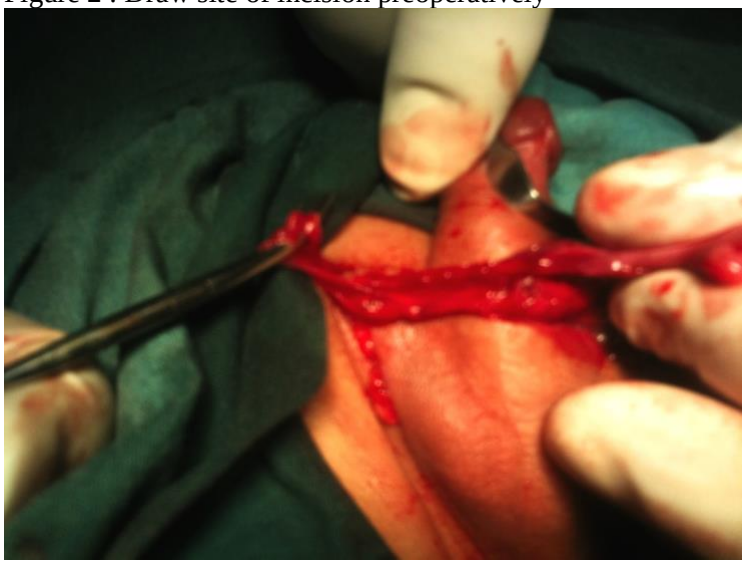

Figure: 3 Separation of associated Hernia sac

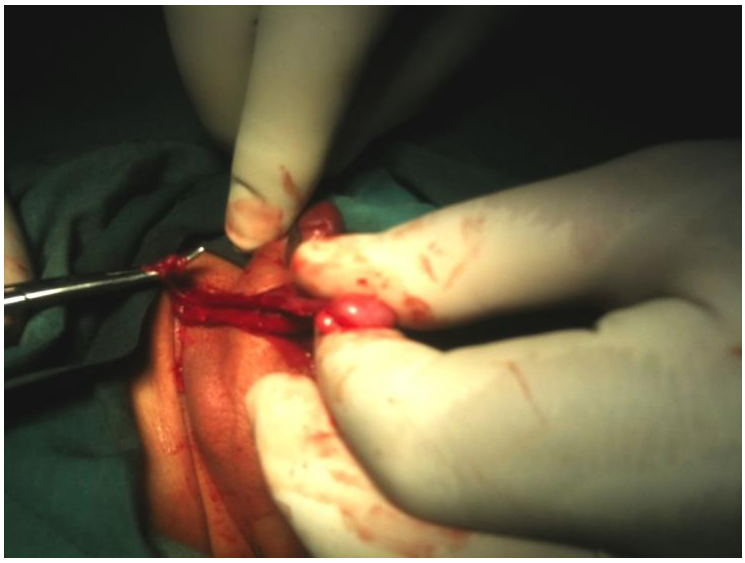

Figure 4: Ligation of associated Inguinal hernia high at level of med inguinal cannal.

Figure 5: Final Single incision at Prescrotal Area

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