Trans-scrotal laparoscopy assisted one stage orchiopexy for impalpable testis: Sohag experience

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Abstract

Background and aims: Management of intra-abdominal testis by laparoscope is carried out via placement of three trans-abdominal ports to release the testis from the underlining attachment, followed by its delivery outside the abdomen to be fixed in the scrotum. Either through a traditional inguinal incision or through a trans-scrotal approach. This paper aimed to evaluate the feasibility, safety and cosmetic appearance of using direct trans-scrotal laparoscopy assisted one stage orchiopexy for low intra-abdominal testis

Patients and methods: This is a prospective study included 10 patients with intra-abdominal low position undescended testis. We used the technique of trans-scrotal laparoscopy assisted one stage orchiopexy using only three ports.

Results: Cases of this study were 11 intra-abdominal testes in 10 boys, with their mean age was 21 months (rang 14-36 months). They were located on the right side in 6, left side in 4 and bilateral in one case. There were no serious complications encountered during the procedure

Conclusion: This technique is safe, more cosmetic, avoids inguinal incision and reduces the overall cost of the procedure. So we recommend this approach for the low seated intra-abdominal testis.

Key word: orchiopexy, laparoscopy, trans-scrotal

Introduction

Cryptorchidism is one of the commonest congenital anomalies of the male genital system.[1] The rate of cryptorchidism in full-term boys is varies from 9.2% to 30%.[2] It is bilateral in 25% of cases, and its incidence on the right side is more common than on the left.[3] Also, it can be vanished or completely absent as in case of testicular agenesis.

It is of no doubt that leaving the testis intraabdominally is risky because of neoplasia and infertility.[4]

There has been debate about the most effective way in the management of undescended testis because it has different allocation of descent ranging from palpable intracanalicular up to high intraabdominal.[5]

Laparoscopy for nonpalpable and intra-abdominal testis has been known to be the gold standard tool for diagnosis and treatment.[6]

There are two lines of management of intraabdominal testis, depending on the distance from the internal inguinal ring, either direct transfer of the testis to the scrotum or staged procedure as described by Fowler and Stephens by dividing the gonadal vessels in situ and followed by mobilization and orchiopexy.[7]

The laparoscopic orchiopexy is carried out via placement of three ports; one supraumbilical for the optics and two additional working ports through which dissection and release of the testis from its underlying tissue is carried out,[8] followed by its delivery outside the abdomen to be fixed in the scrotum,[9] either through the traditional inguinal incision or trans-scrotal approach.[10]

Aim of the work

We present our preliminary experience of this approach showing its

advantages and recommendations in our locality.

Patients and methods

This is a prospective study done on patients with nonpalpable testes presented to pediatric surgery unit at Sohag University Hospital in the period from June 2009 to the May 2012. We included in this study all patients with ultrasound evidence of intraabdominal low position testes or those diagnosed intra operatively by laparoscopy. We exclude from the study those with high position intra abdominal or if associated with other congenital anomalies.

The standard laparoscopic procedure (Figure 1-6) was carried out with the patient in Trendelenburg's position. A 5-mm trocar was introduced by an open approach supraumbilical position, and CO_2 pneumoperitoneum was induced in a rate of 1 liter per minute with pressure 10-12 mm Hg according to the age of the patients. The inguinal ring was first examined, and then the iliac areas and the pelvis were inspected.

After an intraabdominal testis was found, it was classified as high or low depending on its position (low, adjacent to the internal inguinal ring, and high, in the iliac fossa above the iliac vessels).[7]

An additional two 3-5mm ports were inserted in, approximately, at the umbilical level near the midclavicular line. After evaluation of the testicular position and the length of the spermatic vessels, we start dissection from above the internal inguinal ring passing medially to the gubernaculum avoiding injury of the vas deferns and inferior epigastric vessels. Then the gubernaculum was divided distally, with mobilization of the testis and its pedicle till reach the contra-lateral internal inguinal ring. At that time, a small transverse incision is made in the skin of the scrotum, the sub-dartos pouch is created using curved mosquito forceps or scissor, and a 5-mm grasper is inserted directed to the pubic tubercle helped by the other hand from outside.

Injury of the inferior epigastric vessels should be avoided under vision. We hold the testis from its lower end (gubernaculum), the testis was pulled out of the scrotal wound, avoiding the pedicle to be twisted by checking it from inside.

The grasper was released and the testis was fixed into the dartos pouch with 4/0 absorbable stitches to narrow the dartos opening with no stitches taken in the testis itself. We ensured hemostasis and close the wounds using 4/0 absorbable suture.

We recorded any complications such as; bleeding due to injury to gonadal or iliac or epigastric vessels, injury to the vas deferens or the testis or injury of the intestine.

Follow up for 6 months to 18 months, by clinical examination every month for the site and size of the testis and ultrasonography to ascertain testicular tissue morphological changes.

Results

Eleven intraabdominal testes in 10 boys, with their ages ranged from 14 to 36 months (mean 21 month). They were on the right side in 6, left in 4 and bilateral in one case. All have nonpalpable testis even under general anesthesia either visualized by sonography or not.

There were no complications encountered during the procedure in all cases, but four cases developed inguinal subcutaneous emphysema from insufflation which resolved spontaneously within few days. All cases were completed with no need for conversion to open approach. The dissection of the testis with its vascular pedicle was

Fig. 2 Gubernaculum releas

Fig.4 Grasping the testis

Discussion

Laparoscopy has the advantages of minimal invasive procedure and it is now considered the gold standard for management of nonpalpable testis.[6]

Different techniques has been proposed to accomplished this procedure as primary laparoscopic orchiopexy, in case of low position intraabdominal testis, or staged procedure as described by Fowler and Stephens if high intra-abdominal position of the testis was diagnosed.[7]

Trans-scrotal laparoscopy assisted orchiopexy now becomes an option with advantages of less invasiveness and cosmetic if we compare it with standard associated inguinal incision[11] in our study we present our experience with this technique with success in consistent with others.[13-16]

Dissection of the gonadal vessels is carried out retroperitonealy to free it from its mesentery root this is necessary to provide more length to facilitate taking the testis down to the scrotum, into the dartos pouch, according to its position and distance from the internal inguinal ring.[15] It is essential to get a tension free pedicle reaching down to the scrotum.[14]

Then from outside, incision of the skin of the scrotum transversely was done to create a subdartos pouch and introduce a grasper through the dartos muscle to deliver the testis. We did not use a fourth port to assist in dissection like which reported by Khairi [11] as we completely perform the dissection via abdominal ports, this may reduce the overall cost of the procedure if disposable port is usually used. When the grasper tip passed into the abdomen, the lower pole of the testis is caught to be delivered trans-scrotaly and fixed into the dartos pouch then closure of the skin was done.

We leave the internal ring without closure as reported, except if there is associated hernia we close it by two stitches.[8]

During short term follow up there were a satisfactory outcome comparable with those reported in the literatures.[14]

From our view this technique is safe and associated with less morbidity, more cosmetic as it avoids inguinal incision and reduced the overall cost of the procedure. So we recommend this approach for the low seated intra-abdominal testes and further clinical evidence should be applied for those patients with high intra abdominal or in the staged Stephens-Fowler technique.

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الملخص العربى

استخدام المنظار الجراحى كمرحلة واحدة لأصلاح الخصى المعلقة عن طيق سحب الخصية من خلال كيس الصفن: خبرة سوهاج

أجرى هذا البحث فى وحدة جراحة الأطفال بالمستشفى الجامعى بسوهاج كدراسة مستقبلية على عشر اطفال مرضى متوسط اعمارهم 21 شهرا لديهم خصى معلقة داخل البطن فى الوضع المنخفض و قد تم استخدام المنظار الجراحى كمرحلة واحدة لأصلاح هذا التشوه الجنينى عن طيق سحب الخصيه من خلال كيس الصفن دون فتح الجلد الأربى بعد تسليكها من داخل البطن بالمنظار باستخدام ثلاثة مداخل فقط ولم تسجل اى مضاعفات خطيرة بجميع المرضى و قد ثبت من خلال نتائج البحث أن هذه الطريقة آمنة و أفضل من الناحية الجمالية لأنها تقى المريض من مضاعفات شق الجلد الأربى و كذلك تخفض التكاليف الشاملة للعملية.