



Modified dartos pouch technique by transfixing the testis to a nylon button for undescended testes with short spermatic cord.

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ABSTRACT

Aim: To overcome the difficulty in retaining the testis in the scrotum after orchiopexy by modified dartos pouch technique for undescended testes with short spermatic cord. **Materials and Methods:** From October 2010 to September 2013 sixty-eight undescended testes in 55 boys with short spermatic cord were treated. After mobilizing the spermatic cord adequately, the testis was brought down to subdartos pouch and then transfixed it to a nylon button placed outside the scrotal skin. Technique was used for 63 open orchiopexy and 4 laparoscopic orchiopexy. Button was removed after 7 days to 18 days depending on the testicular descent. **Results:** Average operating time for open orchiopexy was 40 minutes and for laparoscopic operation it was one hour. Follow up period varied from six months to two years. Sixty-five (97%) of the testes were fixed comfortably in the scrotum at the end of 3 months. Only two testes receded up. There was no major complication related to the button. **Conclusion:** This is a simple, safe and effective method of retaining the undescended testis in the scrotum. There is no need for restraining the child after operation.

KEYWORDS : Undescended testis, difficult orchiopexy, short spermatic cord

Difficulty in retaining the undescended testis in the scrotum was encountered long back. From time to time, different authors had proposed various techniques of fixation of the testis to overcome this problem. Standard subdartos pouch technique has a success rate of 89% to 92 % [1]. Some authors have divided the testicular vessels to gain length of the spermatic cord [2].

We have used a simple technique of fixation of the mobilized testis to a nylon button placed outside the scrotal skin. This technique is essentially a modification of the subdartos pouch technique with additional testicular fixation. This is one stage operation and there is no need for division of the spermatic vessels.

Materials and methods: From October 2012 to September 2015, fifty-five boys with undescended testes (UDT) were treated. Age of the patients ranged from 7 months to 13 years. Age distribution is shown in figure 1.

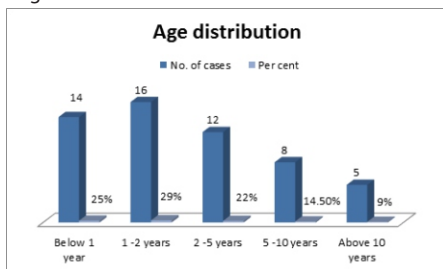


Figure 1: Age distribution

Forty-two cases had unilateral and 13 bilateral undescended testes. Out of 42 unilateral cases, 25 cases had right and 17 cases had left undescended testes. There were total 68 undescended testes. Out of 68 UDT, 55 were palpable and 13 testes were not palpable. Most of the palpable testes were located in the inguinal canal. Locations of the palpable testes are shown in table 1.

Location	No. of cases	Per cent
Superficial inguinal pouch	9	16%
Inguinal canal	32	58%
At the deep inguinal ring	14	25%

Table 1: Locations of the palpable testes (n=55)

Ultrasonography was done for impalpable cases only. All 68 UDT underwent surgery. Groin exploration was done for 63 testes and laparoscopy assisted orchiopexy was done in 4 cases of unilateral impalpable testes. Laparoscopic orchidectomy was done in one case with atrophic intra-abdominal testis. Bilateral cases were

operated at the same sitting. Transverse groin crease incision was made. Patent processus vaginalis was ligated in all the cases of open orchiopexy. After adequate mobilization, the length of the spermatic cord was assessed. Testes which could be brought down to the mid-scrotal level were excluded for this method. Testes which could be brought upto superficial inguinal pouch or up to the root of the scrotum were selected for button fixation technique.

Technique: After mobilization of the spermatic cord, the subdartos pouch is made. Testis is then brought down into the pouch through a shortest route. The testis is then brought out through the scrotal incision. The testis is then transfixed to a nylon button placed outside the scrotal skin, by 5-0 polypropylene suture with a round body needle. An unused nylon button is sterilized in 2% glutaraldehyde solution and washed thoroughly by normal saline before use. First, the needle is passed into the dartos pouch through bottom of the scrotum and then brought out through the scrotal incision; Needle is then passed through thick fibrous tissue at the bottom of the testis where the gubernaculum is attached (Figure 2 a&b).

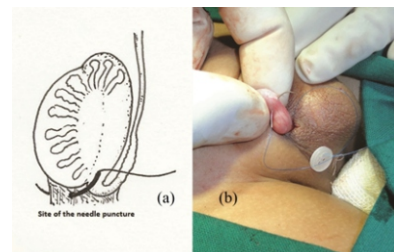


Figure 2: Schematic diagram and picture showing site of the needle puncture

Carefully taking the needle puncture through the fibrous tissue, blood testicular barrier can be preserved. Then the needle is passed out through the dartos pouch by another puncture close to the entry point. Two ends of the thread are then passed through diagonally opposite holes of a nylon button and then tied together snugly (Figure 3).

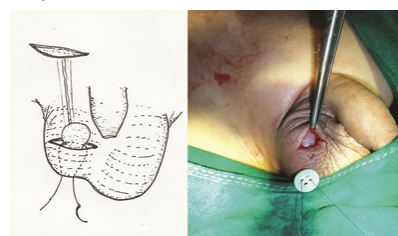


Figure 3: Technique of fixation of the button

Inguinal and scrotal incisions are then closed. Many a times the scrotum looks puckered and invaginated at the end of the operation. The button is kept in place for 7 to 18 days. When the scrotum bulges out and the testis can be moved from side to side, the button is removed.

Results

Total 68 undescended testes in 55 boys were treated. Mean operative time for groin exploration was 40 minute and for laparoscopic operation it was one hour. One of our important observations was that, location of the testis on clinical examination did not relate to the length of spermatic cord. In our study group nine testes located at the superficial inguinal pouch had short spermatic cord.

Anorchia was not encountered during exploration. Only one case had unilateral (left) atrophic high intra-abdominal testis. More than 50% of the testes descended and fixed in the scrotum by the end of one week after operation (Figure 4 a&b).

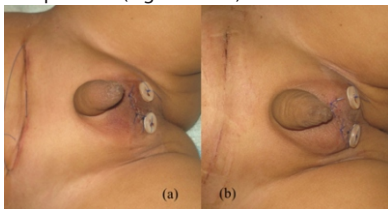


Figure 4: Flat scrotum one day after B/L orchiopey and scrotal bulge 10 days after operation

Button could be removed after 7 days in 35 cases, after 10 days in 23 cases and after 18 days in 9 cases. Follow up period ranged from six months to two years. At the end of three months 65 testes were lying inside scrotum. Only two testes receded up into inguinal location, one following conventional surgery and one after laparoscopic orchiopey. In one case redo orchiopey has already been done. Testes sizes were average for age.

Discussion: Testicular ascent after a difficult orchiopey is not uncommon. Short length of the spermatic cord is the most important factor for it. Tong has reported 32 cases of maldescended testis after previous orchiopey [3]. Khattak and co-workers have reviewed 18 patients with previous inguinal surgery where testes were missing on clinical examination with no mention of previous orchidectomy[4]. Out of these eighteen cases, 10 cases had failed orchiopey. In another retrospective analysis of post-orchiopey cases 33 cases of maldescended testes were encountered during a period of 4 years [5]. Though total number of orchiopeys performed during that period is not available, 33 cases in 4 years is quite a large number.

Some surgeons tried to overcome the problem of a short length of spermatic cord. They fixed the testis to another site, such as the fascia lata or contralateral testis, for the purpose of possible lengthening of the cord. Torek in New York and Keetley in England independently reported the technique of fixation in the fascia lata in a similar period [6, 7]. The testis was recommended to be kept in situ for 3 to 6 months and then detached carefully and repositioned in the scrotum. Torek also reported 64 cases of successful staged operation, which did not need to divide the spermatic vessels [6].

The concepts of continuous traction were revisited by Cabot and Nesbit of Michigan University again with the use of a rubber band and wire cage for approximately 12 days [8].

Robert J. Prentiss of San Diego County Hospital added additional technical insight with his detailed depiction of the surgical anatomy of the spermatic vessels and the anatomic proof that relative

lengthening of the spermatic cord could be achieved by division of the inferior epigastric vessels and medial displacement of the spermatic vessels [9].

The current method of testicular fixation within the subdartos pouch was first described by Schoemaker [10] in 1932 but was popularized by Lattimer [11], at Columbia University, in 1957. He also worked out a way to implement gentle traction via an elastic band anchored in the vicinity of the patient's knee for 10 days.

Subdartos pouch is now established as the standard method of orchiopey for almost all undescended testes with exception of high undescended testes with success rate of 89% to 92% [1]. Therefore, attention has turned to the treatment of high undescended testes which were not adequately treated by standard orchiopey.

Jones and Bagley described high retroperitoneal mobilization of the spermatic vessels, and passage of the testis directly through abdominal wall at the pubic tubercle (Prentiss maneuver) for high canalicular and intra-abdominal testes [12].

To gain length of the spermatic cord, attempts to divide the testicular artery were made well before the 20th century. However, a high atrophy rate precluded wide application. In 1959, Fowler and Stephens [2] studied the vascular anatomy of the testis and devised a means to repair a high undescended testis and preserve its blood supply via collateral circulation. Children with a long, looping vas that extends down the inguinal canal are the ideal candidates for this surgery, but less than one third of the children with intra-abdominal testes were found to have this condition. Originally, Fowler and Stephens orchiopey was known as a staged technique but it was further modified into a 2-staged operation with a better success rate.

Prior to 1976, the non-palpable testis was only located by inguinal exploration. However Cortesi et al [13] first described the laparoscopy as a modality that could reveal the location of non-palpable testis. Advantages of laparoscopy are capability of extensive vascular dissection up to origin of the gonadal vessels and ability to create a new internal ring medial to the inferior epigastric vessels to achieve the straight vascular course to the scrotum.

Final problem for all the procedure is to retain the testis in the scrotum. We have tried fixing the problem by transfixing the mobilized testis with a nylon button placed outside the scrotum. Contraction of the dartos muscle is directly transmitted to the partially descended testis and helps its descent. Technique can be used for all undescended testes which can be brought out beyond the external ring. Procedure can be used for both conventional and laparoscopic surgery. We do not have any experience with Fowler and Stephens procedure. It is technically simple and reproducible. There is no hanging part of the device, so restraining of the child is not essential. Unlike Fowler –Stephens procedure, there is no need of dividing the spermatic vessels and hence there is no chance of testicular atrophy. There was no infective complication related to the button. Complication included indentation the scrotum by the button in some cases of very high testis and protrusion of granulation tissue through holes of the nylon button. But these problems resolved soon after removal of the button.

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