Original Article

An Audit of Undescended Testis treated at DHQ Hospital Abbottabad

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ABSTRACT

Background: Undescended testis or cryptorchidism which occurs in 2% of boys born at term, is one of the most common congenital abnormalities. Cryptorchidism is associated with impaired fertility and is a risk factor for testicular cancer. There is evidence that post natal germ cell development deteriorates in the undescended testis after the first year and perhaps for this reason, the risk of infertility increases with age. The question of whether the age at treatment has any effect on the risk of testicular cancer is controversial.

Primary management of cryptorchidism is surgery which is usually performed in infancy.

Study Design: A retrospective study.

Place and Duration of Study: This study was conducted at DHQ Hospital Abbottabad from Oct 1998- Dec 2008.

Patients and Methods: Total of 159 patients were treated during this period. Children of all ages were included. The patients were divided into different age groups. Patients were investigated with physical examination, ultrasonography, CT scan and MRI. All patients were treated with open surgical orchidopexy. Pre operative complications were evaluated. Patients were followed up and complications were noted.

Results: The common age group was above 05 yrs 80 patients (50%).Rt side was involved in 82 cases(52%) and Lt side in 54 cases(34%). Inguinal hernia was the most common associated finding 76 cases(48%) with cryptorchidism. The results indicate that age at orchiopexy has an effect on the risk of testicular cancer in boys with an undescended testicle. The risk among those treated at 13 years of age or older was twice the risk among those who were treated at younger ages.

Conclusions: Failure of the testicle to descend through the inguinal canal during the fetal life may be related to enough of a specific type of maternal hormones, failure of testis to respond to inadequate pull from the gubernaculum, or various other factors. Ultrasound can help to identify testicle located in the inguinal canal, but is of limited use for intra abdominal testis. MRI and CT scan can be useful for intra abdominal testis, but they are often difficult to use on small children and have a high rate of false negative results. Many men who were born with undescended testes have reduced fertility, even after orchiopexy in infancy. The most effective treatment is surgery which is usually performed in infancy. Hormonal treatment has the advantage of avoiding anesthesia and being minimally invasive. HCG is the drug of choice. However success rates have been reported to be as low as 10%. The principal major complication of all types of orchiopexy is loss of the blood supply to the testis, resulting in the loss of the testis due to ischemic atrophy or fibrosis.

Key Words: Cryptorchidism, Testicular torsion, Orchiopexy, Retractile testis.

INTRODUCTION

Undescended testis, also called cryptorchidism, is a common condition in which reproductive gland is located outside the scrotum. The condition may be unilateral or bilateral. Cryptorchidism literally means hidden testis. Cryptorchidism occurs more frequently in preterm boys (30 %) and almost is associated with inguinal hernia, although most are not symptomatic.

Incidence is 3-5% in full term boys and 1.8% at one year age. More than 80% of undescended testis are on one side, the other side is usually normal. Diagnosis of this condition is made through physical examination at birth. Generally radiologic imaging is not reliable. Ultrasound can help to identify testicle located in the inguinal canal, but is of limited use for intra abdominal testis. MRI and CT scan can be useful for intra abdominal testis, but they are often difficult to use on small children and have a high rate of false negative results. The most common diagnostic dilemma in otherwise normal boys is distinguishing a retractile testis from a testis that will not descend spontaneously into the scrotum. In minority of cases the bilaterally non palpable testes, further testing to locate the testes, assess their function, and exclude additional problems is often useful. Pelvic ultrasound or magnetic resonance imaging can often, but not invariably, locate the testes while confirming the absence of uterus.

PATIENTS AND METHODS

A retrospective study was carried out in DHQ Hospital Abbottabad from Oct 1998 to Dec 2008. A total of 159 patients were included in this study. Children of all ages were included. The patients were divided into different

age groups. Patients were investigated with physical examination, ultrasonography, CT scan MRI. All patients were treated with open surgical orchidopexy. Mostly single stage orchiopexy was done but in some cases surgery was done in two stages. All surgeries were done under general anesthesia and the patients were discharged the next day. Pre operative complications were evaluated. Patients were followed up and complications were noted. Results were evaluated and thorough search of the literature was done and results compared with the international studies. Conclusions drawn after thorough search of the literature.

RESULTS

The results from the collected data indicate that age of orchiopexy has an effect on the risk of testicular cancer in boys with an undescended testicle; the risk among those treated at 13 years of age or older was twice the risk among those who were treated at younger ages. The principal major complication of all types of orchiopexy is loss of blood supply to the testis, resulting in loss of the testis due to ischemic atrophy or fibrosis. Most of the studies used retrospectively collected data, and all of them were too small to produce conclusive results. In our study, the common age group was between 7-9 yrs(35%) and 20% were between 3-6 yrs. 43% children belonged to educated parents while 57% children were from uneducated class. Torsion of testes was found in 35 (22%) children, orchitis in 25(16%) and inguinal hernia in 76 (48%). Tumor was noted in 7(4.5%) children above 13 yrs where orchidectomy was done with suspicion of malignancy. Rt side was invoved in 82 (52%), Lt side in54(34%) and bilateral cryptorchidism was noted in 23(14%) cases. 118(74%) children were from rural areas while 41 (26%) were from urban area.

Table No 1: Age Wise Distribution

Age (years)	No of cases	Percentage
3-6 yrs	32	20%
7-9 yrs	55	34.6%
10-12 yrs	15	9.4%
13-15 yrs	26	16.35%
16-19 yrs	19	12%
Above 05 yrs	80	60%
Below 02 yrs	06	4%
Above 10 yrs	58	36.5%

Table No 2: Complications

Complication	No of cases	Percentage
Torsion	35	22%
Inguinal hernia	76	48%
Orchitis	25	16%
Tumor	07	4%

DISCUSSION

Cryptorchidism occurs more frequently in preterm boys (30 %) and almost is associated with inguinal hernia, although most are not symptomatic. Incidence is 3-5% in full term boys and 1.8% at one year age. More than 80% of undescended testis are on one side, the other side is usually normal. Diagnosis of this condition is made through physical examination at birth. Generally radiologic imaging is not reliable. Ultrasound can help to identify testicle located in the inguinal canal, but is of limited use for intra abdominal testis. Laparoscopy can be used to localize nonpalpable, undescended testis.
A testis absent from the normal scrotum can be Found anywhere along the "path of descent" from high in the posterior abdomen (retroperitoneal) just below the kidney, to the inguinal ring
Found in the inguinal canal
Ectopic, found to have wandered from that path, usually outside the inguinal canal and sometimes opposite scrotum and femoral canal
Found to have vanished (anorchia)
Testicular descent into the scrotum is influenced greatly by maternal hormones that stimulate pro hormones by the fetal testis. Failure of the testicle to descend through the inguinal canal during the fetal life may be related to enough of a specific type of maternal hormones, failure of testis to respond to inadequate pull from the gubernaculum, or various other factors. A karyotype can confirm or exclude forms of dysgenetic primary hypogonadism, such as Klinefelter syndrome or mixed gonodal dysgenesis.

Although orchiopexy makes cancer more easily recognizable at an early stage, whether early orchiopexy actually reduces the chance of developing cancer remains the subject of controversy. The risk of malignancy in the undescended testis is 4 to 10 times higher than that in the general population and is approximately 1 in 80 with a unilateral undescended testis and 1 in 40 to 1 in 50 for bilateral undescended testis. The peak age for this tumor is 15-45 yr.The most common tumor developing in an undescended testis is seminoma (65%); in contrast, after orchiopexy, seminomas represent only 30% of testis tumors. About 1 in 500 men born with one or both testes undescended develop testicular cancer, roughly a 4 - 40 fold increased risk. The peak incidence occurs in the 3rd and 4th decades of life. The risk is higher for intra-abdominal testes and somewhat lower for inguinal testes, but even the normally descended testes of an infant whose other testis was undescended has about a 20% higher cancer risk than those of other men.
Many men who were born with undescended testes have reduced fertility, even after orchiopexy in infancy. The reduction with unilateral cryptorchidism is subtle, with a reported infertility rate of about 10%, compared

with about 6% reported by the same study for the general population of adult men. The fertility reduction after orchiopexy for bilateral cryptorchidism is more marked, about 38%or 6 times that of the general population.

At least one contributing mechanism for reduced spermatogenesis in cryptorchid testes is temperature. It seems likely that subtle or transient hormone deficiencies or other factors that lead to lack of descent also impair the development of spermatogenic tissue. An additional factor contributing to infertility is the high rate of anamolies of the epididymis in boys with cryptorchidism (over 90% in some studies). Even after orchiopexy, these may also affect sperm maturation and motility at an older age.

The most effective treatment is surgery. Most pediatric urologist recommend orchidopexy by 1 to 1.5 years or earlier. There is evidence that early damage to the germ cells that produce sperm begins at this age..

Hormonal treatment has the advantage of avoiding anesthesia and being minimally invasive. HCG is the drug of choice. However success rates have been reported to be as low as 10%. A newer hormonal intervention used in Europe is use of GnRH analogs such as Nafaren or Buserelin. The success rates and putative mechanism of action are similar to HCG, but some surgeons have combined the two treatments and reported higher descent rates. Limited evidence suggests that germ cell count is slightly better after hormone treatment. The cost of either type of treatment is less than that of surgery and the chance of complications at appropriate doses is minimal.

Despite the potential advantages of a trail of hormonal therapy, many surgeons do not consider the success rates high enough to be worth the trouble, since surgery itself is usually simple and uncomplicated. Surgery becomes more complicated if the blood supply is not ample and elastic enough to be stretched into the scrotum. In these cases, the supply may be divided, some vessels sacrificed with expectation of adequate collateral circulation. In the worst case, the testis must be "auto-transplanted" into the scrotum, with all connecting blood vessels cut and reconnected (anastomosed). When the testis is in the abdomen, the first stage of surgery is exploration to locate it assess its viability, and determine the safest way to maintain or establish the blood supply. . If the testis is low in abdomen, an orchidopexy is performed laparoscopically.

The principal major complication of all types of orchiopexy is loss of the blood supply to the testis, resulting in the loss of the testis due to ischemic atrophy or fibrosis.

Multi stage surgeries, or auto transplantation and anastomosis, are more often necessary in these situations. One of the strongest argument for early orchiopexy is prevention of testicular cancer.

Long term issues include infertility and tumor genesis.

The goals of treatment include

Improve fertility

Promote easier examination for testicular cancer

Correct associated abnormalities (hernia)

Prevent testicular torsion

Alleviate psychological concerns regarding body image

Reduce risk for injury

CONCLUSIONS

Undescended testis, also called cryptorchidism, is a common condition in which reproductive gland is located outside the scrotum. The condition may be unilateral or bilateral. More than 80% of undescended testis are on one side, the other side is usually normal. The most common diagnostic dilemma in otherwise normal boys is distinguishing a retractile testis from a testis that will not descend spontaneously into the scrotum. . The risk of malignancy in the undescended testis is 4 to 10 times higher than that in the general population and is approximately 1 in 80 with a unilateral undescended testis and 1 in 40 to 1 in 50 for bilateral undescended testis. The most effective treatment is surgery. Hormonal treatment has the advantage of avoiding anesthesia and being minimally invasive. HCG is the drug of choice one of the strongest argument for early orchiopexy is prevention of testicular cancer.

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