Original Research Article

A survey of cryptorchidism among pediatric patients

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Abstract

Introduction: Cryptorchidism is one of the frequent congenital anomaly which can be seen in male external genitalia of pediatric patients. This may result in infertility, testicular trauma, malignancy, torsion, and strangulation of associated inguinal hernia therefore early diagnosis and treatment is of paramount importance. **Methods:** The study includes boys above the age of 6 months who were clinically diagnosed with either unilateral or bilateral cryptorchidism. Total of 105 boys were included in the study, out of which 83 boys have unilateral whereas 22 boys have bilateral cryptorchidism. **Results:** More prevalence was seen on right side in the cases of unilateral cryptorchidism. Ultrasonography has been used to locate the testicles followed by palpable examination. The study concluded the prevalence of cryptorchidism more on right side which has been located more in the inguinal region.

Key words: Unilateral/bilateral cryptorchidism

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Introduction

Cryptorchidism is the absence of at least one testicle (very small testis- especially used for infants) from the scrotum. Commonly it is also known as undescended testes (UDT) or hidden testes. Cryptorchidism occurs due to the developmental defect which results in failure of descent of testes into the scrotum by six months of age. Hereditary, hormonal, anatomical, environmental, or social factors may disrupt any phase of testicular descent and result in cryptorchidism. Cryptorchidism may not only be associated to genetic factors, but also to maternal lifestyle and exposure.[1-3]

Maternal risk factors associated with higher risk of UDT are: low birth parity, use of assisted reproductive techniques, complicated pregnancy (such as pre-eclampsia, peripartum asphyxia, exposure to diethylstilbestrol and nicotine during pregnancy) and complicated delivery.[4]

About one third of premature boys have a UDT at least on one side, compared to 2–8% incidence in full-terms boys.[5-7] Mostly in the early months of life congenital UDT descend spontaneously under the effect of pituitary gonadotropins.[7,8] They stimulate increase in testosterone secretion which peaks at about 3–6 months known as a "mini-puberty" . Thus, a lower incidence of 1–2% is reported from 3 to 12 months of life.[7]

Undescended testicles are associated with decreased fertility (bilateral cases), increased testicular germ cell tumors (overall risk under 1%), testicular torsion, inguinal hernias, and psychological problems. To reduce risks, undescended testes may be brought into the scrotum with an orchiopexy. [7-11]

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Material And Methods

The study was conducted in the surgery department of NCR Institute of Medical Sciences, Meerut between the year 2017-2020 .In the present study on the basis of clinical examination total of 105 boys above the age of 6 months were included. After discovering a cryptorchid testes, we determine whether the finding is unilateral or bilateral and whether the testis is palpable or non-palpable on clinical examination. For the non palpable cryptorchid testes, it is necessary to confirm absence or presence of the testis. So, ultrasonography has been used to identify and localize the viable non palpable testis. Ultrasonography, an efficient and easy investigation, is used for the evaluation of non palpable testes, as it is noninvasive, with no radiation risk, and does not require sedation or general anesthesia.[12-15]

Observations And Results

A total of 105 patients were studied during the study period. Mostly patients belong to 1-3 years of age. The youngest one was seven months of age. out of which 83 boys have unilateral whereas 22 boys have bilateral cryptorchidism. In unilateral cryptorchidism prevalence was observed more on the right side i.e. 52 and 31 on left side.(Table 1)

Table 1:No. of cases of cryptorchidism

SIDE	NO. OF PATIENTS	PERCENTAGE
Right	52	49.5
Left	31	29.5
Bilateral	22	20.9

Ultrasonography has been used to locate the position of testes which is found to be more in the inguinal canal, some in abdomen and few testes were not localized.

Fig 1: USG showing Rt testes in inguinal canal

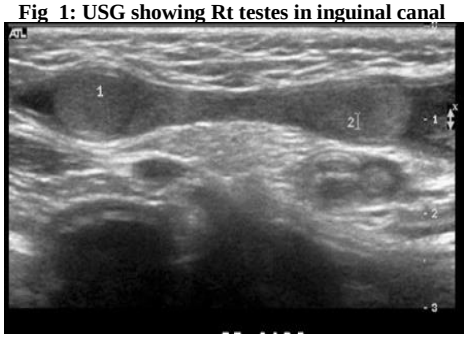

Fig 2: USG showing both testes in inguinal canal

Out of 105 cryptorchid testes, 78 were in the inguinal region, 22 were in the abdomen and 5 were not localized showing in the pie chart (Figure 3) below-

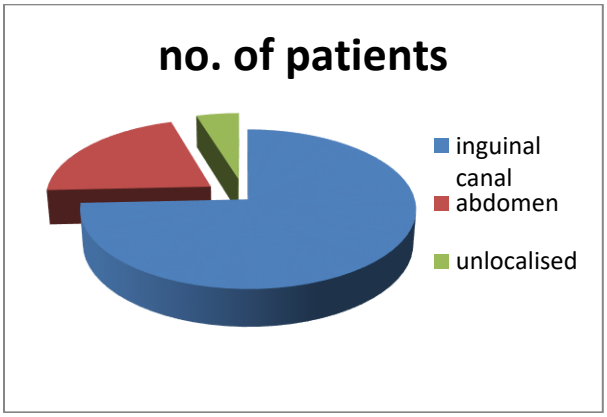

Fig 3: Pie chart showing location of cryptorchid testes

Discussion

To find a lower ambient temperature for normal spermatogenesis the descent of testes occurs from the abdomen to the scrotum. The testicular descent occurs in two stages under the influence of hormonal controls and with different anatomical mechanisms:

The trans-abdominal phase and The inguino-scrotal phase [16-17]

The transabdominal descent of the testes takes place between 10 and 23 weeks of gestation under hormonal and mechanical direction. The descending testicles move from the urogenital ridge to the inguinal region simultaneously with shortening of the gubernaculum, testicular differentiation, and development of the cremasteric muscle. The inguino scrotal descent occurs between 24 and 34 weeks of gestation. This process is androgen-dependent and relies on testosterone and androgen receptors to orchestrate descent of the testis from the inguinal canal to scrotum.[18-20]

In 2008 C.K. Sinha et al studied 250 cases and found that 202 (80.8%) were unilateral [right 110 (54.5%) and left 92 (45.5%)] and 48 (19.2%) were bilateral. The mean age at referral was 57 months (range 1-185 months) and the mean age at operation was 66 months (range 6-186 months). Only 60 (24%) cases were operated on before the age of 2 years.[21] In 2012 Onkar et al studies 41 boys with undescended testes who underwent high frequency ultrasound. The location of testis was noted followed by its size and echotexture.

Thirty patients had unilateral and 11 had bilateral undescended testes. The prevalence was more on right side (16 out of 30). Out of total 52, 46 (88%) testis were located by ultrasound. Six (12%) testes could not be located. Five (10%) were retractile testes. Out of remaining 41, 26 (63%) were located in inguinal canal and 15 (37%) were located in abdomen. Out of 15 abdominal testes 9 were located just proximal to inguinal canal and 6 were located in deep pelvis. High frequency ultrasound was able to locate the position of undescended testes in majority (88%) of the cases

In 2015 R. Varela-Cives et al considered 143 boys diagnosed with undescended testis, the anomaly was bilateral in 40 and unilateral in the remaining 103. Of these 103 boys, the anomaly was on the left in 45 (43.7%) and on the right side in the remaining 58 (56.3%) [23]

Viswanath Nallapaneni et al (2016) also studied 25 cases, among which 11 cases were of rt side, 11 were of lt, and 4 cases are bilateral. On USG , position of 16 cryptorchid testes were intracanalicular, 4 intra-abdominal and 5 cases were inconclusive.[24]Luciano A. Favorito et al (2017) studied 85 patients who were aged between 1 and 10 years . Of the 108 testes, 14 were abdominal (12.96%); 81 inguinal (75%); and 13 suprascrotal (12.03%).t He also concluded that the abdominal and inguinal testes were associated with the occurrence of a greater number of anatomical abnormalities of the epididymis and in the patency of the processus vaginalis.[24]

In 2018 Mallikarjuna M. *et al* found that Undescended testis were more common on right side and most of them presented with the age group of 1-15 years with absence of testis in the scrotum being the most common complaint and hernia was found to be most commonly associated with undescended testis. Most common position of undescended testis was found to be intra-canalicular with most of them being palpable. Rabea A Gadelkareem et al (2020) Out of 1132 patients with undescended testes, 44 cases (3.9%) had testicular ectopia. Twenty-three cases (mean age = 5.15 ± 5.79 years) fulfilled the criteria of inguinal ectopic testis, located in the superficial inguinal pouch, had relatively long spermatic cords, and commonly had average rather than small sizes. The other ectopic 21 cases (mean age = 10.56 ± 6.92 years) were perineal, anterior abdominal wall, femoral, prepubic, and transverse testes in 7(33.3%), 4(19%), 4 (19%) , 3 (14.3%), and 3 (14.3%) cases, respectively.

Conclusion

In conclusion, the current study is in concordant with the previous literature, where the incidence of cryptorchid testes is more on the right side.On the basis of clinical examination and ultrasonography the ectopic testes are more common in inguinal lregion.

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