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Clinical study of management of un-descended testes in pediatric age group

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Abstract---Background: The mode of un-descended testes (UDT), treatment remains controversial; however surgery is the treatment of choice. Method: 40 children < 2 to 12 years of age clinically evaluated and subjected USG. The patients with palpable tests planned for orchiopexy. Non palpable abdominal tests were planned for diagnostic laparoscopy. During inguinal exploration if cord structures or testicular remnants were found they are removed. Results: 8 (20%0 were < 2 years, 12 (30%) 2-4 years, 12 (30%) 5-9 years, 8 (20%) 10-12 years of age. The levels of UDT was 14 (35%) canalicular, 16 (40%) external ring, 5 (12.5%) internal ring, 5 (12.5%) abdominal. Conclusion: Orchiopexy is the ideal treatment for UDT and laparoscopic treatment is for abdominal testes, but boys with retractile and acquired testes usually don't need medical or surgical treatment but require close follow up until puberty.

Keywords---Orchiopexy, laparoscopy, UDT, USG, Karnataka

Introduction

Although we know a lot about the testicular descent in humans, there is at least as much or even more things we do not understand and cannot explain in this process such as the optimal way and time for treatment of un-descended testes (UDT) which has been a matter of debate for decades [1]. Paediatric surgeon, endocrinologist, urologist and andrologist are always under the review and research about the aetiology of un-descended testes [2]. The un-descended testes include retention testes, cryptorchidism and mal-descended testes, describe that testes are not normally located at the bottom of scrotum [3]. It is observed that 2-8% of incidence in full terms boys. Unilateral UDT is four times more common than bilateral. 23% incidence of bilateral, 46% of right sided and 31% of left sided UDT [4]. Hence attempt was made to evaluate various locations at different age groups and method of approach to rectify the anomalies so that, the present study can be guide line to surgeon who deal with UDT.

Material and Method

40 (forty) children at different age groups regularly visiting to Sri Nijalingappa Medical College and HSK Hospital Bagalkot-587102 Karnataka were studied.

Inclusive Criteria: Patients with non-palpable testes in scrotum presented in paediatric or surgery OPD.
Exclusion Criteria: The patients with retractile testes, ectopic testes, were excluded from study.

Method

Every patient was clinically evaluated and was subjected to ultra sonographic examination. The patients with palpable testes were planned for open orchiopexy. Non-palpable abdominal testes were planned for diagnostic laparoscopy. During inguinal exploration if cord structures or testicular remnants were found, they were removed and the procedure was terminated after dealing with any congenital hernia. Standard orchiopexy was done of testes is found to be viable and the vessels of sufficient length. Micro vascular orchiopexy was done in another setting for viable intra-abdominal un-descended testes with short vessels.

In some cases the groin incision to enter extended and searched for testicle. The testicular vessels were divided high retroperitoneally. A donor vascular pedicle of sufficient length was prepared by dissection under magnification of inferior epigastric vessels to high level beneath the rectus abdominis. Testicle was inspected to ensure that a dependent scrotal position can be achieved without tension on the vas. The testicle was brought out through the scrotal incision and secured with interrupted absorbable sutures in the dartos pouch.
Duration of study May-2020 to June 2021

Statistical analysis

Different age groups various types of un-descended testes were classified with percentage. The statistical analysis was carried out in SPSS software.

Figure-A- Empty right hemiscrotum

Figure-B- Testis in right Inguinal canal

Figure-C- Testes Placed in scrotum

Observation and Results

Table-1: Distribution of age of the patients in the un-descended testes – 8 (20%) patients were < 2 years, 12 (30%) patients were 2-4 years of age, 12 (30%) were 5-9 years of age, 8 (20%) were between 10-12 years of age.

Table-2: Study of level of un-descended of testes – 14 (35%) had canalicular, 16 (40%) were at external ring, 5 (12.5%) were at internal ring, 5 (12.5%) were at abdominal level.

Discussion

Present study of management of UDT in odisha children 8 (20%) were < 2 years, 12 (30%) 2-4 years of age, 12 (30%) were between 5-9 years of age, 8 (20%) were between 10-12 years of age (Table-1). 14 (3.5%) were at canalicular testes, 16 (40%) were at external ring, 5 (12.5%) were at internal ring, 5 (12.5%) were at abdomen (Table-2). These findings are more or less in agreement with previous studies [5][6][7].

In most mammalian species the testes must descend from the warmer intra-abdominal environment in to cooler scrotum to produce viable and mature spermatozoon, cooling of the testes via migration into the scrotum is a phylogenetic mechanism that humans have retained in order to propagate the species scrotum and inguinal canals are stretched by the developing gubernaculums and as a results, testis sits on top of the gubernacular slips rapidly in to scrotum [8]. Moreover hormones play a pivotal role in testicular descent except in the initial trans abdominal phase of migration of testes to the internal inguinal ring. Gonadotrophins including hCG androgens descend in and MIS are necessary for testicular descent. The descent appears to be regulated primarily by DHT rather than testosterone. Abnormalities of the hypothalamic pituitary axis are frequently associated with un-descended testes (UDT) suggesting an important role of gonadotrophins and androgens. Hence cryptorchidism is common in anencephaly, pituitary aplasia, prader willi and Kallman syndrome [9].

Microscopically UDT is normal at birth pathological changes occur at about 6 to 12 months. Delayed germ cell maturation, degeneration of mitochondria loss of ribosome's increase in collagen fibres are in spermatogonia and sertoli cells. UDT may present various complications like torsion, trauma, inguinal hernia, infertility, atrophy, malignancy, psychological stress [10].

Various surgical procedures include cord lengthening procedures fixations orchiectomy, orchiopexy and micro vascular auto-transplantation. Testes are not sutured to any structure in fixation. These include procedures such as fixation in Dartos pouch (between sub cutaneous skin and Dartos muscle), Ombredanne's procedure (testes put into compartment of other testes) and Dennis Browne procedure (neck of scrotum is narrowed with a purse string catgut suture), orchiectomy is performed for intra-abdominal dysgenetic testes.

Children are evaluated every year after surgery to assess location, size and viability of testes, any tumours. At puberty children are re-examined and trained to perform testicular self examination every month.

Summary and Conclusion

The present study of UDT in children at different age groups were treated according to their location and laparoscopy for non-palpable or abdominal testes was performed. But this study demands further patho-physiological, hormonal, nutritional environmental, embryological, genetic study because exact factors and mechanism of descent of testes is still unclear.

Limitation of Study

Owing to tertiary location of present study place, small number of patients and lack at latest instruments we have limited results.

- This research paper was approved by Ethical committee of sri Nijalingalingappa Medical College and HSK Hospital Bagalkot -587102
- No Conflict of Interest
- No Funding

Table – 1
Distribution of age of the patients in un-descended testes

Age (years)	No. of patients	Percentage %
< 2 years	8	20
2-4 years	12	30
5-9 years	12	30
10-12 years	8	20

Table – 1
Distribution of age of the patients in un-descended testes

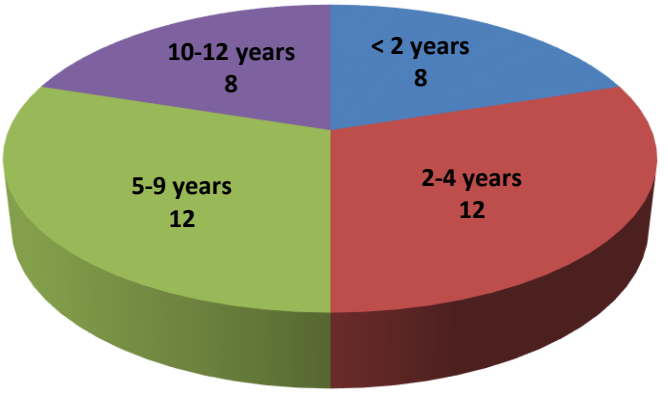
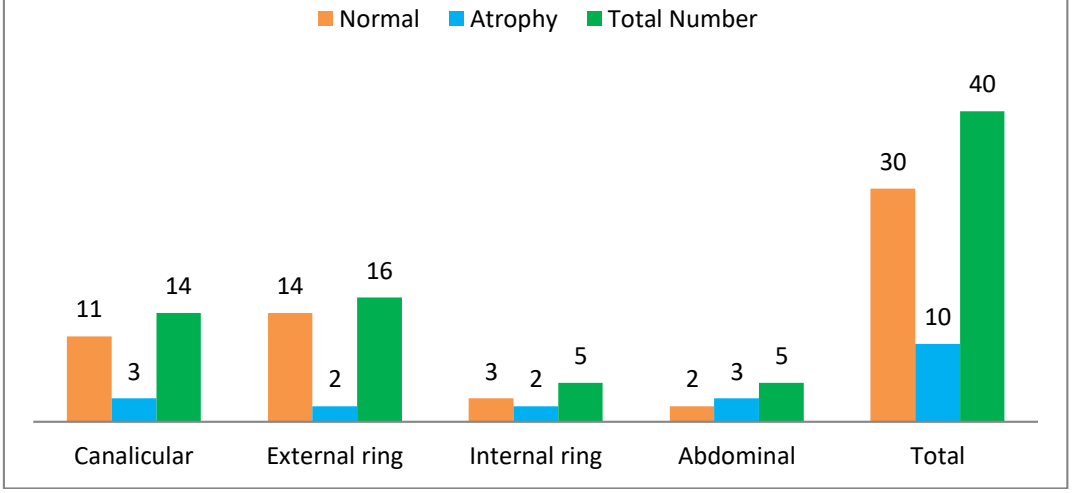


Table – 2
Study of levels of un-descended testes

Level of descant	Normal	Atrophy	Total Number	Percentage %
Canalicular	11	3	14	35
External ring	14	2	16	40
Internal ring	3	2	5	12.5
Abdominal	2	3	5	12.5
Total	30	10	40	100

Table – 2
Study of levels of un-descended testes



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