

Brief Communication

Age at surgical referral and anatomical position of undescended testis in children presenting to the day surgical unit at Lady Ridgeway Hospital for Children, Colombo

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Abstract

Undescended testis (UDT) carries an increased risk of malignant transformation and sub fertility in adulthood compared to a naturally descended testis. Higher risk of malignant transformation is observed in high anatomical locations of UDT. Timely orchidopexy around six months is recommended by the British association of Paediatric Urologists. However, this is not practised widely.

The objectives were to study the anatomical locations of UDT and to determine the age of child at surgical referral for orchidopexy, intending to utilise this data to motivate clinicians to refer for timely orchidopexy. Data was collected from hospital records of 200 consecutive children managed in a paediatric surgical unit. There were 217 UDT in 200 children as 17 were bilateral. Only 27% (54/200) children were referred for orchidopexy before six months of age. 9.7% (21/217) UDT were located intra- abdominally.

Drafting of a national policy on timely orchidopexy is necessary. The data on anatomical positions of UDT in children would be useful to future researches with interests on malignant risk and sub fertility associated with UDT.

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Introduction

Arrest of the testis along its pathway of descent, from foetal intra-abdominal position to scrotal sac, results in an undescended testis (UDT) [1]. The incidence of UDT is around 1.5-2% [2]. An UDT has about 3.7 to 7.4 times risk of developing a malignancy in adulthood compared to a testis of natural descent [3,4]. Fertility rates in men with UDT are lower than those with naturally descended testis². The British Association of Paediatric Urologists' (BAPU) consensus statement on management of undescended testis (2011) [5] recommends orchidopexy at around six months of age, intending to minimise risks of malignancy and subfertility. The guidelines strongly advocate surgery before the child's first birthday.

Delayed referral for orchidopexy is common in Sri Lanka as identified in our pilot study [6]. According to literature, around 10-20% of UDT are not palpable [2] (hence suggestive of intra- abdominal position) but palpability is subjective and clinician dependent. Intra-abdominal position has a higher risk of malignant transformation compared to extra abdominal UDT [7].

Most studies on malignant risk and sub fertility were done on subjects who had orchidopexy later in their childhood. Performing a case control study to accurately determine these risks is ethically incorrect and hence, most research on UDT on humans are retrospective and observational studies.

The objectives of the study were twofold. To analyse the age at surgical referral so as to document current practice and utilise this data to motivate clinicians to direct children for timely orchidopexy and to provide data on the anatomical location of UDT in children to future researchers with an interest on testicular malignancy and subfertility

Methods

Data for this descriptive study was collected prospectively from the hospital records of 200 consecutive children with UDT attending the outpatient department surgical unit of the Lady Ridgeway Hospital for Children who were managed by a single consultant paediatric surgeon. A sample size of 200 children was collected since most international studies on UDT have sample sizes less than this number. When a child is referred to the day surgical unit clinic, his age at surgical referral is recorded in the clinic notes. The anatomical position of the UDT was recorded during each orchidopexy. The study period extended from 01/01/2014 to 30/09/2016. Ethics approval for the study was obtained from the Ethical Clearance Committee of the Lady Ridgeway Hospital for Children, Colombo.

Results

This study included 200 children with UDT. Total number of testes was 217 as 17 had bilateral UDT. Fifty four children (27%) under the age of six months and 44(22%) children aged six months to one year were referred for orchidopexy. When considering age at referral for treatment, only 98 (49%) were less than one year, while 35 (17.5%) were over 5 years when referred for treatment. (Table 1)

Table 1: Child's age at referral for orchidopexy

Age (years)	N (%)
less than six months	54(27)
six months to one year	44(22)
one to two years	31(15.5)
two to five years	36(18)
five to ten years	30(15)
ten to twelve years	5(2.5)
Total	200(100)

Majority of UDT (75.58%) were located in the inguinal region, namely, inguinal canal (37.79%), superficial inguinal ring (23.04%) and internal inguinal ring (14.75%). High scrotal position was seen in 29 (13.36%). Intra-abdominal testes high and low iliac fossae) were seen in 21(9.67%). One testis had undergone intra-abdominal atrophy (Table 2).

Table 2: Anatomical position of undescended testis

Anatomical Position	N (%)
High-iliac-fossa	3(1.38)
Low-iliac-fossa	18(8.29)
Internal inguinal ring	32(14.75)
Inguinal canal	82(37.79)
Superficial inguinal ring	50(23.04)
High-scrotal	29(13.36)
Ectopic	2(0.92)
Intra-abdominal atrophy	1(0.46)
Total	217(100)

Discussion

UDT is proven to increase the risk of developing malignancy during adulthood (with high UDT having higher risk) and to result in a reduced fertility rate. The anatomical location of 9.7% (21/217) of UDT in our study was within the abdominal cavity and hence carries a higher risk of malignant transformation and subfertility compared to extra-abdominally located UDT.

Timely orchidopexy reduces the risks. The British Association of Paediatric Urologists (BAPU) recommends surgery around six months of age. The only accepted form of management for UDT is orchidopexy.

A child with UDT needs to be referred to a surgeon for timely orchidopexy by the first contact clinician. The referring clinician need not identify the exact anatomical position on referral. Even an experienced paediatric surgeon may find it difficult to predict the exact anatomical position prior to surgery. The definite position is determined during surgical exploration. The medical officer/ Paediatrician could identify high lying testis or impalpable testis during neonatal examination and refer to the nearest practising surgeon. UDT not detected at birth could be picked up by Medical Officers of Health (MOH) or General Practitioners (GP) and referred promptly.

Surgical access is planned after clinical examination by the surgeon in the clinic. USS is not accepted as a good screening method. Palpable testes are planned to undergo open orchidopexy while non-palpable ones are planned for laparoscopic orchidopexy. On rare occasions, testes which were not palpable before surgery may become palpable when the child's abdomen relaxes at the induction of anaesthesia for orchidopexy enabling open orchidopexy.

Delay in orchidopexy increases risks of malignant transformation of the testis and subfertility in adulthood. Only 27% (54/200) of the children studied were referred for orchidopexy before 6 months of age. During the course of this research, presentations on the importance of timely orchidopexy were made at various forums to raise awareness among paediatricians, general practitioners, physicians, general surgeons and urologists. Early referral of UDT is possible in Sri Lanka and practice recommendations have been published [8].

Conclusions and recommendations

We recommend following the BAPU guidelines [5] to practice timely orchidopexy. Formulation of a national policy on timely orchidopexy is a necessity. The benefits of reduced risk of testicular malignancy and improved fertility would be evident within the next few decades. This data on anatomical locations of UDT in 200 children is offered as a research material for future clinicians with an interest in the fields of testicular malignancy and subfertility.

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