

The Undescended Testes in Children: a Prospective Epidemiological Study

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Background: The management of undescended testes remains a topical issue. This study was aimed at determining the presentation and outcome of children presenting with undescended testes at the Lagos University Teaching Hospital (LUTH).

Methods: This was a prospective cross-sectional study that included all male children aged 1-15 years with undescended testes who were treated by the paediatric surgery unit in LUTH from January 2010 to December 2011

Results: A total of 56 boys with 73 undescended testes were surgically treated during the study period. The median age at operation was 3.0 years (range: 1 to 11years). Seventeen (30.4%) boys had bilateral undescended testes while 39 (69.6%) boys had unilateral undescended testes. Associated anomalies were present in 6 (10.7%) boys- hypospadias in 5 (8.9%) boys and vertebral anomaly in 1 (1.8%) boy.. Open orchidopexy was performed in 59 (80.8%) cases while staged orchidopexy was done in 11 (15.1%) cases. There were 4 (5.4%) post operative complications -3 cases of postoperative hematoma and 1 case of wound dehiscence.

Conclusion: Children with undescended testes present late in Lagos. About a third of patients with undescended testes in our centre have bilateral undescended testes while about 10% have associated congenital anomalies.

Key words: Undescended, Testis, Children, Epidemiology

Introduction

The undescended testis is a common congenital anomaly in boys worldwide. It occurs in 4% of boys at birth and about 1% at the age of 1 year¹. The undescended testis may undergo torsion, trauma and pathologic changes leading to subfertility and malignant transformation². Timely treatment before age 2 is advocated to forestall these complications. While there is no significant reduction in the risk of malignancy following orchidopexy, scrotal placement of the testis makes earlier detection of testicular malignancy easier by self-examination^{1,3}.

The prevalence of undescended testes in Nigeria is 0.8-2% based on studies done in Benin (South South) and Ogbaru (South East Nigeria)^{4,5}. Other studies from Zaria, (North Central), Benin (South South) and Nsukka (South East) show that the mean age at surgery range from 3-8 years due to poor awareness about the disorder and late presentation^{6,7,8}.

Literature on management and outcome of undescended testes is scarce from Lagos metropolis (South west Nigeria) where our centre is located. Lagos apart from being the most urbanised and most densely populated city in the country also has the highest literacy rate^{9,10,11}. Knowledge of the epidemiology of this condition will be very valuable in assessing the role of urbanization in the presentation and outcome of this disorder in Lagos. This study was aimed at determining the pattern of presentation and outcome of management of undescended testes in children at the Lagos University Teaching Hospital and to compare the findings with those of studies in others cities locally and internationally.

Patients and Methods

This was a prospective cross-sectional study of all male children above 12 months of age with undescended testes who were managed by the Pediatric Surgery Unit of the Lagos University Teaching Hospital from January 2010 to December 2011. A data proforma was designed to include demographic data, clinical examination findings, preoperative investigations, findings at surgery and postoperative outcome. Statistical analysis was performed using statistical package for social sciences (version 16, SPSS Inc., Chicago, IL). A p value of ≤ 0.05 was considered significant.

Results

We surgically treated 56 boys with 73 undescended testes during the study period. The median age at operation was 3.0 years (range: 1 to 11 years). Fourteen (25%) boys representing 16 testes were aged below 2 years at surgery (figure 1). Seventeen (30.4%) boys had bilateral undescended testes while 39 (69.6%) boys had unilateral undescended testes.

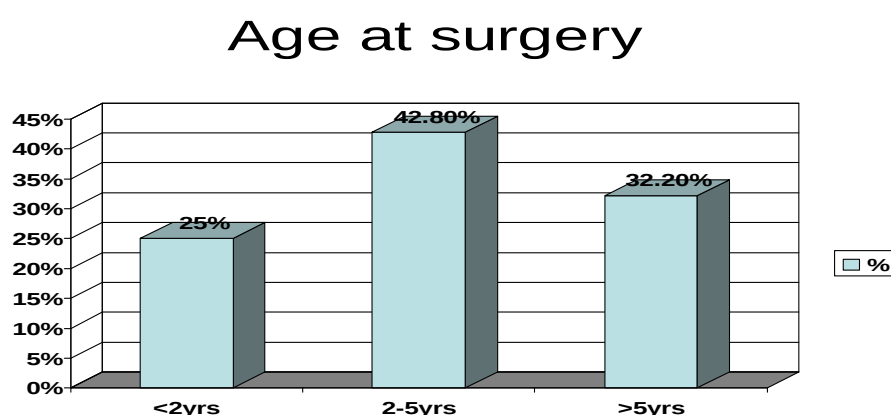


Figure 1. Age Distribution at Surgery

Table 1. Intraoperative Location of Testes

Location	Frequency	Percentage
Superficial inguinal ring	39	53.4%
Inguinal canal	16	21.9%
Deep inguinal ring	10	13.7%
Abdominal	5	6.8%
Absent	3	4.1%
Total	73	100%

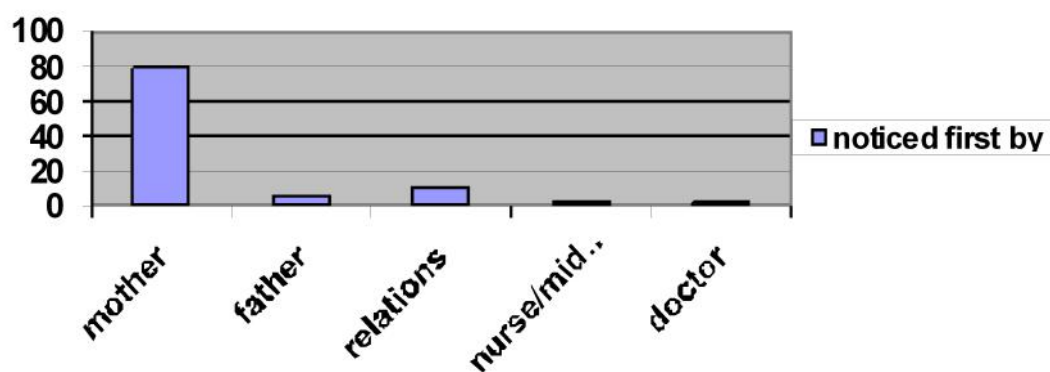


Figure 2. Who First Noticed the Anomaly

Table 2. Treatment Offered

Procedure	Frequency	Percentage
Single stage orchidopexy	59	80.8%
Staged orchidopexy	11	15.1%
Orchidectomy	0	0.0%
None	3	4.1%
Total	73	100%

Table 3. Analysis of Factors Determining Number of Treatment Stages

Criteria	Single-stage	Multi-staged	χ^2	p
Age at Surgery			5.210	0.022
< 3 years	33	2		
> 3 years	26	9		
Clinical findings			14.872	0.000
Palpable	42	1		
Non-palpable	17	10		
Location			7.345	0.007
Superficial inguinal ring	37	2		
Others	22	9		

There were 22 (39.2%) undescended testes on the right and 17 (30.4%) on the left. Forty three (58.9%) testes were palpable. Twenty four of the 30 (80%) non-palpable testes were localised preoperatively by ultrasound.

Associated anomalies were present in 6 (10.7%) boys- hypospadias in 5 (8.9%) boys and vertebral anomaly in 1 (1.8%) boy. In 80% of cases the anomaly was noted by the mother. Medical personnel noticed the anomaly first in 8% of cases (Figure 2). Risk factors identified in the patients included: family history- 8.9%, primiparous mother – 30.8%, maternal age <25 – 23.7%. The caregivers denied other risk factors including – prematurity, low birth weight, use of oral contraceptives, alcohol and tobacco consumption and occupational exposure to pesticides or cosmetics.

Intra-operatively, 65 (89.0%) of the undescended testes were found within the inguinal canal, 5 (6.8%) were intra-abdominal while 3 (4.1%) were not seen (Table 1). Open single stage orchidopexy was performed in 59 (80.8%) cases while staged orchidopexy was done in 11 (15.1%) cases (Table 2). There were 4 (5.4%) post operative complications -3 cases of postoperative hematoma and 1 case of wound dehiscence. Single stage procedures were more likely in boys less than 3yrs ($p < 0.05$); with palpable testes ($p < 0.05$); and those with testes located at the superficial inguinal ring, $p < 0.05$ (Table 3).

Discussion

The management of undescended testes remains a topical issue. In Nigeria like other developing countries most boys with the condition present much later than age 2 when significant irreversible pathogenic changes have occurred in the testes¹. The median age at presentation in this study of 3.0 years which is earlier than the median age reported from Zaria and Benin of 6.0 and 8.3 years respectively^{6,7}. This suggests increased awareness among parents and other care-givers in Lagos and also reflects the better access to healthcare resulting in earlier presentation for surgery. However, less than 25% of the patients were operated before the recommended age of 2 years similar to the study at Nnewi (South Eastern Nigeria) where 33.3% of patients were operated before attaining 2 years⁸. This is not unrelated to the late presentation of patients. There is need for more education of midwives and obstetricians to encourage detection at birth and early referral to paediatric surgeons.

This study demonstrated the presence of known aetiological risk factors – family history, primiparity and low maternal age in our patients^{12,13}. Other possible risk factors could not be ascertained by the parents /guardians. A case-controlled study to ascertain these could be the subject of further study. While laparoscopy has become the gold standard in preoperative localization of non-palpable undescended testes, the modality is not readily available in our setting^{1,2}. Ultrasound was found to be useful in preoperatively localizing 80% of the clinically impalpable testes in our patients. The findings helped in reassuring the guardians and in planning the surgical procedure.

The intraoperative location of the testes corresponded with previous studies- majority being within the inguinal canal and 4% being vanished testes. Due to lack of facilities for laparoscopic surgery we adopted an open approach for all the patients. Majority benefited from a single-stage orchidopexy while 11(15.1%) required a staged treatment. Single-stage procedure was more likely in boys with palpable testes and those with testes located at the superficial inguinal ring. Single –stage procedure were also more likely in boys operated before age 3 years as previously documented by David et al⁷.

Conclusion

In conclusion, children with undescended testes present late in Lagos. About a third of patients with undescended testes in our centre have bilateral undescended testes while about 10% have associated congenital anomalies. More public awareness campaigns and education of primary health care workers are necessary to forestall late presentation and attendant complications.

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