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Adult Patients Presenting with Undescended Testis in Awareness-Poor Region

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ABSTRACT

Objectives: The majority of patients with undescended testis present during childhood with minimal complications owing to straightforward treatment with excellent postoperative outcome. This paper reports the mode of presentation, challenges and outcome of management of adult patients with undescended testis.

Methods: This prospective study included consecutive cases of adult patients managed with undescended testis from January 2004 to December 2008 in Evbuomore, Nigeria.

Results: Eighteen adults with a mean age of 38.3 years (range 19-61) were managed during the period. Ten (55.5%) had bilateral, 5 (27.8%) right and 3 (16.7%) left lesions. Awareness was poor as they presented due to infertility in 8 (44.4%), associated hernia 5 (27.8%), wife/self discovery 4 (22.2%) and accidental discovery by a health worker 1 (5.6%), with 9 men (50%) presenting between 30 and 40 years of age. On inguinal exploration, only 3 (10.7%) patients had viable but significantly reduced testicular volume, 17 (60.7%) were atrophic/fibrotic while in 8 (28.6%) the vas deferens ended blindly in the inguinal canal with no viable testicular tissue. Apart from three patients who had children before presentation, infertility persisted even after treatment despite adequate hormone profiles and satisfactory sexual performance. Counseling of spouses was a major challenge, with 8 couples adopting children and three marriages ending in separation.

Conclusion: Management of adults with undescended testis was challenging due to irreversible complications, psychological effects and poor outcome of treatment which shows the importance of awareness programs that will result in childhood presentation.

Key Words: Undescended testis, cryptorchidism, infertility, adults, presentation, outcome

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INTRODUCTION

Continuous exposure to a high core body temperature and an abnormal location predispose the undescended testis to various complications that are often irreversible when neglected[1-2]. Testicular atrophy, reduced testicular volume, malignant change, recurrent epididymoorchitis, trauma, subfertilty, and psychological problems have been reported in patients with undescended testis[1-5]. Early presentation with corrective surgery at age two years or below has been reported to avert these complications with excellent fertility outcome[1-2,6-7]. In enlightened societies with high levels of awareness, presentation and treatment before two years is common. On the other hand, late presentation with undescended testis is commonly encountered in many developing countries due to poor awareness about the condition[5,8-11].

Whereas the management of undescended testis in childhood is straightforward, it presents a unique challenge in an adult patient, because many of the complications (e.g. infertility and psychological trauma)

may have become irreversible[5,8,12]. Although there are many reports on the management and outcome of undescended testis in children[1-2,6], little attention has been given to adults who present with the condition. This is perhaps because adult presentation of undescended testis is believed to be very rare, especially in developed countries where it is usually diagnosed on antenatal ultrasound or at birth[2].

This paper reports the mode of presentation, challenges and outcome of management of adult patients who presented with undescended testis.

PATIENTS AND METHODS

Evbuomore is a suburban community with a population of approximately 600,000, located along Benin-Lagos expressway in Ovia North-East Local Government Area, Edo State, Nigeria. The population is served by five private, (non-governmental) health institutions. Patients seen at our facility were referred from these institutions, or presented to us directly. Consecutive patients with undescended testes managed at Leadeks Medical Centre in Evbuomore community from January 2004 to December 2008 were included in this prospective study. Only patients who presented at age 18 years and above were included. All patients had hormonal assay and semen analysis on presentation. Digital palpation, Prader's orchidometry and visual assessment were used to evaluate the testes pre- and intraoperatively. Data collected included age, level of education, awareness about undescended testis, fertility profile, semen quality, hormone profile, sexual performance, diagnosis, reason for presentation, complications before referral, laterality of undescended testis, findings at surgical exploration, surgical procedures, follow-up, counseling, challenges and outcome.

Statistical analysis was done by using SPSS version 11 software package (SPSS, Chicago, IL, USA) and presented as count, frequency and percentage.

RESULTS

Of 67 patients with undescended testis, 35 (52.2%) presented after 5 years of age, including 18 (26.9%) who presented as adults. The mean age of the adult patients was 38.3 years (range 19-61) with the majority presenting between 30 and 40 years of age (Fig.1). Only two were unmarried at presentation, all had satisfactory sexual performance. Three were oligozoospermic while the remaining 15 were azoospermic. Hormone profile (especially testosterone) was within normal range in all patients. Awareness about undescended testis was very poor, as only two (11.1%) men had self-diagnosed their condition and sought medical attention after 30 years. None of the 18 patients could remember if they had two testes in the scrotum during infancy. Only one patient had tertiary education, 11 had secondary, 4 primary and 2 had no formal education.

Except for three patients with unilateral, palpable undescended testes, infertility was a problem in the remaining 15 (83.3%), of whom 8 (44.4%) presented with primary infertility and 5 (27.8%) sought medical attention because of inguinoscrotal hernias (Table). These five patients mistook inguinoscrotal swelling for the presence of a testis, which delayed their seeking medical attention. Two (11.1%) cases were diagnosed by their spouses while one (5.6%) was incidentally discovered during examination by a health worker.

The clinical features of the study group are shown in the Table. Of the 8 men with unilateral undescended testes, the contralateral testicular volume was normal in two, significantly reduced in five and reduced/soft in one. On intraoperative testicular assessment, just 3 (10.7%) of the testes, and only in men below 30 years of age, were still viable, although significantly reduced in volume. In 17 (60.7%) inguinal explorations the testis was atrophic and completely replaced by fibrous

Table: Clinical features of study group.

	n	%
Side of undescended testis		
Bilateral	10	55.5
Right	5	27.8
Left	3	16.7
Total	**18**	**100**
Reason for presentation		
Infertility	8	44.4
Associated hernia	5	27.8
Discovered by wife	2	11.1
Self-discovery	2	11.1
Discovered by health worker	1	5.6
Total	**18**	**100**
Characteristics of testes		
Reduced volume	3	10.7
Atrophic/fibrotic testicular tissue	17	60.7
No testicular tissue with blind-ending intracanalicular vas	8	28.6
Total	**28**	**100**
Associated hernia		
Indirect inguinal hernia	25	80.6
Direct inguinal hernia	6	19.4
Total	**31**	**100**
Operations performed		
Multistage orchidopexy	3	5.9
Excision of atretic testicular tissue	17	33.3
Inguinal hernia repair	31	60.8
Total	**51**	**100**

tissue with no identifiable testicular tissue, while the vas deferens in 8 (28.6%) cases was seen ending blindly in the inguinal canal with no identifiable testicular tissue.

Twenty-five (80.6%) of the 31 hernias were indirect while 6 (19.4%) were direct, and three were of the saddle variety. The surgical procedures performed are shown in the Table.

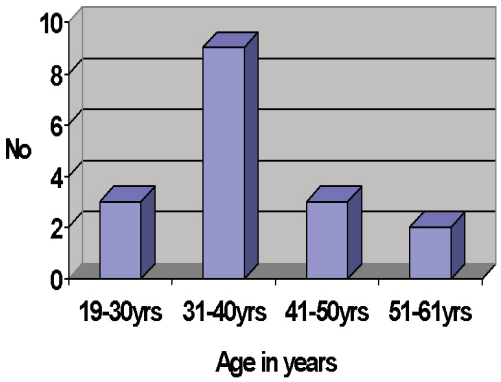

Fig. 1: Age at presentation

All patients and their spouses were recruited for counseling and were followed up for 1-4 years. Twelve of the 15 couples who had no children on presentation remained happily married and 8 had adopted children. However, 3 women abandoned their husbands and were lost to follow-up.

DISCUSSION

The late presentation of men with undescended testis in this study is alarming (52.2% were older than five years and 26.9% presented as adults) especially when compared with enlightened societies where the majority are diagnosed on antenatal ultrasound or at birth[2,7,13]. Although the diagnosis of undescended testis is clinical and requires no sophisticated diagnostic facilities, a basic knowledge of normal male external genitalia is required. In the presence of associated inguinoscrotal hernia, the diagnosis may be missed by the uninformed, and progressive increase in the hernia size may be an indication for seeking medical advice[8-9]. Late presentation due to low level of awareness about undescended testis in this study group is probably related to the poor literacy level of the patients.

Earlier studies in our subregion recorded prevalence rates of undescended testis of 0.8% in primary school pupils and 2.9% in neonates[1,9]. Comparing these figures with the very low number of patients seeking medical attention for undescended testis suggested that a large proportion of affected patients never sought treatment[1,5,9]. The preponderance of bilateral undescended testis in this series is at variance with data in the literature[1-6]. Previous studies[2,4-5] suggested that if a unilateral undescended testis becomes atrophic or infarcted, it serves as antigenic stimulus for the production of antitesticular antibodies, which attack the normally descended and the undescended testis with resultant involution of both. This may explain the high proportion of bilateral undescended testes and the complete absence of testicular tissues in some of the explored groins in this series. Normal hormone profiles recorded in these patients ruled out anorchia, a close differential diagnosis, in which groin exploration may be unnecessary.

The age range at which the majority presented (30-40 years) corresponded with the reproductive age, hence infertility was the main presenting complaint. However, sexual performance was unimpaired by neglected undescended testis in these patients. This may have led to further delay in seeking medical attention, as it is often very difficulty to convince a sexually active man that he could be infertile. Also, hormone profile, especially testosterone, remained within normal range in these patients, even though viable testicular tissue was absent in many. This could be because testosterone level has been reported to remain within normal range for a very long time, sustaining adequate sexual performance in testicular atrophy following undescended testis, unlike what happens following castration[2,14-15]. For this reason, many authors suggest preservation of atrophic/fibrotic testicular tissues during groin exploration for undescended testis[2,8,12]. In this study, excision of atrophic/fibrotic testicular tissues was performed because of the risk of malignant transformation, especially seminoma, which may result in death before medical attention is sought in developing countries[3,14]. Sexual dysfunction due to testosterone deficiency was not reported during follow-up of these patients following excision of bilateral testicular tissues, perhaps because the small amount of testosterone produced by the adrenal cortex was enough to sustain the already primed sexual organ.

Hernia coexisting with undescended testis is well documented[1-5]. Complete testicular descent initiates involution of the processus vaginalis, whereas failure of testicular descent is associated with hernia and hydrocele because involution of the processus vaginalis was never initiated[2,16]. Hernia repair is a major component of orchidopexy for undescended testis. The inguinal approach used in these adult patients gave satisfactory access, which may be better than the scrotal approach used by some authors in children[16-19].

Counseling of these patients and their spouses, especially with regard to fertility was a major challenge[20]. Although child adoption is not yet commonly embraced in Africa, the financial costs are considerably lower than with assisted reproduction techniques, such as in vitro fertilization, that are very expensive and have high failure rates[20-21]. Consequently, many couples in this series opted for child adoption.

In conclusion, late presentation of undescended testis due to poor awareness of the condition was common in this study. Unlike in children, the majority of adults had bilateral undescended testes, with many being atrophic and/or absent. Counseling of the couples regarding irreversible infertility was a major challenge. Only three patients who presented below 30 years of age with unilateral undescended testis had fathered children. Although hormone profiles and sexual performance remained normal, no pregnancy was recorded after treatment. Thorough genital examination of neonates at birth and health awareness programs should be encouraged as these will lead to early presentation and prevent development of irreversible complications.

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Editorial Comment:

The authors report 18 adult men who presented with a total of 28 undescended testes (10 bilateral, 8 unilateral). Inguinal exploration was performed and atrophic/fibrotic testicular tissue was found and excised in 17, a blind-ending vas in the inguinal canal with no testicular tissue was found in 8 cases, and 3 testes with reduced volume were found. The authors do not present histological examination of the 17 cases where atrophic/fibrotic testicular tissue was excised.

Serum testosterone was normal in all patients before surgery, and apparently remained normal postoperatively despite the complete absence of any testicular tissue, or surgical removal of fibrotic tissue in the inguinal canal. The authors postulate that testosterone produced by the adrenal cortex was enough to sustain sexual activity postoperatively in these patients.

It should be emphasized that inguinal exploration is not sufficient to exclude the presence of intra-abdominal testes. A blind-ending vas deferens in the inguinal canal, or the presence of apparently fibrotic testicular tissue in the canal is not sufficient to exclude the presence of an intra-abdominal testis.

Embryologically, prior to descent during 28-32 weeks of gestation, the testis is an intraperitoneal organ – not retroperitoneal, as erroneously stated in some older textbooks. The vas deferens and/or epididymis may descend with the processus vaginalis into the inguinal canal, while the testis itself remains inside the peritoneal cavity. It is well documented that intra-abdominal testes are almost invariably infertile, but their testosterone production remains normal. Interestingly, the first case of bilateral intra-abdominal testes was described in 1840, after post-mortem examination of a man who was hanged for rape.

No imaging study (whether it be ultrasound, computed tomography, magnetic resonance imaging or angiography) is sufficiently reliable to exclude the presence of intra-abdominal testes. Therefore, laparoscopy or laparotomy is essential – exploration of the inguinal canal or retroperitoneum is futile, because the intra-abdominal testis is situated inside the peritoneal cavity.

Only if the testicular blood vessels are seen to exit through the internal inguinal ring, can it be assumed that fibrotic tissues in the inguinal canal are remnants of a testis which has undergone atrophy after previous torsion or degeneration due to non-descent. Only if blind ending testicular blood vessels are seen inside the peritoneal cavity, can it be assumed that there is complete absence of the testis, either due to intra-abdominal torsion or true agenesis.

Unfortunately, the authors have not convincingly excluded the possibility of intra-abdominal testes in their patients. If their serum testosterone indeed remained normal postoperatively, it is highly suggestive of remaining testicular tissue in the peritoneal cavity.

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Authors' Reply:

Unfortunately, we are unable to provide histopathological results of the excised testicular tissues as they were not routinely collated during the period of study. There were also no facilities for laparoscopic examination for intra-abdominal testis in these patients. Therefore, the possibility of intra-abdominal testis in some of the patients being responsible for the normal testosterone level recorded postoperatively as pointed out by the editorial board could not be ruled out. This is a limitation of the study.

Dr. Osifo O.D.