

Management of undescended testes: A prospective studyMuhammed Hassen Jaafar ¹, Safaa. Ibrahim Khadem², Asaad Jabber Alrubaie²**Abstract**

Undescended testis is the most common genital anomaly that affects infants and boys. It has serious complications if left untreated at the proper time. The aim of treatment is to replace the testis to its normal scrotal position where normal testicular development and spermatogenesis occurs. A total of 60 patients with undescended testes were enrolled in this prospective study that extended over three years. Ages with the mode of presentations, methods of identification (physical examination vs. ultrasound study), types of surgery and the results of histopathology were all reported. Only 10 patients (16.6%) presented within the recommended time of surgery (< 2 years). Regarding the mode of presentations: for 26/60 patients (43.3%) the pathology was detected by their parents, 6/60 (10%) were detected by the patients themselves and the remaining 28/60 (46.6%) presented with complications. Identification and localization of the undescended testes were made clinically in 55/60 patients, whereas only in 41/60 patients were the undescended testes detected by ultrasound examination. Overall, 48/60 patients (80%) were treated by orchiopexy and 9/60 patients were treated by orchiectomy. The histopathology of the excised testes revealed permanent testicular damage in all the specimens. In-Conclusions: There is a lack of enough public awareness about this problem and its complication in our society. Orchiopexy at the proper time effectively prevents testicular damage, whereas orchiectomy is reserved for neglected damaged testes to avoid serious complications.

Key words: Undescended, Testis, Orchiopexy

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Introduction

Undescended testis occurs in 0.8 percent of 1-year-old boys and thus represents the most common disorder of male sexual differentiation [1]. Early detection of the undescended testis and its placement in the scrotum is important, as degenerative histologic changes can be demonstrated in these testes by 1.5 to 2 years [2]. Nevertheless, it is a pity that many patients discover the absent testis only at adolescence and by this time, the testis is usually

irreversibly damaged. The cause of testicular maldescent has been the subject of much conjecture and investigations but has not been precisely elucidated. In 1762, John Hunter concluded, "it is not easy to ascertain the cause of failure of descent but I am inclined to suspect that the fault originates in the testes themselves" [3]. Reaching to present time still, it is difficult to ascertain the cause. The main concern about the undescended testis are the frequent development of complications. The complications include decreased fertility, malignant change, liability to trauma and torsion and associated hernias. Equally important is the psychological stress to the child and parents caused by an empty scrotum.

The majority of undescended testes (80%) are palpable below the external inguinal ring and are easily managed by orchiopexy through a conventional 'groin and scrotal' approach. Some 20% of undescended testes are impalpable and the localization and transfer of these high testes have been a challenge to the surgeon, pediatrician and endocrinologist alike [4]. To shed the lights on this problem in our area, we report our experience in the management of these 60 cases of undescended testis.

Materials and Methods

This prospective study was conducted in Al-Sader Teaching General Hospital in Misan province, 60 cases of undescended testes were enrolled from 1st January 2015 to the end of December 2017. All patients were assessed by full history, complete physical examination, and abdominal ultrasound study. The clinical presentations, the anatomical positions of the testes, the surgical procedures and histopathological results were recorded. The role of ultrasonography in the preoperative localization of the undescended testis was correlated with operative findings. Preoperative semen analysis was done in all adults. All orchietomy specimens were sent to histopathological studies. We used the definition of undescended testis as any testis that remains in the abdomen or the groin and not present in the scrotum and that cannot be brought manually to the base of the scrotum with the downward traction of the testis. While the retractile testes (hypermobile testes) are descended testes that easily move back and forth between the scrotum and the inguinal canal and that can be brought manually to the base of the scrotum with the downward traction of testis. All cases of retractile testes and recurrent undescended testes were excluded from the study.

Result

Ages at presentation are given in Table 1. In this study, although the majority of patients (59%) presented before five years of age, only 10 patients (16%) presented before the age of two

years, which is currently the accepted target period during which orchiopexy is to be undertaken to get the best results.

Table 1.

The ages at presentation

Age (years)	No. of patients
1 – 2	10 (16.6%)
2 – 5	26 (43.3%)
5 – 10	12 (20%)
10 – 15	6 (10%)
15 – 45	6 (10%)
TOTAL	60

In 10% of patients, the undescended testis escaped parental detection (Table 2). In 28/60 patients (46.6%), absent testis was detected only when one of the complications developed.

Table 2.

Mode of presentations

Presentations	No. of patients
The absence of testis noticed by parents	26 (43.3%)
Noticed by the patient himself	6 (10%)
Infertility	4 (6.6%)
Torsion	4 (6.6%)
Hernia	20 (33.3%)
TOTAL	60

The non-descent was more common on the right side in 30/60 patients (50%), while 22 (36%) had a left sided anomaly. The defect was bilateral in eight patients (13%). The undescended testes were palpable in 55/60 patients (76%). Detected positions of the testes on clinical examination and ultrasonography are given on (Table 3). While 20/60 patients their presentation was a hernia (that is associated with undescended testes), but the clinical examination to all patients revealed 36/60 patients have a hernia. However, on surgical exploration the processes vaginalis was found patent in 52 (86%).

Table 3.

Clinical and ultrasonic (US) identification of undescended testes

The position of testis	Clinically	On US
Abdominal	4	—
Canalicular	36	20
High scrotal	14	21
Ectopic	1	—
TOTAL	55	41

The surgical procedures that were undertaken in this study are given in Table 4. Out of the 57 patients who underwent surgery, orchiopexy was done in 48 patients and the remaining nine patients underwent orchiectomy. Three patients refused surgery. All the excised testes (after orchiectomy) were subjected to histopathological examination, which revealed permanent internal damage.

Table 3.

Types of surgery

Type of surgery	No. of patients (n=49)
Orchiopexy	48 (80%)
Dartos pouch	44 (73%)
Suture fixation to scrotum	4 (6%)
Orchidectomy	9 (15%)

Discussion

The child with testicular non-descent is a common referral to the surgical outpatient department [4]. In the present study, 34/60 patients (56.5%) escaped parental attention of this easily detectable malady and only 10% of patient presented within the recommended time for surgical treatment. Even in western literature, there is a significant delay in the diagnosis. Seddon [5] found the mean age at diagnosis to be 7.5 years. Lowe [6] found a mean age of 3.9 years in patients with undescended testis in a pediatric surgical center. The fact that in the developed countries, hospital deliveries are the usual practice and majority of these cases are detected by the pediatrician, whereas in our country (Iraq) the situation is like that in many other developing countries, the minority of children have access to regular health care [7].

In the current study, there is a relatively high orchiectomy rate (15%) due to patients reporting late for treatment. Elder [8] recommended that orchiectomy should be done for the

post-pubertal males with bilateral non-descent who have had a unilateral orchiopexy earlier. It is also recommended for complications like malignancy and torsion with gangrene. All the orchiectomy specimens were subjected to the histopathological examination which confirmed testicular atrophy with small seminiferous, few spermatogonia and more peritubular tissue fibrosis. Lipshuz et al [9] have shown that orchiopexy after the age of two years does not result in any change in subsequent fertility. Grass et al [10] found that in postpubertal patients orchiopexy yielded poor results with 83.5 percent patients being azoospermic or oligospermic following surgery. In Grass et al study, two patients with infertility and oligospermia were treated by orchiopexy without any improvement in sperm count at two years of follow up.

In our study, the impalpable testes are about 8.3% which is lower than that reported by other studies where 20% of undescended testes are impalpable [4]. Localization of these testes is a challenging problem. Madrozo et al [11] found that abdominal and pelvic ultrasound scanning (USS) is useful in identification the testis only if it is located in the inguinal canal. Wolverson et al [12] also found that USS is useful in locating impalpable inguinal testes. In contrast, Weiss et al [13] found that sensitivity of USS to be poor with only 13% detection in non-palpable testes. USS is even more unreliable in intra-abdominal testis due to obscuring of images by bowel gas. In the present study, USS could localize the testis in 20/39 intra-canalicular testis. It could not detect the testes in any of the intra-abdominal locations. This shows the unreliability of USS in locating the testes. All the investigation modalities currently available for detection of the impalpable testes, with the possible exception of laparoscopy, are unreliable. Operative exploration is the ultimate definitive study [4].

Various techniques of mobilization of the testis have been described. However, the majority of the testes can be mobilized through an inguinal approach. We used the inguinal approach in all of our patients. Of the various methods of fixation, the testis in the scrotum, the dartos pouch technique [14] is the most popular one. In 73% of our patients had their testis placed in the dartos pouch. In as many as 10% of orchiopexies, a satisfactory scrotal position is not obtained postoperatively. The testicular retraction was observed in 8% of our patients who underwent orchiopexy. We conclude that early detection and management of undescended testis is essential to save fertility and avoiding other complications and to achieve that, it needs thorough clinical assessment and physical examination of newborns in the hospitals. Education of health workers together with the families about this clinical problem is necessary. We also stress about the importance of taking the advantage of every visit of children to health centers like at the time of vaccination or at the time of registration to schools to check up for this pathology, to avoid the tragedy of orchiectomy in young boys.

In conclusions; The best results of treatment of testicular non – descent is possible only if the children are treated early, preferably before the age of 2 years. The current study revealed that a minority of our patients presented within the recommended time and this reflects the lack of enough awareness about this problem.

Ethical Approval

The study was approved by the Ethical Committee.

Conflicts of Interest

The authors declare that they have no competing interests.

References

1. Scorer CG, Farrington GH. Congenital deformities of the testis and epididymis: Appleton-Century-Crofts; 1971.
2. Tasian GE, Hittelman AB, Kim GE, DiSandro MJ, Baskin LS. Age at orchiopexy and testis palpability predict germ and Leydig cell loss: clinical predictors of adverse histological features of cryptorchidism. *The Journal of urology* 2009;182(2):704-9.
3. Hunter J. Observations on the state of the testis in the foetus and on the hernia congenita. *Medical commentaries* 1762:75-90.
4. Bianchi A. The impalpable testis. *Annals of the Royal College of Surgeons of England*. 1995;77(1):3.
5. Seddon J, Savory L, Scott-Conner C. Cryptorchidism. the role of medical education in diagnosis. *Southern medical journal* 1985;78(10):1201-4.
6. Lowe DH, Brock WA, Kaplan GW. Laparoscopy for localization of nonpalpable testes. *The Journal of urology* 1984;131(4):728-9.
7. O'Donnell O. Access to health care in developing countries: breaking down demand side barriers. *Cadernos de saude publica* 2007;23:2820-34.
8. Elder JS. The undescended testis: hormonal and surgical management. *Surgical Clinics of North America* 1988;68(5):983-1005.
9. Lipshultz LI, Caminos-Torres R, Greenspan CS, Snyder PJ. Testicular function after orchiopexy for unilaterally undescended testis. *New England Journal of Medicine* 1976;295(1):15-8.
10. Grasso M, Buonaguidi A, Lania C, Bergamaschi F, Castelli M, Rigatti P. Postpubertal cryptorchidism: review and evaluation of the fertility. *European urology* 1991;20:126-8.
11. Madrazo BL, Klugo RC, Parks JA, DiLoreto R. Ultrasonographic demonstration of undescended testes. *Radiology* 1979;133(1):181-3.
12. Wolverson MK, Houttuin E, Heiberg E, Sundaram M, Shields J. Comparison of computed tomography with high-resolution real-time ultrasound in the localization of the impalpable undescended testis. *Radiology* 1983;146(1):133-6.
13. Weiss RM, Carter AR, Rosenfield AT. High resolution real-time ultrasonography in the localization of the undescended testis. *The Journal of urology* 1986;135(5):936-8.
14. Benson C, Lotfi M. The pouch technique in the surgical correction of cryptorchidism in infants and children. *Surgery* 1967;62(5):967-73.