



## Management of undescended testes (our experience in 60 cases)

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### Abstract

**Background:** Undescended testis is the most common disorder that affects genitalia of the 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.

**Patients and methods:** 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.

**Results:** 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.

**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 complication.

**Keywords:** undescended, testis, orchiopexy

### 1. Introduction

The incompletely descended testis (IDT) may be defined as failure of any of the testes to descend to its normal position in the scrotum. The IDT is the most common disorder that affects the genitalia of male babies [1]. IDT affects about 4% of newborns males; due to spontaneous descent, this percentage may reach about 1% by the age of one year. The percentage is even higher in premature male babies (may reach 30%) [2]. It is of utmost importance in management of this problem is the early diagnosis and early scrotal orchiopexy before the internal damage of the undescended testis happened, which can be started within 1 to 2 years of age including loss of Leydig cells, degeneration of Sertoli cells and decreased spermatogenesis. Surprisingly, still there is a significant proportion of patients (even in developed countries) that presented too late. The causes of incompletely descended testes are unknown in most of the cases [3]. 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" [4]. It is suspected that, there are certain mechanical and hormonal factors (deficiency of gonadotrophic hormone) that plays main role in failure of normal testicular descent.

The main concern about the undescended testis are the development of serious complications (including risk of malignancy, infertility, trauma, atrophy, testicular torsion and hernia).

IDT in some patients cannot be detected by physical examination, which in most of the cases are due to higher Location (intraabdominal) or absent testis (failure to Developed) or some cases of ectopic testes. Orchiopexy of high testes have been a challenge to the surgeon [5]. To shed the lights on this problem in our area, we recorded our experience in the management of these 60 patients of incompletely descended testis.

### Patients and methods

It is a prospective study that was performed in Al-Sader General Hospital in Misan province, 60 cases of undescended testes were enrolled from 1<sup>st</sup> January 2015 to the end of December 2017. All patients were assessed by full history, complete physical examination, and abdominal and pelvic ultrasound study. The clinical presentations, the anatomical positions of the testes, the type of surgery and the histopathological studies results were recorded. The result of ultrasonography that was used preoperatively for diagnosis and localization of the IDT were reported. Pre and post-operative seminal fluid studies were sent in all adults. All orchiectomy specimens were sent for the 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 testis, which is not a pathology as the testis has descended to

scrotum but pulled up by cremasteric muscle and the testis 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.

**Results**

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 at the recommended age of surgery (< 2years).

**Table 1:** The ages at presentation

Age of patients (years)	No. of cases
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 incompletely descended testis were undetected by the parents of the patients (Table 2). In 28/60 patients (46.6%), absent testis was discovered only after development one of the complications.

**Table 2:** Mode of presentations

Presentations	No. of cases
Detected by parents	26 (43.3%)
Detected by the patients	6 (10%)
Fertility problems	4 (6.6%)
Torsion	4 (6.6%)
Hernia	20 (33.3%)
Total	60

In half of the cases IDT was on the right side (in 30 out of 60 patients), in 22 (36%) there is left sided IDT and it is bilateral in eight patients (13%).

The incompletely descended testes were palpable in 55/60 patients (76%). The sites of incompletely descended testis were localized by physical examination and ultrasound study (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 that a hernias are detected in 36/60 patients. Hernia sacs were found in 52 (86%) during surgical operations.

**Table 3:** Clinical and ultrasonic (US) identification of undescended testes

The position of testis	Clinically	On US
Intraabdominal	4	–
Inside the inguinal canal	36	20
At the root of scrotum	14	21
Ectopic	1	–
Total	55	41

The types of surgical procedures that were performed are presented in Table 4. Orchiopexy had been done in 48 cases out of 57 patients that had been treated surgically and excision of incompletely descended testis (orchidectomy) was performed in the remaining nine cases. Three patients refused surgery. All the excised testes (after orchidectomy)

were sent to histopathological studies, which revealed permanent internal damage.

**Table 4:** Types of operative procedure

Type of procedure	No. of cases (n=49)
Orchidopexy	48 (80%)
Subdartos pouch	44 (73%)
Suture fixation to scrotum	4 (6%)
Orchidectomy	9 (15%)

**Discussion**

The incompletely descended testis is one of frequent pathologies that are presented to paediatric and surgical outpatient clinics [5]. In the present study, 34/60 patients (56.5%) the parents could not detect this easily recognizable pathology and only 10% of the patients presented within the recommended time for surgical treatment. Even in western literature, there is a surprising delay in the diagnosis. In a study by Seddon, it was recorded that 7.5 years as a mean age of presentation [6]. Another record by Lowe, the mean age was 3.9 years [7]. Taking into consideration that in western countries the majority of pregnant women have hospital delivery facilities, making examination of newborns easily accessible and with the regular health care for the paediatric age group. Despite of that, the medical records in developed countries regarding diagnosis the incompletely descended testis carries such aforementioned bad results, and one can imagine how it will be the situation in the developing countries, like our country (Iraq), where the minority of children have access to regular health care [8].

In the current study, there is a relatively high testicular excision rate (orchidectomy) (15%) and this is explained by delayed presentation. In a study by Elder, he advised toward orchidectomy “for the postpubertal males with bilateral non – descent who have had a unilateral orchiopexy earlier” [9]. Testicular excision should also be undertaken in cases of developing some expected complications of incompletely descended testis like malignant changes and gangrenous testis following delayed diagnosed of testicular torsion. All the excised testes were sent to the histopathological examination that showed loss of Leydig cells, degeneration of Sertoli cells and decreased spermatogenesis. So many studies that have confirmed the irreversible internal testicular damaged that could happened and that was not improved with surgery (orchidopexy) if the presentation and treatment delayed beyond the recommended age. Lipshutz *et al* confirmed these findings in their study that showed “orchiopexy after the age of two years does not result in any change in subsequent fertility”. In addition, Grass *et al* mentioned “in two cases with infertility problem due to incompletely descended testes were treated by orchidopexy without any improvement in sperm count at two years of follow up [10].

In our study, the impalpable testes is about 8.3% which is lower than that reported by other studies where 20% of incompletely descended testes are impalpable [11, 12]. This is may be explained by that in 50 out of 60 of our patients have incompletely descended testis inside the inguinal canal and at the root of the scrotum, which can be relatively easily palpated for finding undescended testis. The role of investigative tools in localization of the undescended testis have been a subject of many studies in that field. The

Tendency is toward non-radiological investigations like ultrasound and MRI rather than radiological one like C-T scan and angiography which are no longer used in the incompletely descended testis due to radiological dose and invasiveness<sup>[13]</sup>. There are variable results about ultrasound sensitivity in localization of IDT, it varied from (88%) by Hederstrom *et al.*,<sup>[14]</sup> 28.55 by Sarihan *et al.*,<sup>[15]</sup> to 13% by Weiss *et al.*<sup>[16]</sup>. Madrozo *et al.*<sup>[17]</sup> reported that “abdominal and pelvic ultrasound scanning (USS) is useful in identification the testis only if it is located in the inguinal canal”. In our study, ultrasonography had successfully localized the incompletely descended testis in 20/39 of the cases where the testes sites were inside the inguinal canal. It could not detect any intraabdominal testes. We agreed with the Weiss in the unreliability of USS in detecting the undescended testis. It is reported that MRI is more sensitive in localization of the incompletely descended testes than US. It is sensitivity may reaches as high as (93.7%) by Fritzsche *et al.*<sup>[18]</sup> and as low as (52%) in Maghnie *et al* study<sup>[19]</sup>. Recently laparoscopy is proved to be beneficial in localization and treatment of incompletely descended testis<sup>[20]</sup>. We did not use MRI or laparoscopic testicular localization in any of our patients. Intraoperative findings is the most definitive method<sup>[5]</sup>.

Regarding the treatment, surgery is the standard treatment of IDT in form of orchiopexy either by open or laparoscopic approaches. Surgery should be contemplated before the age of two years. Some authors advocated doing surgery during 6-12 months of age<sup>[21]</sup>. The subdartous pouch technique is the most commonly used method for scrotal testicular fixation<sup>[22]</sup>. We adopted doing surgery before two years of age by open trans-inguinal approach with mobilization of incompletely descended testis and orchiopexy by subdartous pouch. Due to shortness of spermatic cord, we did orchiopexy by simple fixation to scrotum in four of our patients. In nine of our patient, orchietomy had been performed. We perform orchietomy in case of delayed diagnosis of IDT (usually post-pubertal) with atrophied undescended testis and normal contralateral testis. We concluded 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 after the delivery. Education of health personnels 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 problem of orchietomy in young males.

### Conclusion

It is documented that early detection and treatment of incompletely descended testis within the recommended time (before two years of age) are the main steps for successful results. 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.

### References

1. Scorer Charles Gordon, Farrington Graham H. Congenital deformities of the testis and epididymis: Appleton-Century-Crofts, 1971.

2. Henry Hamilton Bailey Robert J. Mcneill Love Bailey & Love's short practice of surgery. 27th edition ed. Norman Williams P. Ronan O'connell, Andrew Mccaskie, editor. Boca Raton: CRC Press Taylor & Francis Group, 2018, 1498 p.
3. Hack Wwm, Goede J, Van Der Voort-Doedens Lm, Meijer Rw. Acquired undescended testis: putting the pieces together. International journal of andrology. 2012; 35(1):41-5.
4. Hunter John. Observations on the state of the testis in the foetus and on the hernia congenita. Medical commentaries. 1762:75-90.
5. Bianchi A. The impalpable testis. Annals of the Royal College of Surgeons of England. 1995; 77(1):3.
6. Seddon Jm, Savory L, Scott-Conner C. Cryptorchidism: the role of medical education in diagnosis. Southern medical journal. 1985; 78(10):1201-4.
7. Lowe D Howard, Brock William A, Kaplan George W. Laparoscopy for localization of nonpalpable testes. The Journal of urology. 1984; 131(4):728-9.
8. O'donnell Owen. Access to health care in developing countries: breaking down demand side barriers. Cadernos de saude publica. 2007; 23:2820-34.
9. Elder Jack S. The undescended testis: hormonal and surgical management. Surgical Clinics of North America. 1988; 68(5):983-1005.
10. Lipshultz Larry I, Caminos-Torres Raul, Greenspan Carol S, Snyder Peter J. Testicular function after orchiopexy for unilaterally undescended testis. New England Journal of Medicine. 1976; 295(1):15-8.
11. Moore Robert G, Peters Craig A, Bauer Stuart B, Mandell James, Retik Alan B. Laparoscopic evaluation of the nonpalpable testis: a prospective assessment of accuracy. The Journal of urology. 1994; 151(3):728-31.
12. Kogan Sj, Gill B, Bennett B, Smey P, Reda Ef, Levitt Sb. Human monorchism: a clinicopathological study of unilateral absent testes in 65 boys. The Journal of urology. 1986; 135(4):758-61.
13. Kanemoto Kazuhiro, Hayashi Yutaro, Kojima Yoshiyuki, Maruyama Tetsuji, Ito Masato, Kohri Kenjiro. Accuracy of ultrasonography and magnetic resonance imaging in the diagnosis of non-palpable testis. International journal of urology. 2005; 12(7):668-72.
14. Kullendorff Cm, Hederström E, Forsberg L. Preoperative ultrasonography of the undescended testis. Scandinavian journal of urology and nephrology. 1985; 19(1):13-5.
15. Sarihan H, Sari A, Abeş M, Dinc H. Nonpalpable undescending testis. Value of magnetic resonance imaging. Minerva urologica e nefrologica= The Italian journal of urology and nephrology. 1998; 50(4):233-6.
16. Weiss Robert M, Carter Anthony R, Rosenfield Arthur T. High resolution real-time ultrasonography in the localization of the undescended testis. The Journal of urology. 1986; 135(5):936-8.
17. Madrozo Beatrice L, Klugo Richard C, Parks John A, Diloreto Robert. Ultrasonographic demonstration of undescended testes. Radiology. 1979; 133(1):181-3.
18. Fritzsche Pj, Hricak H, Kogan Ba, Winkler Ml, Tanagho Ea. Undescended Testis: Value of MR Imaging. The Journal of Urology. 1989.

19. Maghnie Mohamad, Vanzulli Angelo, Paesano Pierluigi, Bragheri Romano, Palladini Giovanna, Preti Paola, *et al.* The accuracy of magnetic resonance imaging and ultrasonography compared with surgical findings in the localization of the undescended testis. *Archives of pediatrics & adolescent medicine.* 1994; 148(7):699-703.
20. Siemer S, Humke U, Uder M, Hildebrandt U, Karadiakos N, Ziegler M. Diagnosis of nonpalpable testes in childhood: comparison of magnetic resonance imaging and laparoscopy in a prospective study. *European journal of pediatric surgery.* 2000; 10(02):114-8.
21. Martin Ritzén E, Bergh Anders, Bjercknes R, Christiansen P, Cortes D, Haugen Se, *et al.* Nordic consensus on treatment of undescended testes. *Acta paediatrica.* 2007; 96(5):638-43.
22. Benson Cd, Lotfi Mw. The pouch technique in the surgical correction of cryptorchidism in infants and children. *Surgery.* 1967; 62(5):967-73.