

# Clinical Characteristics and Treatment of Cryptorchidism in Adults: Our Experience in Alsaidi hospital, in Aden, Yemen

Ali Ahmed Salem Hatroom

## Correspondence:

Ali Ahmed Salem Hatroom,  
Assistant Professor of Urology, Department of Special Surgery,  
Faculty of Medicine, University of Aden, Yemen  
**Email:** alihatroom777@gmail.com

Received: July 2020; Accepted: August 2020; Published: September 1, 2020.

Citation: Ali Ahmed Salem Hatroom. Clinical Characteristics and Treatment of Cryptorchidism in Adults: Our Experience in Alsaidi hospital, in Aden, Yemen. World Family Medicine. 2020; 18(9): 86-91 DOI: 10.5742/MEWFM.2020.93860

## Abstract

**Background:** Undescended testes are a condition when one or both of the testes have not descended into the scrotum at birth, but stay in the abdomen or only move part way down into the scrotum.

The aim of the study was to describe the pattern of clinical presentation, the ultrasound and intra-operative findings, and the outcome.

**Materials and method:** This is a retrospective study involving 120 medical files of adult patients with undescended testes.

**Results:** The mean age was  $25.1 \pm 4.7$  years. Patients of age group 18 – 22 years were predominant (35.0%). Sixty eight (56.7%) presented to the hospital complaining of empty scrotum. another 33(27.5%) were complaining of infertility.

Undescended testes were (40.8%) in the left side, (32.5%) in the right side and bilateral (26.7%).

The sites of testes were (42.1%) not seen, inguinal (17.1%) and abdominal low (11.2%).

The operative options were one stage laparoscopic orchiopexy (35.5%), open orchiopexy (32.9%), first stage Fowler Stephen Procedure (18.4%), and (8.6%) orchiectomy.

Postoperative findings (52.7%) were alive, in their positions and normal. First Stage Fowler Stephen procedure were found in (18.4%), alive + small in their positions (23.0%) and atrophy (5.9%).

**Conclusion:** The best result of treatment of cryptorchidism is preferably in the childhood age, therefore careful physical examination of the baby at birth, regular follow-up of the infant and advice for early corrective surgery in cases of persistent undescended testis will go a long way in reducing the morbidity due to cryptorchidism.

**Key words:** cryptorchidism, adult, clinical characteristics, treatment, Aden

## Introduction

Cryptorchidism is a pathological condition defined as the failure of the testis to descend into the scrotum [1].

It is a congenital condition in which one or both testicles are not appropriately positioned in the scrotum at birth and cannot be moved into the proper position manually. The term “cryptorchidism” literally means “hidden testicle” and is often used interchangeably with the term “undescended testicle”[2].

It affects an estimated 3 percent of full-term male neonates and up to 30 percent of premature male infants, making it the most common male genital anomaly identified at birth [3,4].

The treatment of cryptorchidism in infants and children is well known. A surgical approach such as orchiopexy is recommended for testes that remain undescended after 6 months of age [5,6]. In addition, fertility disorders may occur, and are commonly ascribed to the harmful effects of the undescended testis on the contralateral one, or to related immunologic reactions [7].

The aims of this study are to determine the occurrence of cryptorchidism related to age, side of cryptorchidism, location, treatment procedures, outcome and complications.

## Materials and Method

This study was designed as a retrospective study. It was conducted at Alsaïdi Hospital in Aden, Yemen.

We retrieved the patients’ records of adults with undescended testes and we found 120 cases of the age group  $\geq 18$  years who were seen and treated by the author during a period of six years, from January 2012 to December 2017.

The data extracted from the files included patient’s demographics, side affected, clinical presentation, associated anomaly, place of residence, location and size of testis as measured by ultrasound and intra-operatively, surgical treatment given, and post-operative complications.

The data obtained were analyzed using SPSS 17 and presented as count, frequency and percentage. Data were analyzed using Chi-square test, where necessary P -values less than 0.05 were regarded as statistical significant.

## Results

Table 1 (next page) shows that the age group 18 – 22 years is represented with 42 (35.0%) followed by the age group 23 – 26 years with 34 (28.3%) and the last age group is 31 – 34 years with 21 (17.3%). The mean age of the patients is  $25.1 \pm 4.7$  years and the age ranged between 18 – 34 years. Most of the patients 66 (55.0%) were from rural areas. Empty scrotums were predominant with 68 (56.7%) followed by infertility 33 (27.5%) and the last clinical presentation was inguinal pain with 1 (0.8%).

Table 2 reveals that 49 (40.8%) of UDT occurred in the left side and 39 (32.5%) occurred in the right side while 32 (26.7%) were bilateral.

The table also, shows association with other anomalies in which 67 (55.9%) were inguinal hernia of same side UDT followed by Inguinal hernia of both sides 4 (3.3%) then attenuated vas deferens 2 (1.6%) and the last one was absent of vas deferens 1 (0.8%). Table 2 reveals the mean hospital stay which was  $1.02 \pm 0.14$  days.

Table 3 shows the sites of testes were distributed as follows: not seen 64 (42.1%), inguinal 26 (17.1%), abdominal low 17 (11.2%), peeping 15 (9.8%), abdominal high 14 (9.2%), deep inguinal ring 13 (8.6%) and ectopic 3 (2.0%).

The distribution of testis size by ultrasound were 47 (30.9%) normal, 43 (28.3%) small and 62(40.8%) not seen. Also, table 3 reveals the distribution of intraoperative size of testis as follows: 88 (57.9%) normal, 44 (28.9%) small, 13 (8.6%) atrophy, 5 (3.3%) vanished and 2 (1.3%) torsion.

Table 3 also, reveals the operative options which were applied for the study patients. They were distributed as follows: One stage laparoscopic orchiopexy 54 (35.5%), open orchiopexy 50 (32.9%), first stage Fowler Stephen Procedure 28 (18.4%), orchiectomy 13 (8.6%), nothing done - vanished testis 6 (3.9%) and second stage of Fowler Stephen Orchiopexy 1 (0.7%).

Table 4 represents the follow up results after one month of the surgical procedure. We found 80 (52.7%) of testes were alive, in their positions and normal. First Stage Fowler Stephen procedure were found in 28 (18.4%), alive + small in their positions 35 (23.0%) and atrophy 9 (5.9%).

Table 1: Variables of age groups, residency and clinical presentation (n=120)

Variable	No	%
<b>Age group (years):</b>		
18 – 22	42	35.0
23 – 26	34	28.3
27 – 30	23	19.2
31 - 34	21	17.5
Mean age (years)	25.1 ± 4.7	
Age range (years)	18 – 34	
<b>Residency:</b>		
Urban	54	45.0
Rural	66	55.0
<b>Clinical presentation:</b>		
Empty scrotum	68	56.7
Infertility	33	27.5
Inguinal hernia	10	8.3
Abdominal mass	8	6.7
Inguinal pain	1	0.8

Table 2: Side variables of UDT, and associated anomalies (n=120)

Variables	No	%
<b>Side of UDT:</b>		
Left	49	40.8
Right	39	32.5
Bilateral	32	26.7
<b>Ass other anomalies by clinical exam:<sup>*</sup></b>		
Inguinal hernia of same side UDT	67	55.9
Inguinal hernia of both sides	4	3.3
Attenuated vas deferens	2	1.6
Absent of vas deferens	1	0.8
Nothing	78	37.6
<b>Mean hospital stay (days):</b>	1.02 ± 0.14	

\*Ass other anomalies by clinical exam = Associated other anomalies by clinical examination

**Table 3: Distribution of site and size of testes by US, intraoperative size, and operative options: (n=152)**

Variables	No	%
<i>Site of testis by US:</i>		
Not seen	64	42.1
Inguinal	26	17.1
Abdominal low	17	11.2
Peeping	15	9.8
Abdominal high	14	9.2
Deep inguinal ring	13	8.6
Ectopic	3	2.0
<i>Size of testis by US:</i>		
Normal	47	30.9
Small	43	28.3
Not seen	62	40.8
<i>Size of testis intraoperative:</i>		
Normal	88	57.9
Small	44	28.9
Atrophy	13	8.6
Vanished	5	3.3
Torsion	2	1.3
<i>Operative options:</i>		
One stage laparoscopic orchiopexy	54	35.5
Open orchiopexy	50	32.9
First stage Fowler Stephen Procedure	28	18.4
Orchiectomy	13	8.6
Nothing done - vanished testis	6	3.9
Second stage of Fowler Stephen orchiopexy	1	0.7

**Table 4: Results of follow up at the end of one month post hospital discharge**

Variables	No	%
Alive, in its position, normal	80	52.7
Alive, in its position, small	35	23
First Stage Fowler Stephen procedure	28	18.4
Atrophy	9	5.9
Total	152	100

## Discussion

The first description of undescended testis dated back to the 18th century and theories of testis migration troubles started during the 19th century [8]. Since then, the literature has been enriched in the management of this pathology, especially in children. Observation of an undescended testis in an adult is a situation whose frequency is variously reported [9].

In our study we found the mean age of the patients was  $25.1 \pm 4.7$  years and the age ranged between 18 – 34 years.

The age group 18 – 22 years represented with 42 (35.0%) followed by the age group 23 – 26 years with 34 (28.3%) and the last age group is 31 – 34 years with 21 (17.3%).

To some extent a similar finding was reported by Avakoudjo et al [9] from Benin where the mean age was  $23.3 \pm 6.1$  years, with extremes of 16 and 42 years. The most represented age group was 16 to 20 years of age.

Most of the patients (55.0%) were from rural areas. They presented due to empty scrotums with (56.7%) followed by infertility (27.5%) and the last clinical presentation was inguinal pain with (0.8%).

Shuaibu et al [10] reported in their study that (42.8%) of patients presented because of infertility or were detected during a work up for infertility. 50% complained of empty scrotum. One patient (3.6%) presented with sudden abdominal pain, another patient (3.6%) presented with features of metastatic testicular carcinoma.

In the current study we found that (40.8%) of cryptorchidism occurred in the left side and (32.5%) occurred in the right side while (26.7%) were bilateral.

Similar to our finding was reported by Musa et al [11] from Sudan that the side of impalpable testis was the left in (50%), and the right in (42%) while only (8%) had bilaterally impalpable testes.

Different from our results, was reported by Hadziselimovic [12] in which he mentioned that cryptorchidism may occur on one or both sides, but more commonly affects the right testicle.

Our finding also differs from that reported by Avakoudjo et al [9] right side in (36.1%), left side in (34.8%) and bilateral in (26.1%) patients.

We found in our present study UDT was associated with other anomalies in which (55.9%) were inguinal hernia of same side cryptorchidism followed by inguinal hernia of both sides (3.3%) then attenuated vas deferens (1.6%) and the last one was absent of vas deferens (0.8%).

Cryptorchidism can be associated with various anatomical anomalies, but epididymal anomalies and patency of the vaginal process are among the most frequent [13,14].

Epididymal anomalies are associated with cryptorchidism with highly variable incidence reported in the literature: from 36 to 79% [15]. The occurrence of inguinal hernias associated with cryptorchidism is due to the persistence of the vaginal process [16]. The vaginal process is a conduit that extends from the peritoneum to the scrotum and is covered by a coelomic epithelium. This conduit is usually obliterated after the end of the testicular migration [16]. In cases where the vaginal process does not close, the child may develop inguinal hernia or communicating hydrocele.

Our study revealed that the mean hospital stay was  $2.1 \pm 0.8$  days and range 1-3 days. These findings are similar to that reported by Torricelli et al [17].

In the present study the site of testes were distributed as follows: not seen 64 (42.1%), inguinal 26 (17.1%), abdominal low 17 (11.2%), peeping 15(9.8%), abdominal high 14(9.2%), deep inguinal ring 13(8.6%) and ectopic 3(2.0%).

Shuaibu et al [10] reported that of the 54 nonpalpable testes evaluated, 34 (63%) testicles were intrabdominal, 12(22.2%) were located at the inguinal canal, 5 (9.3%) were at the internal ring or just proximal to it, 3 (5.5%) were vanishing.

Jeong et al [18] reported in their study that the location of cryptorchid testis identified during the operation was inguinal in 14 (82.4%), prepubic in 2 (11.7%), and intra-abdominal in 1 (5.9%), respectively.

In our present study we found the distribution of intraoperative size of testis as follows: 88 (57.9%) normal, 44 (28.9%) small, 13 (8.6%) atrophy, 5 (3.3%) vanished and 2 (1.3%) torsion.

In our current study the operative options which were applied for the study patients were distributed as follows: One stage laparoscopic orchiopexy (35.5%), open orchiopexy (32.9%), first stage Fowler Stephen Procedure (18.4%), orchiectomy (8.6%), nothing done - vanished testis (3.9%) and second stage of Fowler Stephen Orchiopexy (0.7%).

Laparoscopy has proved to be the best available procedure for diagnosis and management of impalpable undescended testes [19,20,21].

Sangrasi et al [22] performed the following treatment options on their patients with impalpable testes. Of 30 intraabdominal testes, single-stage laparoscopic-assisted orchiopexy was successfully performed in 16 (40%) testes, while laparoscopic orchiectomy was performed in 14 (35%) testes. Testes were atrophic and were easily retrieved through a 10-mm port. Six testes where vas and vessels entered the internal ring were diagnosed as intracanalicular testis. They were explored by inguinal incision, inguinal orchiopexy was done in 2 (5%) testes, and inguinal orchiectomy was performed in the remaining 4% of testes.

In the present study the follow up results after one month of the surgical procedure were distributed as follows: (52.7%) of testes were alive, in their positions and normal. First Stage Fowler Stephen procedure were found in (18.4%), alive + small in their positions (23.0%) and atrophy (5.9%).

Corvin et al [23] described their experience with laparoscopic management of adult cryptorchidism in 8 cases.

In just one patient, a morphologically intact abdominal testicle was found and a first-stage Fowler-Stephens orchiopey was performed. In all others cases, atrophic or vanishing testicles were found and resected.

Vijjan et al [24] reported better results in their experience with 14 adults with a mean age of 21 years. A total of 19 undescended testes were evaluated and 94.7% of the testes were intra-abdominal. Seven patients with unilateral undescended testes underwent laparoscopic orchietomy, and laparoscopic-assisted orchiopey was carried out in the remaining two patients. Five patients with bilateral undescended testes underwent laparoscopic orchietomy on one side and laparoscopic-assisted orchiopey on the other.

Testicular preservation rate was 36.8%. The authors also concluded that laparoscopy is a safe and effective modality in the localization and management of adult undescended testes.

## Conclusion

The best result of treatment of cryptorchidism is preferably in the childhood age. Therefore, careful physical examination of the baby at birth, regular follow-up of the infant and advice for early corrective surgery in cases of persistent undescended testis will go a long way in reducing the morbidity due to cryptorchidism. Delay in providing care for cryptorchid patients can be costly and dangerous; it is necessary to increase awareness and to health educate people on this problem.

## References

- Sijstermans K, Hack WW, Meijer RW, Van der Voort-Doedens LM. The frequency of undescended testis from birth to adulthood: a review. *Int J Androl*. 2008;31:1–11.
- Campbell MF, Wein AJ, Kavoussi LR. *Campbell-Walsh Urology*. 9th ed. Philadelphia: W.B. Saunders; 2007.
- Miller DC, Saigal CS, Litwin MS. The demographic burden of urologic diseases in America. *Urol Clin North Am*. 2009 Feb;36(1):11-27.
- Barthold JS, Gonzalez R. The epidemiology of congenital cryptorchidism, testicular ascent and orchiopey. *J Urol*. 2003 Dec;170(6 Pt 1):2396-401.
- Moradi M, Karimian B, Moradi A. Adult orchidopexy: a survey on necessity of intraoperative testicular biopsy. *Nephrourol Mon*. 2011;3:196–200.
- Barthold JS. Abnormalities of the testis and scrotum and their surgical management. In: Wein AJ, Kavoussi LR, Novick AC, Partin AW, Peters CA, editors. *Campbell-Walsh Urology*. 10th ed. Philadelphia: Saunders; 2012. pp. 3560–3574.
- Lania C, Grasso M, Mantovani G, Hadjigeorgiou D, Annoni F, Rigatti P. Cryptorchidism: review and evaluation of the fertility of adult cryptorchids. *J Androl*. 1984:125–127.
- Tackett LD, Patel SR, Caldamone AA. A History of Cryptorchidism: Lessons from the Eighteenth Century. *Journal of Pediatric Urology*. 2007; 3: 426-432. <https://doi.org/10.1016/j.jpuro.2007.07.003>
- Avakoudjo J, Hodonou F, Sewa EV, Tandje Y, Sossa J, Yevi M, Gandaho I, et al. Undescended Testis in Adult: Epidemiology and Therapeutic Aspects. About 23 Cases in HKM University Teaching Hospital of Cotonou. *Open Journal of Urology*. 2018; 8: 206-213
- Shuaibu SI, Gideon OC, Cletus AI, Ramiyl VM, Dakum NK, et al. Bilateral Nonpalpable Cryptorchidism In Adults; Does Social Class Influence Presentation? *IOSR Journal of Dental and Medical Sciences*. 2013; 10(3): 48-51
- Musa MT, Abdul-Rahman RZ. Empty scrotum in adults. *Kharoum Medical Journal*. 2008; 01(02): 69-71
- Hadziselimovic F. On the descent of the epididymo-testicular unit, cryptorchidism, and prevention of infertility. *Basic Clin Androl*. 2017;27:21.
- Lee PA, Houk CP. Cryptorchidism: Current Opinion in *Endocrinology, Diabetes and Obesity*. 20.13; 20(3): 210–216
- Barthold JS, Redman JF. Association of epididymal anomalies with patent processus vaginalis in hernia, hydrocele and cryptorchidism. *The Journal of Urology*. 1996; 156(6): 2054–2056
- Favorito LA, Costa WS, Sampaio FJB. Analysis of anomalies of the epididymis and processus vaginalis in human fetuses and in patients with cryptorchidism treated and untreated with human chorionic gonadotrophin. *BJU International*. 2006; 98(4): 854–857
- Johansen TEB. Anatomy of the testis and epididymis in cryptorchidism. *Andrologia*. 1987; 19(5): 565–569
- Torricelli FCM, Arap MA, Duarte RJ, Anuar IbrahimMitre, andMiguel Srougi. Laparoscopic Testicular Preservation in Adults with Intra-Abdominal Cryptorchidism: Is It Beneficial?. *Advances in Urology*. 2012; 1-4
- Jeong SC, Lee S, Ku JY, Lee SD. Clinical Characteristics and Treatment of Cryptorchidism in Adults: A Single Center Experience. *World J Mens Health*. 2014; 32(2): 110-115
- Ismail K, Ashour M, El-Afifi M, Hashish A, El-Dosouky N, Nagm M, et al. Laparoscopy in the management of impalpable testis: Series of 64 cases. *World J Surg*. 2009;33:1514–9.
- Moursy EE, Gamal W, Hussein MM. Laparoscopic orchiopey for non-palpable testes: Outcome of two techniques. *J Pediatr Urol*. 2011;7:178–81.
- Park JH, Park YH, Park K, Choi H. Diagnostic laparoscopy for the management of impalpable testes. *Korean J Urol*. 2011;52:355–8.
- Sangrasi AK, Laghar A, Abbasi MR, Bhatti S. Laparoscopic-Assisted Management of Impalpable Testis in Patients Older than 10 Years. *JLS*. 2010; 14(2): 251–255.
- Corvin S, Sturm W, Anastasiadis A, Kuczyk M, Stenzl A. Laparoscopic management of the adult nonpalpable testicle. *Urologia Internationalis*. 2005; 75(4): 337–339.
- Vijjan VK, Malik VK, Agarwal PN. The role of laparoscopy in the localization and management of adult impalpable testes. *Journal of the Society of Laparoendoscopic Surgeons*. 2004; 8(1): 43–46.