PERIOD PREVALENCE OF CRYPTORCHIDISM IN LIBYA

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ABSTRACT

Cryptorchidism is a congenital condition characterized by testicles do not descend to the scrotum .This is a prospective study aimed to predict undiagnosed cases of undescended testicles, its prevalence in the community and to find out the risk factors leading to it; as well as the management of this condition. This comprehensive study is carried out in Alkhadra Hospital, Aljalla Hospital and Zliten Central Hospital over a period from Jan 1 to Dec 31 2013. Included (342) examined cases. Their age ranged between one week to 5 years old; of which 19 cases (5.6%) were found to have cryptorchidism. The poor mothers' knowledge about this condition was another finding. Every male infant should be examined to detect undescended testecls.

KEY WORDS: cryptorchidism, prevalence, diagnosis, risk factors and management.

INTRODUCTION

Undescended testes usually are histologically normal at birth but atrophy and poor development are found by the end of the first year of life. There is a high incidence of infertility, malignancy, untoward psychological effects in adolescence and adulthood, as well as testicle torsion, and hernia[(1)] (figure 1).

It is the most common abnormality of male sexual development, in this condition where one or both testes are not located in the scrotum, can be ectopic, incompletely descended, retractile or absent[(2)]. Bram Abrecht Von Haller who is the one described the anatomical position of fetal testes in 1755. The term cryptorchidism originates from Latin terminology in which crypto means hidden and orchid means testis.

The earliest study on testicular malposition was published in 1786 by John Hunter[(3)].

Normal testes are expected to descend in to scrotum between the 35th and 40th weeks of gestation, therefore infants whose delivered preterm especially before the 35th week of gestation have been reported to have a high incidence of undescended testes[(4)].

The right testis usually descends from the scrotum later than the left testis, and higher in the scrotum[(5)] (figure 2).

For Testes to produce mature spermatozoa the temperature of the local Environment must be (1.5-2°C) below body temperature[(6)].

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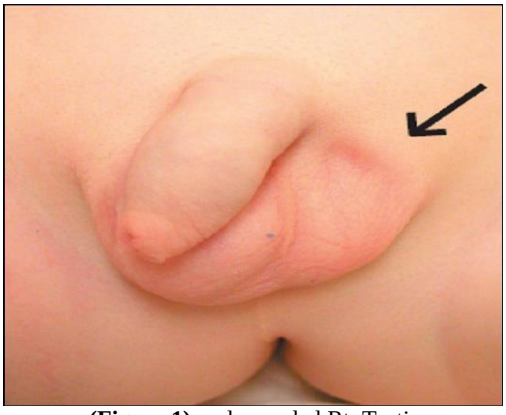
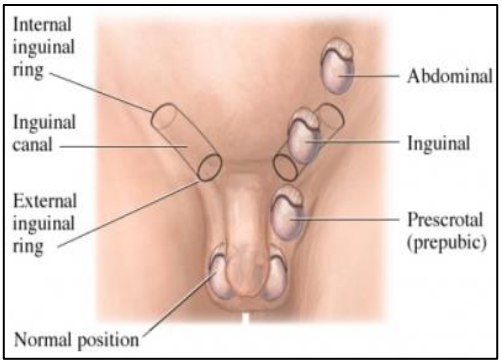


(Figure 1) undescended Rt. Testis

Predisposing factors which may lead to the undescended testicles such as prematurity (delivery before complete 37 weeks gestation) low birth weight (birth weight > 2.5 kg)[(7)] being twin, surgery in the inguinal hernia of preterm, regular alcohol consumption during pregnancy, being born to pregnant woman who drink caffeine at least 3 drinks per day , maternal exposure



(Figure 2) The pathway of testes descendense

to estrogen during the first trimester, preeclampsia, congenital malformation syndromes such as Down syndrome, Noonan's syndrome, Prader Welli syndrome, and Klinefelter syndrome, As well as hypospadias, cerebral palsy, mental retardation, Willms tumor, exposure to pesticides and diabetic mothers.

The first recorded attempt of orchidopexy was performed by Jones Adons in London Hospital in 1871 on an outpatient department[9]. The first successful Orchidopexy by Thomas Annandale was in 1877[10]. Since 1931 the Hormonal therapy Human chorionic Gonadotropin (HCG) has been used for the diagnosis as well as treatment of cryptorchidism. Hormonal therapy is often used to distinguish between retractile testes and true undescended testicles in which 500 microgram HCG intramuscular injection is used twice a week for five weeks[11]. The American Academy of Pediatrics recommended the surgical correction at one year of age. The hormonal therapy by HCG should probably be attempted before then (one year of age)[12].

AIM OF THE STUDY

To determine the prevalence rate of cryptorchidism from birth to 5 years old, in the community as well as the mothers' knowledge about this problem.

PATIENTS AND METHODS

A total number of 684 testes were examined. This comprehensive study was undertaken in Alkhadra Hospital, Aljala Hospital and Zliten Central Hospital; over one year duration from Jan 1st to Dec 31st in the year 2013. Genital examination was carried out to all male patients whose presented to our clinics by deferent illnesses who aged between one week to 5 years. All patients were examined by pediatrician and neonatologist. The data including the age, birth weight, head circumference, length, gestational age, systemic examination, penis, and scrotal examination was checked and collected. In the scrotal examination the patient was relaxed in warm room, and warm hands. Pulling the testis into the inguinal canal, examiner started palpation along the inguinal canal moving from a point just above the inguinal ring toward the scrotum (Milky test)[13], try to entrap the testis between fingers place it on the scrotum. The case was classified as cryptorchidism if the testis is not true palpable or if it cannot be brought into the scrotum. Ultra-sonography examination, CAT scan, MRI have been carried out to document the presence of a non-palpable testis. Information were collected from the family including antenatal, natal and postnatal history, age of the mothers and the fathers, family history of the cryptorchidism, and the level of the mothers education about cryptorchidism. The follow up was performed for all patients till the testis is descended in the scrotum spontaneous, by hormonal therapy or by surgical intervention.

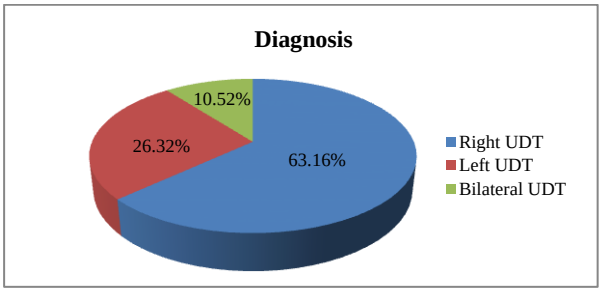
RESULTS AND DISCUSSION

Three hundred forty two male patients who attended the pediatric outpatient clinic in the period from Jan 1st to Dec 31st 2013 for different illnesses underwent the genital examination for undescended testes (table 1). Nineteen (5.6%) male patients have been found to have undescended testes. Diagnosis of cryptorchidism was done by clinical genital examination of cases and its site was confirmed by ultrasonography examination.

The target age was first week to 5 years ,neonatal period (2.9%), 3monthes (1.5%), and between one year and 5 years was (1.2%). Out of the 19 patients who diagnosed as cryptorchidism; right cryptorchidism was (63.16%) and left side was (26.32 %), bilateral cryptorchidism was (10.5%), for this deference no special factors explain this fact (figure 3).

(Table 1) The number of patient according to their age (Table 1 is two Parts)

The Age of Patients in Months	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	**Total No. of Patient**
No. of Patient	71	19	13	11	11	12	9	7	11	10	8	9	8	7	6	7	7	10	
The Age of Patients in Months	19	20	21	22	23	24	25	28	30	32	33	35	38	40	45	50	54	60	**342**
No. of Patient	7	6	8	7	23	6	3	7	8	5	6	4	4	7	4	6	5	7	



(Figure 3) Percentage of cases according to side of Undescended testes

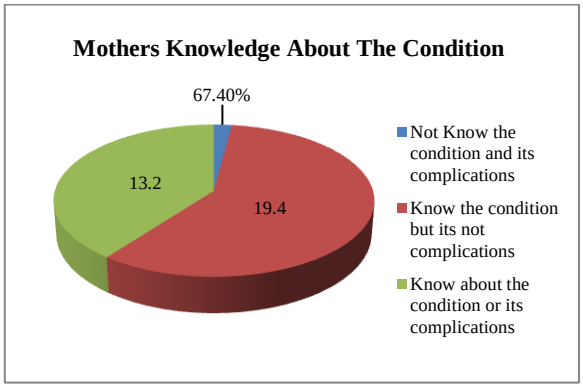
Undescended right Testes was (5%), undescended left testes was (30%), and undescended both testes was (20%)[14].

During the embryonic life the testes form beside the mesonephric kidneys and descend via the inguinal canal to the scrotal sac, if the process is failed, cryptorchid testes may held at any the normal pathway descend (undescended or retractile testes), it may travels off the normal pathway of descent (ectopic) or absent[15]. Cryptorchidism may present in (4%) of boys at birth and there is an even high incidence in

preterm infants. (75%) of undescended testicles well descend within the first 3months of age[16] .
(30%) of preterm male infants , and (3%) of full term male infants. In (80%) of cases testis migrates into correct position without intervention during the first year of life. The condition occurs in both testicles in about (10%) of cases[17].
This study reported the prevalence of cryptorchidism in the community (5.6%) of males between one week and 5 years, the incidence of cryptorchidism in United Kingdom in (1950) was (2.7%), and in (1980) was increased to (4.1). In Denmark was (1.8%) in (1950) and increased in (1990) to (8.4%)[18] in which the result reported by this study was between the above mentioned incidence. In England and Wales was (0.8%)[19,20].
In Jordan the incidence was (2.12%) of the children in the same age group of this study patients which is less than this study result[21]. The prevalence of cryptorchidism in Lithuania newborns at birth (5.7%) in which is higher than this study result, but at one year of age, it was (1.4) which is the same result reported by this study at one year of age[22].
The prevalence of cryptorchidism in United State of America ranged between (3.7%) at birth and (1.1 %) from one year to 5 years old. International prevalence of cryptorchidism (4.6%) at birth, (2.5,%) at 3months of age, (1.5%) at 9 months, undescended testes is identified in (2.8%) of the fathers and (6.2%) of the brothers of the patients with cryptorchidism[23]. The prevalence in New York City Hospital between 1987 and 1990 was (3.7%), the overall rate had declined to (1.1%) by 3 months and (1%) at one year of age[24].
The above 3 results (USA, International, New York) at birth all are greater than the rate of prevalence reported by this study, but at 3months of age in Libya, New York City Hospital and International are fast the same, the incidence in Libya, Lithuania and International are the same at one year of age, at the same time is greater than the result reported in USA and New York City Hospital.
In this study, significant percent of mothers (37.7%) have under university education (table 2), it was discovered that the knowledge of the mothers about cryptorchidism was very poor, as about (67.4%) of mothers did not knew about cryptorchidism or its complication (figure 4).

(Table 2) Mothers education level

Level of education	Number of mothers	%
University graduated	86	26.3%
Under university graduation	240	73.7%



(Figure 4) Mothers Knowledge about Undescended testes and Its Complications

This study is the first in Libya to document the prevalence of cryptorchidism in which similar to that reported in Now York City Hospital, and higher than the prevalence reported in United Kingdom, Jordan, USA and Denmark in (1950), at the same time it was less than the prevalence reported in Lithuania, Denmark in (1990) (table 3), and International prevalence. Cryptorchidism is a very important subject to do researches about, for that reason many researches were carried out worldwide.

(Table 3) The statistical result in some countries

Country	Libya (2013)	United Kingdom (1980)	Denmark (1990)	England and Wales	Jordan	Lithuania	USA
Percentage Of UDT	5.6%	4.1	8.4	0.8%	2.12	7.1	4.8

CONCLUSION AND RECOMMENDATION

This study finding signify the diagnosis value of cryptorchidism to provide the chances of early treatment to avoid series complications, and mothers should be educated to be awareness to this condition and consult the pediatrician as early as possible .

REFERENCES

1- Ricordo GB, Kliegman A. In Nelsen Textbook of pediatrics, 19th Ed. Blackwell Scientific Publications: New York; 2011. p.1548.
2- Mrco Perez –Brayfeied et al., sep. 18.2009. (e mail)
3- Kwanjin P. An Evolution of Orchiopexy: Historical Aspect. Korean Journal of urology. 2010; 5(3): 155-160.
4- Divid OO, Emmanuelo O. Pediatric Surgery Unit , Department of surgery ,University of Benin Teaching Hospital Benin City Nigeria Journal of Pediatric Surgery. 2009; 44:791-796 .
5- IANA.laring et al. Macleod`s. Clinical examination, 11th Edition; 2005. P.358.
6- Leissner J, et al. European urology updates Series. May 1999; 83(8): 885-887.
7- Von Harnack (Hrsg.) Kinderheilkunde, 12th Ed. 2004; p.34-35.
8- Health community .com (e mail).
9- Stanley JS. 4 Dec 2007, Health Committee .com (e-mail).
10- American Academy of Pediatrics (AAP). Com. (e mail). The name comes from the Greek ὄρχις (*órkhis*), literally meaning "testicle"
11- Germo HG. Sinnecker. Paeditrische Endokrinologie, 1993; (97):132-180.

12- American Academy of Pediatrics (AAP), Undescended Testes
13- Macleod`s. Clinical Examination 11th Ed. 2005; p. 385.
14- Belly & Lave`s. short Practice of Surgery. 26th Ed. 2013; p. 1290-1291.
15- Nightingale SS, Al-Shareef YR, Hutson JM. Mythical 'Tails of Lockwood'. ANZ Surg. 2008;78:999–1005.
16- Taxes pediatric surgery Association. surgery for infant and adolescents; (832):325-72-74
17- Journal of Endocrine Association, Surgery, 2008; (78):999-1005
18- Toppari J, Kaleva MV. Epidemology and Pathogenesis of cryptorchidism. Department of physiology and pediatrics. University of Ture Finland.
19- Scorer CG, family, GH. Congenital deformities of the testes and epedidymis. London, butter, 1971; 5- 102.
20- Chilvers G, et al. Apparent doubling of undescended testes in England and Wales in 1962 – 1981. Lancet, 1984; 2 (8398): 3302.
21- Al-Abbadi, SA. Genetal abnormalities and groin hernias in elemantry-schools in Aqaba, Jordan: an epidemiological study. Eastern Mediterranean Health Journal (WHO), 2000; 6(2):293 – 298.
22- Sumfesl, JM. Overview cryptorchidism, article 438378, 2 Jan 2009. emedicine. Com. meds cape .com.
23- Takett, LD, Patel SR. History of Cryptorchidism: lessons from the eighteenth century. Journal of Pediatrics Urology, 2007;(3): 426 -432.
24- Berkovitz GS, Lapinski RH, et al. Undescended testes prevalence. Pediatric Journal, 1993; 92:44 -49.