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Late Presentation of Bilateral Undescended Testicles: A Case Report

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ABSTRACT

Undescended testicle (UDT) is one of the most common congenital anomalies among children. UDT are at risk of torsion, trauma, and pathologic changes leading to subfertility and malignant transformation. Surgical treatment is recommended before 18 months of age. Late presentation of patients with UDT is a common occurrence. Here, we present a case of an 8-year-old boy with bilateral UDT. Due to late diagnosis, the development of the testicles was not completed. The right testicle was measured as 1.2x0.65x0.55 (0.31 cm^3) and the left testicle as 1.3x0.6x0.5 cm (0.28 cm^3) in ultrasonography. Untreated UDT can lead to potential long-term complications such as fertility issues, testicular cancer, testicular torsion, inguinal hernias, and psychological impacts. For this reason, we think that it is important to raise awareness and education of the general practitioners about personal testicular examination.

KEYWORDS: Pediatric patient, Undescended testicle, Orchiopexy, Cryptorchidism.

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INTRODUCTION

Cryptorchidism is defined as the failure of a testis to descend into a scrotal position. This condition may be caused by many reasons, such as an undescended testicle (UDT), a retractile testicle, an ectopic testicle, or testicular atrophy due to testicular torsion. Normal testicular descent relies on a complex interplay of numerous factors. Any deviation from the normal process can result in UDT. A true UDT has halted somewhere along the normal path of descent from the abdomen to the distal to the inguinal ring. UDT often manifests unilaterally, with a higher frequency of involvement observed in the right testicle. Approximately 3% of full-term and 45% of premature male infants are born with UDTs, necessitating a nuanced understanding among healthcare professionals.[1] Its incidence is closely related to the week of birth and the weight of birth. The incidence of UDT in male newborns weighing less than 1500 grams is up to 60-70%.[2] Although spontaneous testicular descent typically occurs within the first few months of life, approximately 1% of full-term male infants are still diagnosed with UDT at one year of age.[1]

For men the temperature of the testicle is about 5◦C lower than core body temperature.[3] The testicles, which are not located in the scrotum, are positioned in a warmer environment than they should be. Therefore, patients with UDTs lose the ability to produce sperm over time.[4] In patients with UDTs, the risk of testicular cancer and testicular torsion is increased compared to those with normally positioned testicles.[5] An empty scrotum could also cause psychological problems in later life. Orchiopexy is the standard intervention for congenital UDT, which is recommended within the age of 6–18 months.[5]

This paper is case of a patient with both empty scrotums, whose urogenital examination could not be performed since patient's birth due to the transportation difficulties of rural life and neglect. The differential diagnosis includes an ectopic testicle, retractile testicle, absent testis, and disorders of sexual differentiation. Written informed consent was obtained from the patient's legal guardians, who agreed to take part in the study.

CASE PRESENTATION

An 8-year-old male patient presented to our clinic requesting a circumcision. He had no comorbidities or surgical history. His vital signs were stable. His body weight was 23 kg (22 percentile for age on the World Health Organization (WHO) growth chart with a standard deviation (SD) score of -0.76), height was 122 cm (16 percentile for age on the WHO growth chart with a SD score of -0.99) and body mass index was 15.45. The scrotums were empty on physical examination (Figure 1). Bilateral testicles were palpated proximal to the inguinal canal. The testicles were noted to be small for the patient's age. Systemic examinations of patient were unremarkable except for UDTs. Blood tests revealed no pathology.

The parenchymal echogenicity of both testicles were homogeneous and normal on scrotal Doppler ultrasound. The right testicle was measured as 1.2x0.65x0.55 cm and the left testicle as 1.3x0.6x0.5 cm. According to the Lambert formula (formula of Lambert: L×W×H×0.71), the right testicle's volume was measured 0.31 cm^3 and the left testicle's volume was measured 0.28 cm^3. No epididymal pathology was detected.

Both testicles were found in the inguinal canal. Both testicles were close to normal in appearance and color, but they were soft (Figure 2). The left testicle was smaller than the right. Bilateral orchiopexy and circumcision was performed during surgery (Figure 3). The operation was completed without any complications. The patient was discharged on the first postoperative day due to transportation difficulties. The patient recovered uneventfully. A scrotal Doppler ultrasound was performed by a different radiologist for control purposes at the first postoperative month. The right testicle was measured 1.8x0.6x0.6 cm (0.46 cm^3), and the left testicle was measured 1.2x0.85x0.5 cm (0.36 cm^3). Both testicles had a homogeneous echocardiogram and normal blood flow. No complications were observed during the patient's postoperative 6-month follow-up.

DISCUSSION

Testicular atrophy is a medical condition in which one or both testicles diminish in size and may be accompanied by reduced testicular function. Four conditions closely associated with testicular atrophy in children are: cryptorchidism, mumps orchitis, varicocele and testicular torsion.[6] In adults, testicular atrophy can occur after the age of 40 due to reasons such as decreased testosterone levels, sexually transmitted infections, alcohol consumption, steroid use, and testicular cancer.[7,8] Also COVID-19, which has been seen in recent years, can lead to decreased testosterone production and testicular abnormalities.[9] Measurement of testicular volume in children is used to assess the beginning of puberty or pubertal development. The average testicular volume of a baby at nine months of age is 0.31 cm^3.[10] Although our patient was 8 years old, the measured

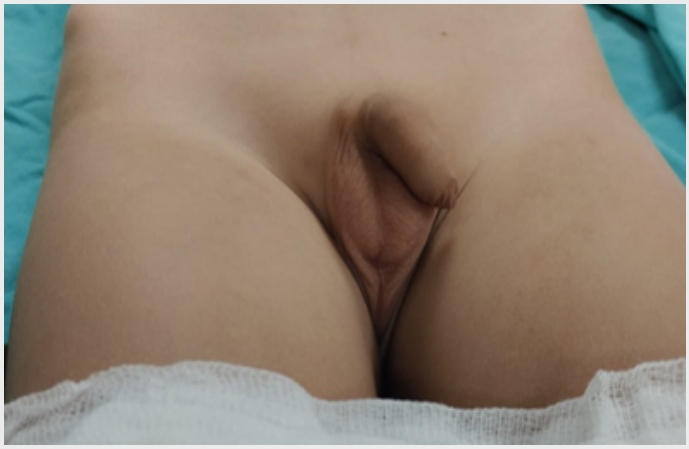

Figure 1. Physical examination revealed the empty scrotum.

Figure 2. Intraoperative appearance of the right testicle.

Figure 3. Postoperative photography of the patient.

testicular volume was at these levels. The average testicular volume in children aged between 7 and 9 was measured as 1.54-1.66 cm^3 in a study conducted in Iran, and 0.77-0.9 cm^3 in a study conducted in China.[10,11] When compared with pediatric patients of the same age group, our patient's testicles were found to be smaller than his peers. Testicular atrophy typically occurs when the testicle does not move into the correct position, by which time surgery is needed.

One of the most common congenital anomalies of the testicle in boys is UDT. The incidence of UDT is higher in conditions such as prune-belly syndrome, gastroschisis, bladder exstrophy, Prader-Willi, Kallman, Noonan, testicular dysgenesis, and androgen insensitivity syndromes. In our country, the prevalence of UDT in school age children was reported as 0.9%.[12] UDT is diagnosed through physical examination. A nonpalpable testicle is most often located within the inguinal canal. Ultrasonography is very useful because it visualizes the testicle within the inguinal canal and provides information about its size and blood flow. Since ultrasound is insufficient in visualizing intra-abdominal or pelvic testicles, MRI is preferred in cases of nonpalpable testicles.[1] Lack of physical examination of genitalia during infancy and development, and inadequate education of parents about the condition, delay the diagnosis of UDT. When the diagnosis of UDT is delayed, testicular development may be delayed, as in our case. According to the literature testicular torsion is more common in patients diagnosed with late UDT than in those with normally positioned testicles. There are patients with UDTs who underwent orchiectomy due to testicular torsion.[5,13] Furthermore, if left untreated, UDTs can cause pathological changes that can lead to infertility and malignant transformation. Therefore, it is crucial that therapy be administered and at the appropriate time.[14]

Surgical exploration should be performed to identify the position of the testis, to bring the testis into the scrotum if possible, and to excise the remnant of the testis if there is a black or hemorrhagic-appearing testicle. According to the literature, the current standard of treatment in UDT is orchiopexy.[15] Orchiopexy can be performed either open or laparoscopically.[16] In open surgery, a tunnel is created from the inguinal canal to the scrotum using a finger. An incision is made in the scrotum to create the subdartos pouch. The released testicle is then passed through this tunnel and placed into the dartos pouch. Laparoscopic exploration is the preferred approach for nonpalpable testicles. Although the testicle size was small in our patient, bilateral orchiopexy was performed because the testicle's color, appearance, and blood flow were close to normal. According to the literature, it has revealed high testicular growth after treatment of UDT with early orchiopexy.[16] Ideally, orchiopexy should be performed before 18 months of age.[15] In our case, the patient's age at diagnosis and treatment was higher than recommended by international guidelines. However, the presence of testicular blood flow on postoperative ultrasound suggested that the testicles may continue to develop.[17]

CONCLUSION

To avoid delays in the surgical treatment of UDT, regular genital examinations are essential. It is thought that this case report will raise awareness, especially for general practitioners, to understand the importance of early detection of UDT and no delay in treatment. It is also important for parents to be informed about this issue.

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CONFLICT OF INTEREST

No conflict of interest declared.

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