



Case report

The clinical dilemma for acute scrotum in paediatrics: A rare etiology

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ABSTRACT

The acute scrotum is a clinical scenario and it is considered as a paediatric urological emergency with acute onset of pain and swelling of the scrotum with its contents. It is quite challenging for the clinician to make a precise differential diagnosis because it has various etiologies, overlapping clinical presentations and the extreme tenderness over the area that makes clinical examination difficult. Torsion of the testis is a surgical emergency condition with prevalence of acute scrotal disease in the paediatric population that occurs due to twisting the spermatic cord. This case provides a clue to clinician for managing with the unique situation of parasitic disease as an acute scrotum.

1. Introduction

The acute scrotum is a clinical scenario and it is considered as a paediatric urological emergency with acute onset of pain and swelling of the scrotum with its contents. It is quite challenging for the clinician to make a precise differential diagnosis because it has various etiologies, overlapping clinical presentations and the extreme tenderness over the area that makes clinical examination difficult [1]. Torsion of the testis is a surgical emergency condition with a prevalence of 10–15 % [2] of acute scrotal disease in the paediatric population that occurs due to twisting the spermatic cord. Other than the torsion of the testis, the acute scrotum can commonly be caused by torsion of the rudimentary vestigial appendages of the testicle or epididymis, epididymitis, and trauma to the scrotum [3]. Also it occurs rarely due to idiopathic scrotal oedema, strangulated inguinal hernia, testicular tumors, Henoch-Schonlein purpura lymphoma and leukemia [4]. However, delaying for treatment to torsion of testis within a four- to eight-hour period that it could possible lead to permanent ischemic damage of testis. Also this may be associated with subfertility or leads to require orchiectomy in some cases [1]. A developing country like Sri Lanka still has a high prevalence of helminth infestations in the paediatric age group because in Sri Lanka filarial has a quite high possibility [5]. This case provides a clue to clinician for managing with the unique situation of parasitic disease as an acute scrotum. The work has been reported in line with the SCARE 2020 criteria [6] and written informed consent was obtained from the guardian of the child.

2. Clinical presentation

A four-year-old child was presented to the hospital with the complained of severe pain and swelling on his right hemi-scrotum for one day and also had a mild fever (99°). He had neither a recent history of trauma nor traveled history to other countries. He has a contact history with dogs and cats. Physical examination revealed a tender, right scrotal subcutaneous mass with a firm consistency. Overlying scrotal skin was normal. Laboratory analyses show eosinophilia. An ultrasound scan of the right scrotum aims to exclude the torsion of the testis and demonstrates the testis's vascularity and another lump close to the right side with surrounding inflammation. The radiologist noticed a liquified material inside that lump. Surgical exploration of the scrotum is done under general anesthesia due to severe pain and swelling to remove the symptomatic lesion. During the surgical exploration, the right side testis was normal, and the adjacent scrotal mass was 3 × 3 cm in size and completely removed without damage to the testis (Fig. 1). Further dissection of the specimen revealed the presence of the live worm measuring approximately 12 cm in length, confirming the diagnosis of Parasitic Granuloma (Fig. 2). Postoperative anthelmintic therapy was not considered necessary in this case, and the child has discharged the same day evening. Complete recovery of the child was observed after surgical removal of parasitic granuloma.

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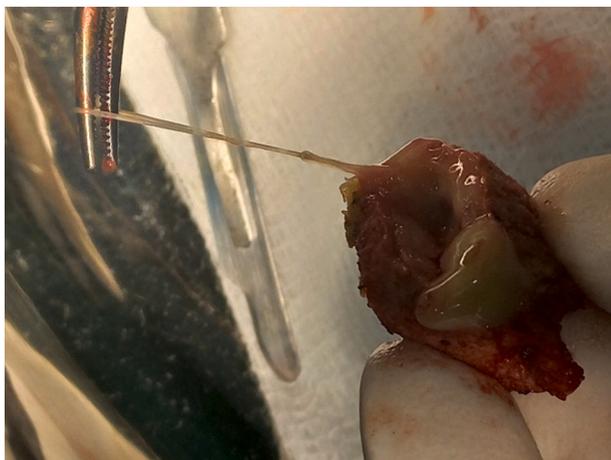


Fig. 1. Live worm extracted from the lesion.

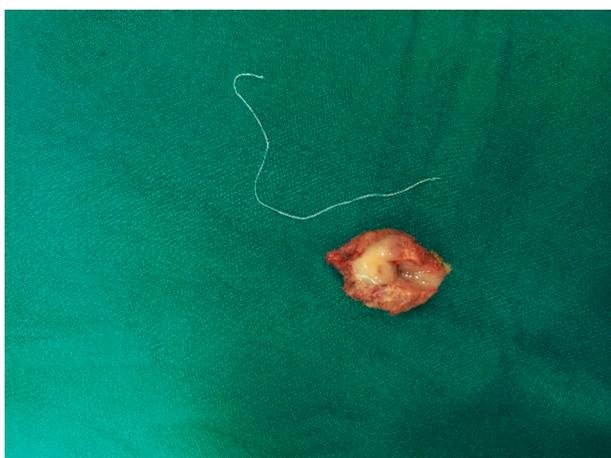


Fig. 2. Worm and the inflammatory lesion.

3. Discussion

Dirofilariasis is an emerging vector-borne zoonotic parasitic infection caused by filarial nematodes belonging to the genus *Dirofilaria* [7]. It has been widely reported by European countries such as Italy, France, Greece, and Spain. In Asia, Sri Lanka is an endemic country with a prevalence ranging between 30% and 60% in a dog population [8]. In Sri Lanka, the human dirofilariasis infestation is reported in all age groups, where over one-third of cases have been reported in children under the age of 10 years [9]. *Dirofilaria (Nochtiella) repens* and *Dirofilaria immitis* are the two species which commonly cause human dirofilariasis [10]. The definitive hosts and reservoirs of these parasites are mainly the domestic dogs and to some extent, cats and other carnivores. Humans are accidental dead-end hosts [11]. Adult female *Culex*, *Aedes*, *Armigeres*, and *Anopheles* mosquitoes are the arthropod vectors for this parasite, which take up the microfilaria while feeding the blood of an infected host [11,12]. Microfilaria develops into the third stage larva (L3) in mosquitoes and the transmission takes place when an infected mosquito bites dog or other hosts including humans during a subsequent blood meal [11,12]. The worms of the *Dirofilaria repens* are elongated thin worms with a length of female worms usually 100-170 mm and the male worms are usually 50-70 mm in length [13]. Though *Dirofilaria immitis*, which causes human pulmonary dirofilariasis was not reported in Sri Lanka yet, the most common clinical presentations of *Dirofilaria repens* are asymptomatic infections, subcutaneous nodules, ocular nodules, and allergic dermatitis [6]. It is seldom reported that *D.*

repens can cause meningoencephalitis and aphasia and acute abdominal and peritonitis [7,11].

The subcutaneous nodule grows slowly over the weeks to months and the commonly involved sites are the face, orbits, upper limb, lower limb, chest wall, abdomen, and scrotum. There are no standard laboratory investigations available for the diagnosis of human dirofilariasis [6]. As the peripheral eosinophil is observed in only 20% of cases, eosinophilia and elevated IgE levels are dependent on the host's immune response and these findings are quite common in other parasitic infections, the diagnosis based on these findings is inconsistent [6,14,15]. The diagnosis of human dirofilariasis is mainly based on high clinical suspicion and Enzyme-linked immunosorbent assay (ELISA) for antibody response to *D. repens* antigen can be used as an adjuvant test in endemic areas [6]. As humans are the accidental dead-end host, the worm is unable to reach maturity inside the human body therefore, antihelmintic treatment is not effective [6,15]. The surgical exploration of worm granuloma and isolation of the worm is the treatment of choice and it also helps to diagnose the dirofilariasis based on the morphological features of the parasite [14,16]. A cause of ivermectin and Diethylcarbamazine can be given in the presence of deeply situated parasitic granulomas which are difficult to explore by surgery or in endemic areas [6]. Acute scrotum in the paediatric age group is a surgical emergency though several conditions lead to the acute scrotum torsion of the testis the most common cause. Though few cases of dirofilariasis have been reported in Sri Lanka [17], this case remains a rare case describing the *Dirofilaria* parasite in the 4-year-old child's scrotum and induces an inflammatory reaction that mimics an acute scrotum.

4. Conclusion

Thus this condition should be kept in mind by all paediatric surgeons because the acute scrotum caused by dirofilariasis poses the problem of a differential diagnosis with torsion of testis and can also simulate a surgical emergency.

Ethical approval

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Author contribution

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Data collection - Sayanthan B.
Manuscript writing - Vaishnavi S.

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N/A.

Guarantor

Dr. B. Sayanthan, Corresponding author.

Consent

Informed written informed consent was obtained from the guardian of the child for publication of this case report and accompanying images. A copy of the written consent has been sent for review by the Editor-in-Chief of this journal.

Declaration of competing interest

None.

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