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Bilateral Mesothelial Cyst of the Spermatic Cord in a Child

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1. Abstract

Mesothelial cysts are rare benign lesions formed by mesothelial cells that line the serosal surfaces of many organs in the body. They are commonly seen in adults, and their most common location is the peritoneum and less commonly in the pleura. Mesothelial cysts are rare in children and extra abdominal and extra pleural mesothelial cysts are extremely rare. Mesothelial cysts of the spermatic cord are exceedingly rare. These cysts usually appear as painless swelling in the inguinal or scrotal area and often remain asymptomatic. Pre-operative diagnosis is challenging, and definitive diagnosis often requires histopathological examination following surgical excision. Here, we describe an 8-year-old male child who presented with bilateral cystic scrotal swellings. Preoperative radiological diagnosis was bilateral epididymal cysts. Intraoperatively, he was found to have bilateral spermatic cysts and histopathology of the excised cysts was consistent with mesothelial cyst. The clinical features, investigations and management are discussed.

2. Introduction

Mesothelial cysts are uncommon benign lesions formed by mesothelial cells that line the serosal surfaces of many organs [1]. It is commonly found in the peritoneum and less commonly in the pleura [2]. Mesothelial cysts of the spermatic cord are rare, benign lesions arising from the peritoneal mesothelial lining. They typically present as slow-growing, painless inguinal or scrotal swelling and commonly mistaken for inguinal hernias or hydroceles [3-6]. They are usually diagnosed in adults, most common in men > 40 years old and rarely in children [7]. We present a case of bilateral mesothelial cysts of the spermatic cord in a child. Aspects of diagnosis and treatment are also discussed.

3. Case Report

An 8-year-old male was referred to our hospital with bilateral scrotal swellings. The swellings started suddenly three months prior to presentation and were small to start with but increased gradually. The right one was larger than the left one (Figure 1). He was also complaining of discomfort and mild pain on the right side. Clinically, he was found to have bilateral scrotal swellings. The right selling is larger than the left. Transillumination was positive on both sides, and the right one was tense and slightly tender. Both testes were palpable and separate from the swellings.

Scrotal ultrasound showed both testes with a normal homogenous appearance and in their normal position and no intratesticular masses were detected. Two extratesticular cystic lesions were noted on the right side and left side (Figure 2). The right cystic swelling measures around 5x2 cm and the left one measures 2.5x1 cm and both show clear fluid content. Color Doppler imaging demonstrates symmetric normal blood flow through both testes and normal pulsed Doppler arterial waveforms were obtained from each testis. Both epididymides were normal without evidence of focal masses or hyperemia on Doppler imaging. The diagnosis of bilateral epididymal cysts was made.

MRI studies showed bilateral extratesticular cysts most likely involving the epididymal head and extends to the neck of the scrotum (Figures 3A, 3B and 3C). They showed low signal inT1 and clear high signal in T2W1. The right one measures 33x28x27 mm and the left one measures 30x25x24 mm. Both testes were seen within the scrotal sac being of average size for age and normal shape with no evidence of masses or collection. The conclusion was bilateral extratesicular cysts most likely epididymal cysts.

He was operated on through bilateral transverse scrotal incisions. He was found to have a large cystic swelling on the right side which was overlying the structures of the spermatic cord but separate from the testis and epididymis (Figure 4A and 4B). The swelling was dissected using sharp and blunt dissection. The swelling was adherent to structures of the spermatic cord and was excised except a small strip which was adherent to the vas and vessels and its excision will damage these structures. The excised specimen was sent for histology and the edges of the left strip of the cyst were sutured to the adjacent tissues to avoid recurrence. On the left side there was a smaller cystic swelling which was overlying the structures of the spermatic cord and separate from the testis and epididymis (Figures 5A, 5B and 5C). The cyst was dissected and excised completely and sent for histopathology.

Postoperatively, the patient did well and was discharged home 4 hours later. On follow-up in the clinic for 2 weeks and three months following surgery he was well with no recurrence.

Histopathology of the resected cysts showed fibromuscular cystic wall lined by a benign mesothelial lining focally hyperplastic and negative of malignancy compatible with mesothelial cysts.

Figure 1: A clinical photograph of an 8-year-old child with bilateral scrotal swellings. The right side is larger than the left.

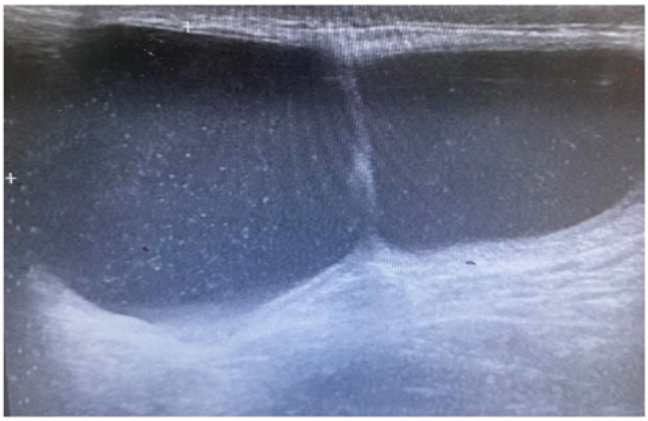
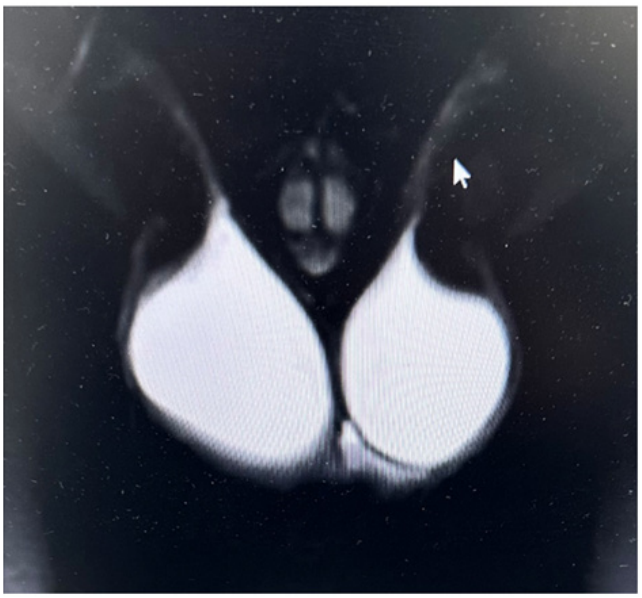
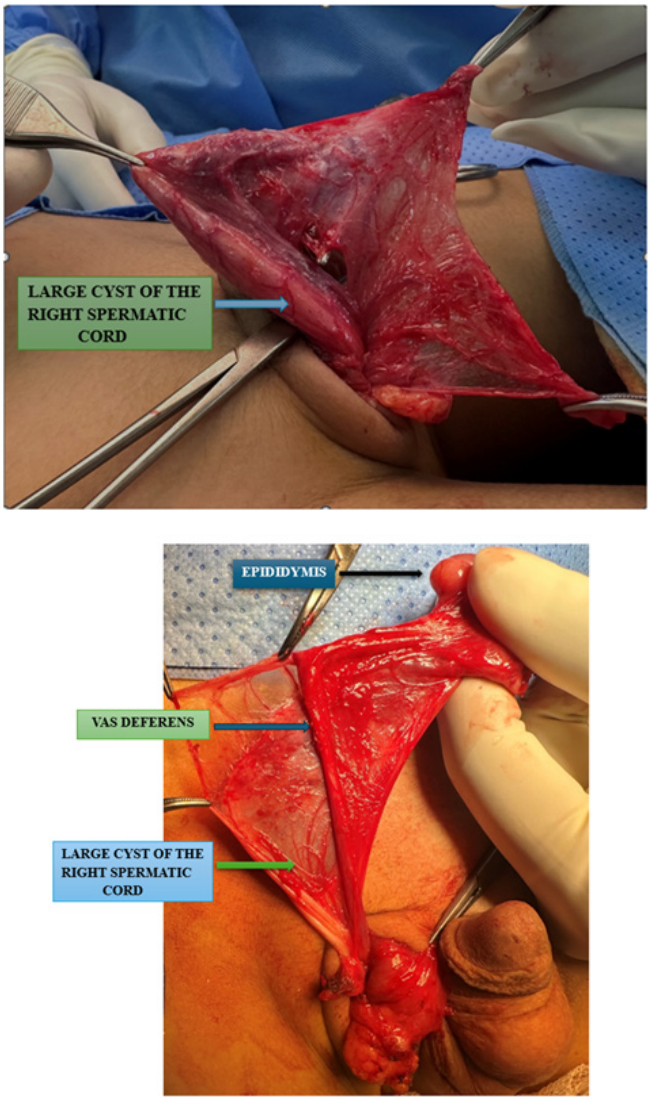


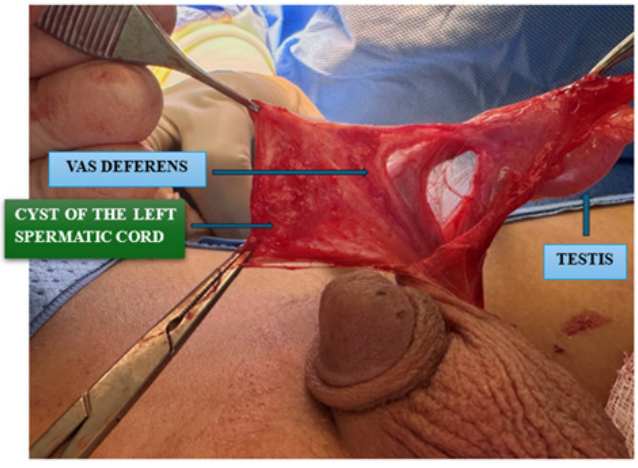
Figure 2: Scrotal ultrasound showing bilateral scrotal cystic swellings. The right cyst is larger than the left.

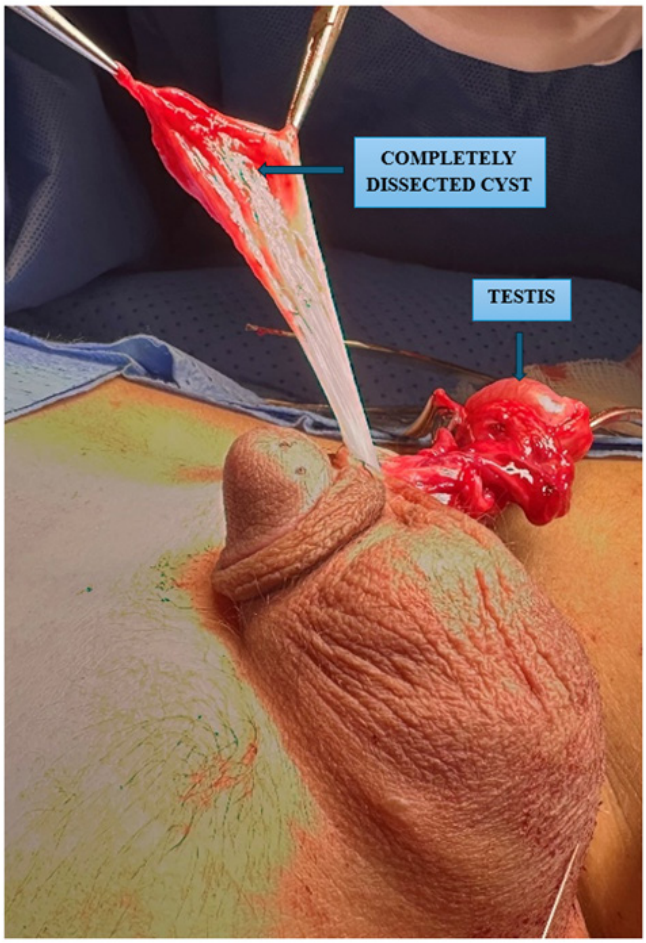


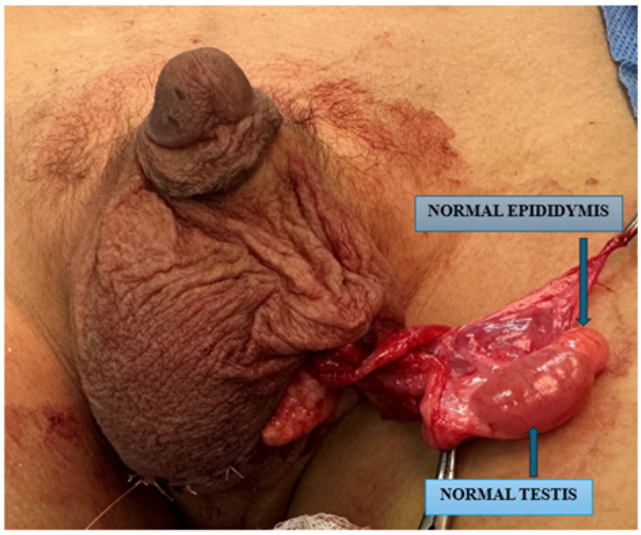
Figures 3A, 3B and 3C: MRI of the pelvis and scrotum showing bilateral scrotal cysts. The cyst on the right side is larger than the left one.



Figures 4A and 4B: Clinical intraoperative photographs showing a large cyst of the right spermatic cord. The swelling was separate from the testis and epididymis.







Figures 5A, 5B and 5C: Clinical intraoperative photographs showing a left cyst of the spermatic cord. The swelling was dissected and completely excised. Note the normal testis and epididymis which were separate from the excised cyst.

4. Discussion

Mesothelial cysts are congenital, benign lesions that can develop in any serous membrane covering a body cavity. Mesothelial cysts are rare and more commonly found in the peritoneal cavity and less commonly in the pleura and rarely in other sites such as in the spermatic cord or pretesticular region [1,2]. The mesothelial cysts of the spermatic cord are benign lesions that develop slowly and originate from the mesothelial cells lining the peritoneum [1,2,7]. Mesothelial cysts of the spermatic cord and pretesticular region are extremely rare. These cysts are most common in men > 40 years old. Mesothelial cysts of the spermatic cord are extremely rare in children, and only few cases reported in the literature. These cysts are often present as painless inguinal or scrotal swellings [3-6].

Mesothelial cysts are difficult to diagnose preoperatively and commonly confused with other similar and more common cystic diseases of the spermatic cord, such as epididymal cysts, spermatoceles, and hydroceles [2]. Accurate pre-operative diagnosis is challenging, and definitive diagnosis often requires histopathological examination following surgical excision [3,4]. Our patient was diagnosed preoperatively as epididymal cysts but intraoperatively both cysts were not arising from the epididymis.

Mesothelial cysts of the spermatic cord although rare should be included in the differential diagnosis of the more common groin and scrotal swellings such as inguinal hernia, hydrocele, spermatocele, undescended testes, spermatic cord cyst, lymphangioma and lymphadenopathy.

Mesothelial cysts of the spermatic cord are exceedingly rare in children. These cysts usually appear as painless lumps in the inguinal or scrotal area and often remain asymptomatic. These cysts can be difficult to diagnose both clinically and radiologically since they seem similar to other cystic diseases of the spermatic cord, such as epididymal cysts, spermatoceles, and hydroceles [3,4]. Accurate pre-operative diagnosis is challenging, and definitive diagnosis often requires histopathological examination following surgical excision.

Mesothelial cysts of the spermatic cord are typically located within the pretesticular tissues and can vary in size from a few millimetres to several centimetres. Clinically, patients often present with painless scrotal swelling, like other more common cystic lesions of the scrotum such as epididymal cyst, encysted hydroceles, or spermatoceles. It can occur in any age group but is mostly seen in patients above 40 years of age. In certain instances, a mesothelial cyst of the spermatic cord can be also misdiagnosed with undescended testis, inguinal hernia, or an inguinal mass 4,5,6,8,9,10].

The exact ethology of mesothelial cysts of the spermatic cord is not well known. Multiple theories have been proposed to explain the pathogenesis of mesothelial cysts of the spermatic cord. It was postulated that defective obliteration of the process vaginalis leads to the formation of a mesothelial cyst of the spermatic cord [8-10]. Others suggested inclusion of embryonic remnants forming a cyst during the development process. The third theory suggests the de novo development of these cysts from the lining of the inguinal canal. The most accepted theory is that these mesothelial cysts arise from mesothelial remnants or embryonic remnants that fail to involute during embryonic development.

Mesothelial cysts are commonly found within the pretesticular tissues and can vary in size from a few millimetres to several centimetres. There are however reports of mesothelial cysts found in the inguinal region or along the course of the spermatic cord [3,4,9]. Clinically, patients with mesothelial cysts of the spermatic cord often present with painless scrotal swelling, like other more common cystic lesions of the scrotum such as epididymal cyst, encysted hydroceles of the cord, or spermatoceles. There are also reports of mesothelial cysts of the cord misdiagnosed as inguinal hernia [3,5]. In certain instances, a mesothelial cyst of the spermatic cord can also be misdiagnosed with undescended testis, inguinal hernia, or an inguinal mass [3,4,5,6,9].

Mesothelial cysts of the spermatic cord and because of their vague clinical picture make preoperative diagnosis difficult and even imaging techniques such as ultrasonography, computed tomography (CT), or magnetic resonance imaging (MRI) cannot accurately diagnose mesothelial cysts of the spermatic cord. Radiological investigations are useful preoperatively as they can give accurate information regarding the size, location, and cystic nature of the lesion but not uncommonly the preoperative diagnosis is that of a more common cystic lesion such as epididymal cyst, spermatocele and encysted hydrocele of the cord. The final diagnosis of these cysts depends on histological evaluation following surgical excision [9,10,11].

The treatment of mesothelial cysts of the spermatic cord is surgical excision. This is specially so for symptomatic or growing cysts. Complete surgical excision not only provides a definitive diagnosis but also ensures the complete removal of the cyst and usually prevents recurrence. During surgical excision it is important to avoid injury to the vessels and vas deference as the cyst can be adherent to these structures as in our patient. In our patient on the right side the posterior wall of the cyst was adherent to the vas and vessels and avoid injury to these structures, we advocate leaving a posterior strip of the cyst wall and suturing its edges to the adjacent tissue will prevent recurrence. The cyst on the left side was excised completely. Histologically, mesothelial cysts of the spermatic cord are characterized by a cystic structure lined by a single layer of mesothelial cells. The cyst wall consists of fibrous tissue, and the cystic contents are usually clear serous fluid [11,12].

In conclusion, mesothelial cysts of the spermatic cord are exceedingly rare in children and should be included in the differential diagnosis of the more common cystic lesion such as epididymal cyst, spermatocele and encysted hydrocele of the cord. Accurate pre-operative diagnosis is challenging, and definitive diagnosis often requires histopathological examination following surgical excision.

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