

## Case Report

### Corresponding author

Andreas M. Fette, MD

Professor

Libyan-German Hospital

Benghazi, Libya

E-mail: [andreas.fette@gmx.de](mailto:andreas.fette@gmx.de)

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## Giant Scrotal Hernia in a Tiny Male Infant

Andreas M. Fette\*

Libyan-German Hospital, Benghazi, Libya

### ABSTRACT

Inguinal hernia is a common diagnosis in children. A real scrotal hernia is less common and underreported in medical textbooks. In this case a tiny Libyan boy was admitted with a big swelling of the left groin and hemiscrotum. His clinical findings have been mistaken for a longer time, until the definitive diagnosis has been made. During surgery a giant real scrotal hernia has been dissected and successfully repaired. All specific findings in this special case of infant scrotal hernia are discussed in front of a literature review.

**KEYWORDS:** Scrotal hernia; Infants.

### INTRODUCTION

Inguinal hernia is one of the most common finding and subsequent reason for surgery in infants and children. Approximately 60% of inguinal hernias are located on the right, 25% on the left side, and 15% are found bilateral. Inguinal hernia is predominant in boys over girls (80:20).<sup>1,2</sup>

The diagnosis of a scrotal hernia instead is less common. Therefore, reports on definite scrotal hernias in children are found only sparsely in medical textbooks and literature reviews. By definition, a scrotal hernia is characterized by a large indirect hernia running through both, the internal and external inguinal rings, carrying the contents of the hernia sac deeply into the scrotum.<sup>2</sup>

Besides inguinal hernia, strangulated or not, a hydrocele, an incarcerated ovary, a varicocele, or inflammatory and neoplastic groin and scrotal masses, and last but not least the whole entity “acute scrotum” have to be considered in order to find the final diagnosis.<sup>1,2</sup>

In this brief case report a tiny boy suffering from a giant scrotal hernia is presented, and his diagnosis discussed in front of the current literature available at hand.

### CASE PRESENTATION

A Libyan mother presented her 1½ year old son with a giant swelling of his scrotum. The swelling of the left scrotum was constantly increasing since birth. Otherwise the boy was healthy and showed a regular development. However, because of this “giant mass” he was unable to walk freely.

During clinical examination a giant, soft, non-tender, but easily reducible swelling in the left groin and hemiscrotum could be detected (Figure 1). Both testicles, epididymes and spermatic cords were easy palpable, painless, with no signs of inflammation. No enlarged lymph nodes were detectable in the groin. Regular male genitalia, no signs of a varicocele. Diaphanoscopic illumination of the scrotum for hydrocele testing was negative. A wide open inguinal ring was present. The protruding hernia sac was filled with

bowel, that could be easily reduced from the scrotum back into the abdomen (Figure 2).



**Figure 1:** Giant scrotal hernia on the left side.



**Figure 2:** Giant scrotal hernia reduced back through the inguinal canal into the abdominal cavity. scrotal hernia on the left side.

The ultrasound scan of the scrotum and groin revealed no hydrocele or varicocele formation. No echogenic irregularities on the testis or testicular appendages become visible. No scrotal edema. During dynamic examination a small bowel loop with regular peristalsis could be detected, running straight through the inguinal canal. No enlarged lymph nodes could be visualized further up in the groin. No free fluid or air in the lower abdomen was visible. After voiding the urinary bladder was empty.

A few days later elective open surgery was performed *via* the left inguinal approach. After splitting the external oblique aponeurosis, the thickened and huge hernia sac was protruding immediately out of the inguinal canal. The roof of the sac was incised and a 1m (!) long small bowel loop was reduced slowly back from the bottom of the scrotum back into the abdominal cavity. Following the spermatic cord, the entire scrotal part of the hernia sac, the testes, together with the edematous scrotal coverings were brought smoothly back into the incision site (Figure 3). After that, the entire sac was carefully dissect

ed step-by-step from the spermatic cord and the inner scrotal wall under meticulous bipolar coagulation. The base of the sac was twisted at the level of the abdominal transversus muscle, closed by a pursestring suture, than resected, before the base was fixed in Bastianelli-technique to the inner abdominal oblique muscle. The small left testis was brought back into the scrotum and fixed by its gubernaculum after checking for a Morgagni hydatide. Finally, the surgical site was closed according to Grob with fine absorbable sutures.



**Figure 3:** Entire hernia sac brought into the incision site.

The postoperative course was uneventful. The boy was discharged the following day with a moderate swelling. At 1 week follow-up no signs of infection were noticed, and the swelling has had markedly decreased. Shortly after, the boy started to stand and tried to walk freely.

## DISCUSSION

Acute painful scrotal swelling in children and infants is a common entity that requires prompt, accurate and appropriate therapy. The etiologies of these symptoms can range from benign self-limited conditions to more serious organ threatening problems like testicular torsion,<sup>3,4</sup> or torsion respectively strangulation of the hernia sac.<sup>3-7</sup> In these cases usually urgent surgical intervention is necessary.<sup>1-7</sup>

In this case the swelling was chronic and always pain-free, but progressive over the time. Maybe the civil war setting forced his caregivers to take it less seriously under such circumstances.

Since they are placing a considerable economic burden on their countries' health care budgets, a larger number of papers on "hernia in combination with groin and scrotal diseases" in adults and children do exist. While, when searching the common medical literature and textbooks specifically for the term "scrotal hernia", only sparse information will be found.<sup>8-10</sup> And, usually these authors refer much more to the "inguino-scrotal" hernia" or the "acute scro

tum” entity, than to the well defined “scrotal” hernia as already mentioned in the previous paragraphs.<sup>1-2</sup>

Nevertheless, strangulated inguino-scrotal hernias are a clinical entity, that must be included in the differential diagnosis of a “real” scrotal hernia. Here, Eriki et al. presented a series of patients with an average age of 1.9 years (range 22 days - 10 years), with half of their patients presenting as soon as in the newborn period. In the majority of cases the hernias were right - sided.<sup>4</sup> Several other authors presented cases of indirect hernia sac torsions,<sup>3,5,6,7,11</sup> with their results being comparable to Eriki et al’ s findings. Khozeimeh et al. presented an extraordinary case of a newborn with giant bilateral inguinal hernias complicated by in utero perforation and meconium peritonitis.<sup>12</sup> Authors from Brazil, finally, reported a case of a child with a ventriculo-peritoneal shunt, where the tip migrated into the scrotum mimicking a scrotal hernia.<sup>13</sup> Indian authors, indeed, reported a case where a huge anterior urethral diverticulum was presenting as an inguino-scrotal swelling.<sup>14</sup>

Thus, to the best of our knowledge we did not find any comparable cases of true, well defined scrotal hernia with this search strategy in our literature review. We are unsure, why the scrotal hernia is of less interest in the pediatric surgical community. For sure, every pediatric surgeon can handle any kind of hernia, but it should not be forgotten that giant scrotal hernia can pose a considerable challenge on the less experienced one.

Based on history and physical examination, and with the selective use of ultrasonography, inguinal hernias, all types of hydrocele, and scrotal masses can be differentiated in almost all cases. Especially, ultrasound is well suited for the study of all pathological conditions of the scrotum in children. Because, ultrasonography provides excellent anatomic details, dynamic mode, is bed-side available, cheap and lacking of irradiation harms.<sup>15,16</sup> Like in our case, where bed-side US scans visualized the small bowel loop within the semi-scrotum and confirmed the final diagnosis.

In medical textbooks usually two inguinal rings are defined: internal and external. Several authors introduced a third one, the “secondary internal ring”, located more deep to the classical internal one. Respectively a fourth one, named the “secondary external ring”. Embryologically, this ring may be formed by evagination of the Scarpa fascia during testicular descent. Its anatomic position is 2cm below the pubic tubercle. It is formed by Scarpa fascia that covers the spermatic cord anteriorly. Medial and lateral fascial reflections delineate the ring and form the spermatic cord canal. The cord is attached to the posterior wall of the canal, and the canal ends at the entrance of the scrotum, where Colles` fascia fuses with the coverings of the cord. Surgically, an inguino-scrotal hernia passes (in addition) through this secondary external ring and obtains an extra outer layer by entering the spermatic cord canal. Underdevelopment of this ring may lead to incomplete testicular descent or

ectopic testis.<sup>17</sup>

The huge hernia sac and the extremely wide “classical” rings and inguinal canal found and dissected in this case might have been representatives of such a second external ring and/or spermatic cord canal. However, since only a surgical and not a histological dissection has been performed this question will be left unanswered.

Mirilas et al. recommend to reconstruct the Scarpa`s ring after all orchidopexies and herniotomies in children, while Okoro et al. found no demonstratable advantage or disadvantage in closing the spermatic fascia after every herniotomy in children. Therefore, the decision to close or not to close should be at the discretion of the individual surgeon.<sup>17,18</sup>

In this case, the spermatic fascia was closed after tailoring by the intention to prevent seroma formation better.

## CONCLUSION

Since there is only scant information about scrotal hernias in infants and children available in medical literature and textbooks, their management might be challenging especially for the junior pediatric surgeon on call.

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