Appendicitis within an umbilical hernia sac: previously unreported complication in children

Umbilikal fitık kesesi içinde apandisit:
Çocuklarda daha önce bildirilmemiş bir komplikasyon

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Umbilical hernia is one of the most common congenital pathologies of the anterior abdominal wall in children. Umbilical hernia in children has a high tendency for spontaneous closure. Surgical treatment is performed only for rarely occurring complications. Appendicitis within an umbilical hernia sac is a previously unreported complication for umbilical hernias. We report here the first case in the current English language literature.

**Key Words:** Appendicitis; children; complications; hernia, umbilical/surgery; infant.


**Anahtar Sözcükler:** Apandisit çocuk komplikasyon umbilikal fitik/cerrahi; yeniidoğan.

CASE REPORT

A 25-day-old male infant was operated because of bilateral inguinal hernia and taken under follow-up for an umbilical hernia with an internal diameter of 1.5 cm. On the 25th day of the follow-up, he presented to our clinic with fever and bilious vomiting. On physical examination, there was abdominal distention, erythematic area around the umbilicus and a palpable but not reducible soft tissue mass within the umbilical defect. He underwent emergency operation with the provisional diagnosis of strangulation. In the operation, appendicitis in the umbilical hernia sac was detected (Fig. 1). Appendectomy and primary closure of the umbilical defect were performed. The postoperative period was uneventful.
DISCUSSION

Although surgical treatment for umbilical hernias may be performed for hernias of more than 2 cm in diameter, which have not closed spontaneously by 4 years of age and cause parental anxiety, the only real surgical indication for umbilical hernias are incarceration and strangulation. On the other hand, the 6% mortality reported by Haller for the emergent surgical operations of umbilical hernias in adults suggests seriously determining the relative indications for children. The postoperative period in our case was uneventful and no morbidity occurred during the follow-up.

Incarceration and strangulation generally occur in infants less than 6 months of age and in medium-sized defects according to Lassaletta classification (Table 1), with an incidence of 0.07-0.3%. Small intestines, especially the terminal ileum, are the most often involved contents within the hernia sac, but cecum, appendix and ascending colon may also be involved. Omentum is thought to be the incarcerated organ in patients with recurrent abdominal pain. Ascites, bezoars, undigested food, foreign bodies, Ascaris lumbricoides, obesity and invagination are all reported causes of incarceration and strangulation. The two-month-old boy reported here is the first patient who presented with appendicitis in a medium-sized umbilical hernia sac caused due to incarceration of the appendix, cecum and the terminal ileum.

Appendicitis within other hernia sacs is not a rare entity and has been termed as Amyand’s hernia for inguinal hernias and De Garengeot hernia for femoral hernias. The reported incidence of appendicitis within the hernia sac is 1.6% for adults, but there is no such incidence for children. To the best of our knowledge, there is no case of appendicitis within the umbilical hernia sac in the current English language literature.

The possible hypothesis of why appendicitis occurs within the hernia sac is ischemia caused by the compression at the neck of the sac and recurrent trauma causing adhesions, inflammation and bacterial overgrowth. Since the patient was under follow-up when the event occurred acutely, the first hypothesis seems more feasible for this case.

In view of this previously unreported complication of umbilical hernia in a child, it should be kept in mind that the strangulated abdominal content might be the appendix.

REFERENCES


Table 1. Lassaletta classification for umbilical hernias

<table>
<thead>
<tr>
<th>Diameter of fascial defect</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.5 cm</td>
<td>Small</td>
</tr>
<tr>
<td>0.5-1.5 cm</td>
<td>Medium</td>
</tr>
<tr>
<td>&gt;1.5 cm</td>
<td>Large</td>
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</tbody>
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Fig. 1. Intraoperative view of appendicitis within the umbilical defect.