CASE REPORT

Appendicular Perforation in a Neonate Masquerading as Testicular Torsion

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Background: Neonatal appendicitis is difficult to diagnose, and is associated with high mortality. **Case characteristics**: A preterm (33 wk) neonate developed abdominal distension feeding intolerance and erythema of left inguinal region on day 4 of life. **Observation**: Testicular torsion was suspected but inguinal exploration revealed normal testis with feco-purulent fluid draining into processus vaginalis from peritoneal cavity. Laparotomy revealed inflamed and perforated appendix. Appendectomy and intravenous antibiotics led to a recovery. **Message**: Appendicitis in a neonate can rarely present with inguinal symptoms, masquerading as testicular torsion.

Keywords: *Appendicitis, Neonate, Laparotomy, Surgery*.

Appendicitis in the neonatal period is rare. Its diagnosis is difficult with most cases being diagnosed only during postmortem examination. The rarity of the disease and the delay in diagnosis are largely responsible for the high mortality. We report an unusual presentation of appendicitis with inguinal symptoms in a neonate.

CASE REPORT

A preterm (33 wk) male child born to a primigravida mother by vaginal delivery developed feed intolerance in the form of abdominal distension and vomiting on day 4 of life. Baby had passed meconium within 24 hours of birth and was apparently normal for the first 3 days, accepting and tolerating *paladai* feeds well. Necrotising enterocolitis (NEC) was suspected; abdominal radiograph showed only dilated bowel loops. He was kept nil-by-month, and was started on intravenous fluids and antibiotics. Over the next few hours, he developed tenderness and erythema over the left inguinal region. As he also had undescended testis on the left, torsion testis was suspected, and he was taken for emergency inguinal exploration.

Left inguinal exploration revealed the undescended testis to be healthy and viable without any evidence of torsion, but there was feco-purulent fluid draining from the peritoneal cavity into the patent processus vaginalis. Orchidopexy of the left testis was done and laparotomy was performed to find the source of the feco-purulent fluid. At laparotomy, he was found to have appendicitis with apical perforation causing feco-purulent ascites. Rest of the bowel was healthy and there was no evidence of NEC. Peritoneal lavage was given and appendectomy was done. Histological assessment of the resected appendix showed extensive ulceration, with mucosa replaced with slough and acute inflammatory exudate extending transmurally upto the serosa, suggestive of pan-appendicitis.

Postoperatively, the child was ventilated for 36 hours. His blood culture was sterile but C-reactive protein (CRP) was positive; antibiotics were given for 7 days. He was started on gavage feeds on the 4th post-operative day, breastfeeds were started on day 16 and he was discharged on day 20 of life. The child was well with adequate weight gain after two months.

DISCUSSION

Neonatal appendicitis is rare with a reported incidence of 0.04% [1], and is more common in preterm males [2,3]. It usually presents with non-specific signs like abdominal distension, vomiting or mass in the abdomen, and is commonly misdiagnosed as NEC, resulting in delay in surgery and high mortality. Appendicitis within the inguinal hernia, called Amyand's hernia, presents early with symptoms suggestive of incarcerated hernia or torsion testis. This leads to early surgical exploration and a better prognosis.

Our patient had abdominal appendicitis with perforation, and presented initially with non-specific symptoms of feed intolerance. The feco-purulent ascitic fluid in the patent processus vaginalis along with the left undescended testis, and erythema and tenderness over the left inguinal region mimicked torsion of the undescended

testis. This led to early surgical exploration and timely management.

The etiopathogenesis of appendicitis in the neonatal period is not clear. The vast diversity of associated conditions reported so far shows that it is likely to be multifactorial. Some of the suggested etiologies are immune, vascular, hypoxic, and obstructive [4]. The risk of perforation is high in neonatal appendicitis [2]. Delay in diagnosis, thin appendiceal wall and indistensible cecum are some of the factors implicated in the higher incidence of perforation. Small size of the peritoneal cavity and poorly developed, functionally non-existent omentum in a newborn result in more rapid and diffuse peritonitis after perforation contributing to the high morbidity and mortality.

Investigations and imaging modalities are not very useful. Abdominal radiograph shows only non-specific features, ultrasound Doppler and computerized tomography (CT) scan are also not reliable. A high index of clinical suspicion and early laparotomy or laparoscopy are the key for timely diagnosis. We would suggest that in a preterm infant with non-specific abdominal findings and no classical features of NEC on abdominal radiograph, appendicitis should be considered as a differential diagnosis, especially if the baby does not seem to improve with conservative management.

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