

Neonatal Appendicitis in Term and Preterm Babies

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ABSTRACT

The aims of this study are to present the cases of two newborns with perforated appendicitis in newborn intensive care unit in a 3-months period, and discuss the pathophysiology of neonatal appendicitis.

Key words: neonatal appendicitis, newborn, perforated appendicitis

CASES

The first case was a full-term, 3500-g male baby who was born to a 39-year-old mother with cesarean section (C/S). He was admitted to the newborn intensive care unit because of hypoglycemic attacks on the same day.

The baby was followed up in the neonatal intensive care unit; he was fed but could not tolerate the feeding on the sixth day. His examination findings were abdominal distention, erythema, and tenderness. The x-ray was consistent with peritonitis (Figure 1). Therefore, he was operated and perforated appendicitis was discovered. Appendectomy was performed. The pathology confirmed perforated appendicitis and there were no findings of Hirschsprung disease or necrotizing enterocolitis. The baby was started the feeding on the seventh day after the operation. He was discharged healthy and there was no problem during the 3-month follow-up period.

The preterm twins (the other case), 34-week-old male infants, were born after C/S.

One of them, weighing 1600 g, developed acute abdomen on 7 days of life. He had abdominal tenderness and erythema. Abdominal x-ray was consistent with peritonitis (Figure 2). Perforated appendicitis was observed during the operation (Figure 3). Appendectomy was performed. The baby was fed on 4 days of operation and discharged without any problem.

The other one, weighing 2000 g, also developed acute abdomen on 6 days of life. Free air was also observed (Figure 4). There was sigmoid perforation due to necrotizing enterocolitis. Ileostomy was performed. Ileostomy is functional, and the baby is feeding well.

DISCUSSION

Appendicitis is common in children but extremely rare in newborn period with high mortality rate (1-4). The medical literature was searched, and a few cases of term newborns with appendicitis were discovered. The diagnosis was quite difficult and hence were not reported preoperatively (5). These babies usually had some comorbid disease or were preterm (1-4).

Acute appendicitis is rare in neonates because they had a funnel-shaped appendix, a liquid diet, supine posture, and a low frequency of gastrointestinal and upper respiratory tract infections (6). Furthermore, there was evidence that breast-feeding could reduce the risk of appendicitis (6). It is assumed that a combination of general and local factors is important in the pathogenesis of acute appendicitis in newborns, with the leading role of systemic factors developing in

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FIGURE 1: Abdominal x-ray shows air fluid levels compatible with peritonitis.



FIGURE 2: The abdominal x-ray of case with perforated appendicitis.

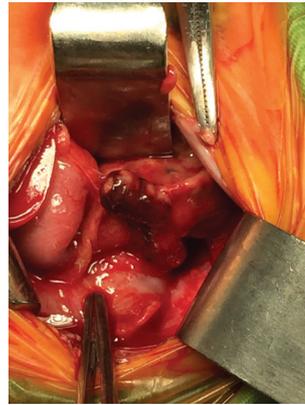


FIGURE 3: Perforated appendicitis in preterm baby.



FIGURE 4: Abdominal free air.

newborns under conditions of hypoxia or infection: disturbance of the circulation in organs led to an increased permeability of the histohematic barrier, loss of resistance, and protective role of the intestinal flora with increasing activity of conditionally pathogenic gram-negative (endogenous and exogenous) microbial flora (7).

If an infant has appendicitis, the diagnosis of Hirschsprung disease should also be considered (8). However, Hirschsprung disease was not found in the above-mentioned two cases, proved with pathology and clinical situation.

In neonatal period, surgical intervention is the first choice contrary to children due to acute abdomen findings and deteriorated baby (9).

In the first case of appendicitis, one baby was term and the other was preterm; the first developed perforation of appendicitis on 6 days of life and the second on 7 days of life. The pathophysiology may be different from appendicitis in older children (4). Babies generally lose their weight by 10% in the first week. There are lots of changes in babies to adopt the extrauterine life. These changes may affect the appendix with some genetic factors.

CONCLUSION

Neonatal appendicitis may be more common than is generally assumed. The changes after birth in the first week of life may result in appendicitis. In the first week of a baby, appendicitis should be considered in the presence of signs of acute abdomen. More studies are needed to find out the pathophysiology of appendicitis in the neonatal period.

REFERENCES

1. Vakrilova L, Georgiev T, Hitrova S, Slancheva B. Perforated neonatal appendicitis in a preterm newborn. *Akush Ginekol (Sofia)*. 2014;53(8):30-3.
2. Jahangiri M, Hosseinpour M, Jazayeri H, Mohammadzadeh M1, Motaharizad D, Mirzadeh AS. Perforated acute appendicitis in a pre-term neonate. *Iran Red Crescent Med J* 2013; 15(6):497-9.
3. Arias-Llorente RP, Flórez-Díez P, Oviedo-Gutiérrez M, Suárez-Rodríguez M1, Costa-Romero M, Solís-Sánchez G, García-López E. Acute neonatal appendicitis: a diagnosis to consider in abdominal sepsis. *J Neonatal Perinatal Med*. 2014; 7(3):241-6.
4. Pastore V, Bartoli F. A Rare Case of Neonatal Complicated Appendicitis in a Child with Patau's Syndrome. *Case Rep Pediatr* 2014; 2014:671706.
5. Schwartz KL1, Gilad E, Sigalet D, Yu W, Wong AL. Neonatal acute appendicitis: a proposed algorithm for timely diagnosis. *J Pediatr Surg* 2011; 46(11):2060-4.
6. Marzuillo P, Germani C, Krauss BS, Barbi E. Appendicitis in children less than five years old: A challenge for the general practitioner. *World J Clin Pediatr* 2015; 4(2): 19-24.
7. Eremeeva AS. [Acute appendicitis in newborn infants]. *Arkh Patol* 1982;44(4):44-7.
8. Robert K Minkes, MD, PhD; Chief Editor: Carmen Cuffari, MD. *Pediatric Appendicitis Differential Diagnoses*. Medscape
9. Flum DR. Clinical practice. Acute appendicitis--appendectomy or the "antibiotics first" strategy. *N Engl J Med* 2015; 372(20):1937-43.