Case Reports

Appendicular Perforation in Necrotising Enterocolitis

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Perforated appendix in the neonatal period is rare, it's symptoms and signs are occult and outcome is disastrous. Though there are a few reports of perforated appendix in necrotising enterocolitis (NEC) in the international literature, there is no report of this so far in the Indian literature. Here we report a case of perforated appendix in a preterm baby with NEC.

Case Report

A preterm (28-30 wk gestation) male baby weighing 1155 g was admitted to our Neonatal Intensive Care Unit (NICU) for preterm care. Mother was a primigravida and had prolonged rupture of membranes for 10 days draining foul smelling liquor. The baby was born vaginally and APGAR was 7 at 1 min and 9 at 5 min. At admission, the baby had mild respiratory distress which settled down in 2 days with oxygen therapy. He was kept nil orally for 3 days and had been started on ceftriaxone and amikacin. Investigation on admission showed: Hb -17 g/dl, total leukocyte count - 15100/cu mm, band cells - 3%. CRP was negative and blood culture was sterile.

Small feeds (2 ml two hourly) were introduced on the 4th day which were increased at the rate of 6 ml/day. He tolerated the feeds well till 7th day when he started having gastric residue. At the same time slight abdominal distension was noticed and the baby's activity diminished. Bowel sounds were sluggish. At this point, the baby was diagnosed to have NEC. Oral feeds were stopped immediately and antibiotics were changed to ofloxacin and netilmycin. Metronidazole was added to cover anaerobic organisms. On investigating, platelet count was 97,000/cu mm and CRP was positive. Stool occult blood was also positive. X-ray abdomen showed intramural gas and thickened bowel walls *(Fig. 1).* On 9th day, baby was ventilated because of repeated apneic episodes. Inspite of aggressive treatment, the distension of abdomen increased. He could be extubated after 38 h of ventilatory support. Same day, a mass was noticed in the right iliac fossa measuring 2 x 2 cm, with ill-defined border and firm consistency. A possibility of intestinal perforation with adhesion was considered and surgical opinion was sought. The surgeon also concurred with our diagnosis and conservative management was continued. Ultrasound examination of abdomen revealed a mass with adhered bowel loops *(Fig. 2).* Since the mass confined to increase in size, laparotomy was done on the 11th day. Laparotomy revealed a perforated inflammed appendix with abscess and adhered bowel loops. At several places, the gut wall looked inflammed and had

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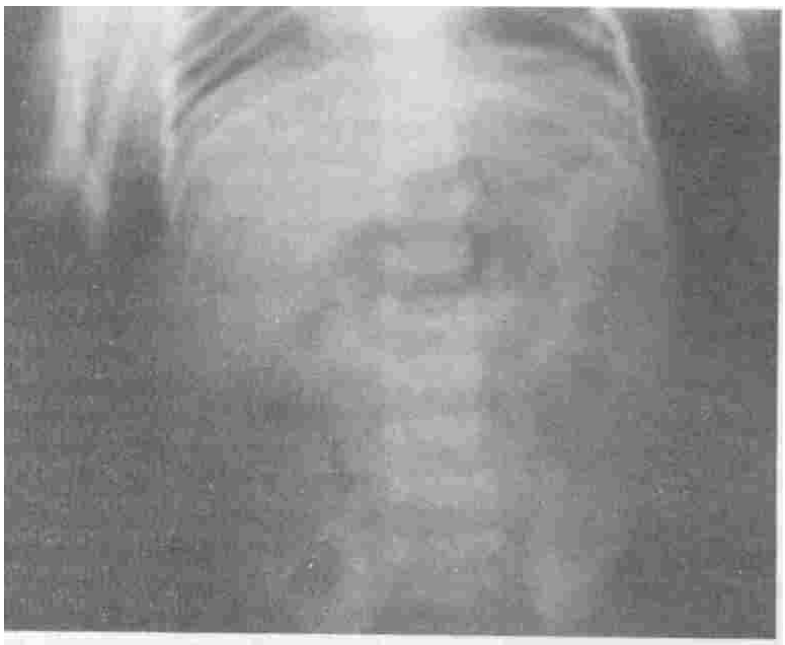

Fig. 1. X-ray abdomen showing intramural gas and thickened bowel loops.

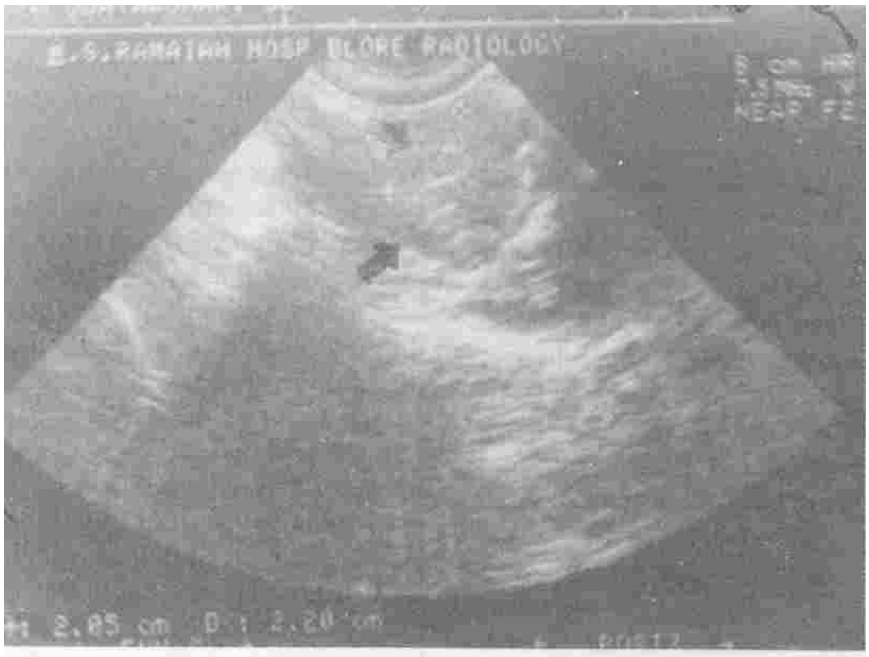

Fig. 2. Ultrasound abdomen showing the mass in the right iliac fossa.

features of NEC. No perforation was visible in any other part of the gut. The appendix was removed and histopathological examination done revealed non specific

inflammation. Post operatively, the baby required ventilatory care, developed pneumonia with fulminant sepsis and died of pulmonary hemorrhage on day 15. Post mortem examination could not be conducted as consent was not forthcoming.

Discussion

Appendicitis and it's perforation is a rare clinical entity in a neonate. The rarity is assumed to be due to the funnel shape of the appendix during infancy. Appendicitis may be an isolated lesion or may be a part of diffuse process in NEC. In our case, it was an extension of NEC. A considerable number of them may be associated with hernias with or without incarceration(l). Many of these may present as tender scrotal swelling(2). Martin and Perrin observed appendicular perforation in association with Hirschprung's disease(3). Antenatal perforation presenting as meconium peritonitis has also been described(4).

Neonatal appendicitis occurs more frequently in preterm babies. The tendency for perforation is more in infants than in older children, probably due to delay or failure to recognize this acute condition. More often than not, the diagnosis is made during surgery or postmortem. Our case too could be diagnosed only during surgery.

As in our patient, the features of NEC may predominate if the basic pathology is NEC. Isolated appendicitis may also have clinical features similar to NEC, *i.e.,* feed intolerance, lethargy, apneic episodes and distension of abdomen. An inflamed appendix in the herinatal sac may manifest with tender inguinal swelling or scrotal swelling(5) which may burst open to form a scrotal sinus. Nearly 70% of the neonatal appendicitis end up with perforation leading to appendiceal abscess. One such case of appendiceal abscess leading to intestinal obstruction has been reported(6).

The prognosis is uniformly poor with reported mortality rates of as high as 70%. The mortality may increase further (>90%) in cases of perforated appendix. Prognosis is better in extra abdominal appendicitis, *i.e.,* in herinal sac.

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