Clinical picture

The football sign in a neonate

A male neonate was born at term following an uneventful delivery. At 12 h old, breast feeding was readily accepted after passing the initial day 1 postnatal check. By 36 h, there was still no meconium passage and he developed progressive abdominal distension and large volume bilious vomiting. Subsequently, fever and tachypnea developed and he was admitted to our hospital. On examination, there was marked abdominal distension (Figure 1A) and hypoactive bowel sounds. An anteroposterior supine abdominal radiograph revealed a huge oval radiolucency delineated by the parietal peritoneum of the abdominal wall, with the visible falciform ligament outlined by air (Figure 1B). Under the impression of pneumoperitoneum with bowel perforation, prompt laparotomy was arranged. At laparotomy, a 3.5-cm long jejunal atresia with post-stenotic transmural perforation and copious meconium-contained ascites were discovered. Post-operative condition was uncomplicated, he received parenteral nutrition for 10 days, enteral feeding commenced day 11 postoperatively.

Neonatal gastrointestinal perforation is a common condition carrying a mortality of 17–60%. The characteristic radiographic finding of neonatal gastrointestinal perforation is massive pneumoperitoneum presenting as a classic ‘football’ sign. This radiologic sign can be more easily seen on supine abdominal radiographs referring to a large oval radiolucency in the shape of an American football. The oval radiolucency seen in the football sign indicates massive pneumoperitoneum, which distends the peritoneal cavity. Furthermore, the massive pneumoperitoneum can outline the falciform ligament, which is seen as a faint linear opacity situated longitudinally within the right upper quadrant abdomen. Despite the underlying disorders of pneumoperitoneum varies, the football sign is most commonly encountered in infants with gastric perforation. Other causes include acute necrotizing enterocolitis, malrotation with midgut volvulus, Hirschsprung disease, meconium ileus, intestinal atresia and peptic ulcers. Early diagnosis of neonatal gastrointestinal perforation is crucial to allow

Figure 1. (A) The neonate developed a diffusely distended abdomen. (B) Supine abdominal X-ray demonstrates the football sign, an ovoid lucency indicative of massive pneumoperitoneum (arrows), with the visible falciform ligament outlined by free air (arrow heads).
prompt surgical intervention and uncomplicated recovery.

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References