Necrotizing Enterocolitis

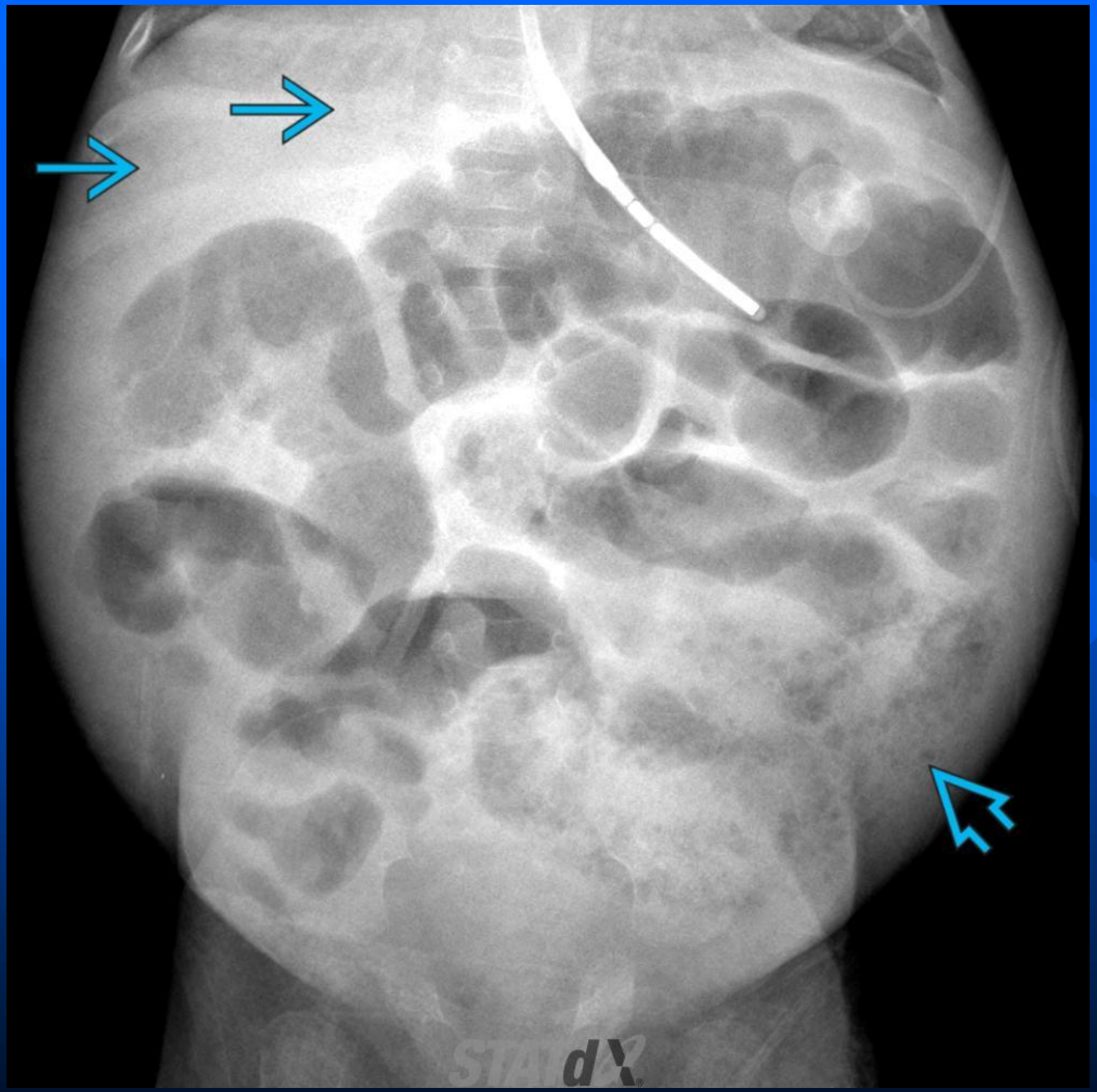
- Life-threatening condition of neonatal GI tract characterized by inflammation, ischemia, & translocation of bacteria into bowel wall.
- Diagnosis based on clinical & imaging findings

Clinical issues

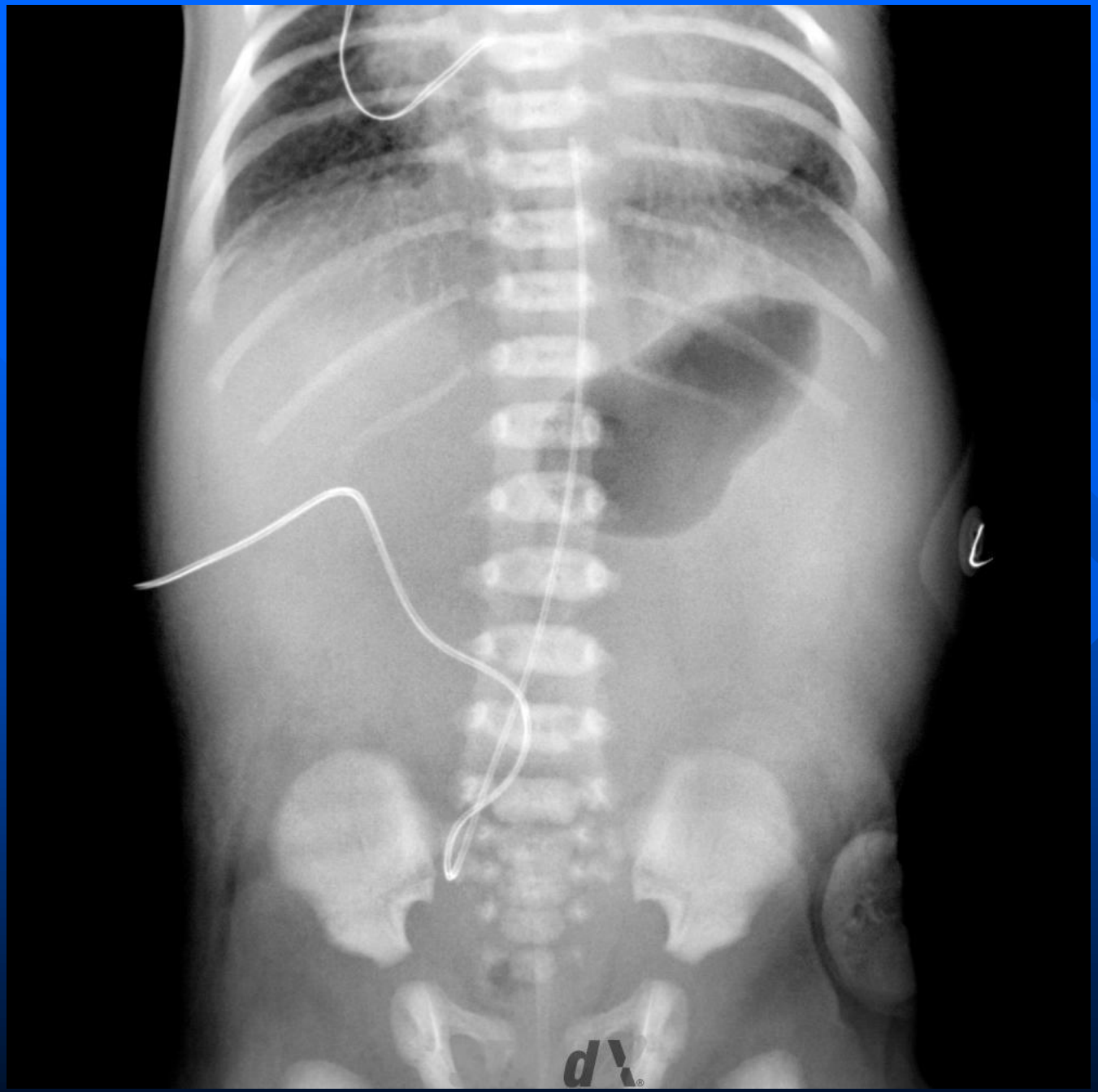
- Most common in very low birth weight (< 1,500 g) premature infants 2-3 weeks after delivery
- 10% in term infants (usually with underlying diseases)
- Age at onset of NEC earlier than premature infants
- Typical history: Feeding intolerance with emesis, ↑ gastric residuals, bloody stools
- Other frequent clinical findings include abdominal distention &/or discoloration, apnea & bradycardia, lethargy, temperature instability

Imaging

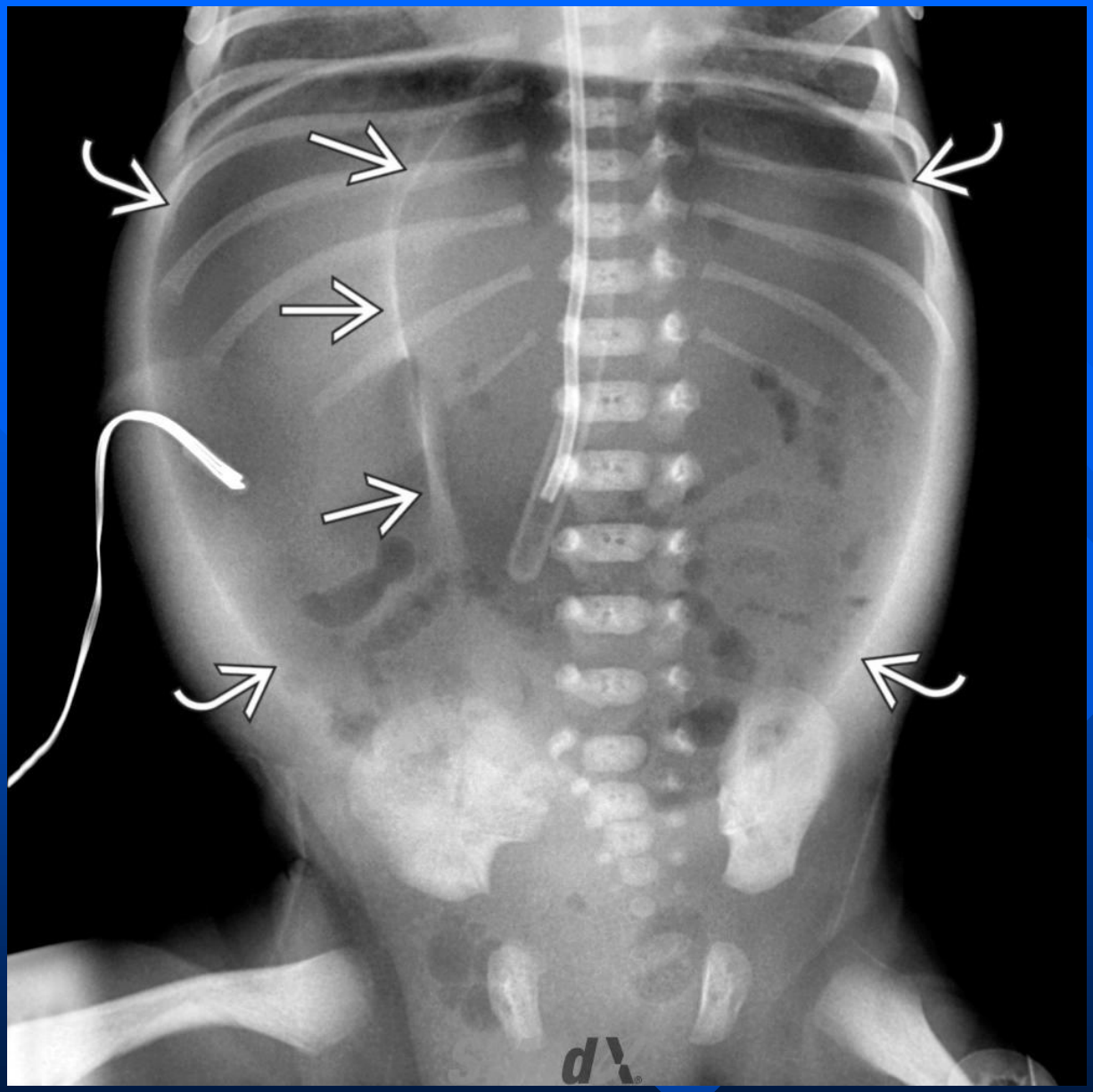
- RadiographyFindings range from nonspecific (paucity of bowel gas) to suggestive (thickened, dilated bowel loops) to diagnostic [pneumatosis, portal venous gas (PVG), & free peritoneal gas]
- Duke Abdominal Assessment Scale for radiographs
  - Standard lexicon for reporting NEC findings
  - Strong intraobserver & interobserver agreement
  - ↑ scores correlate with need for surgery



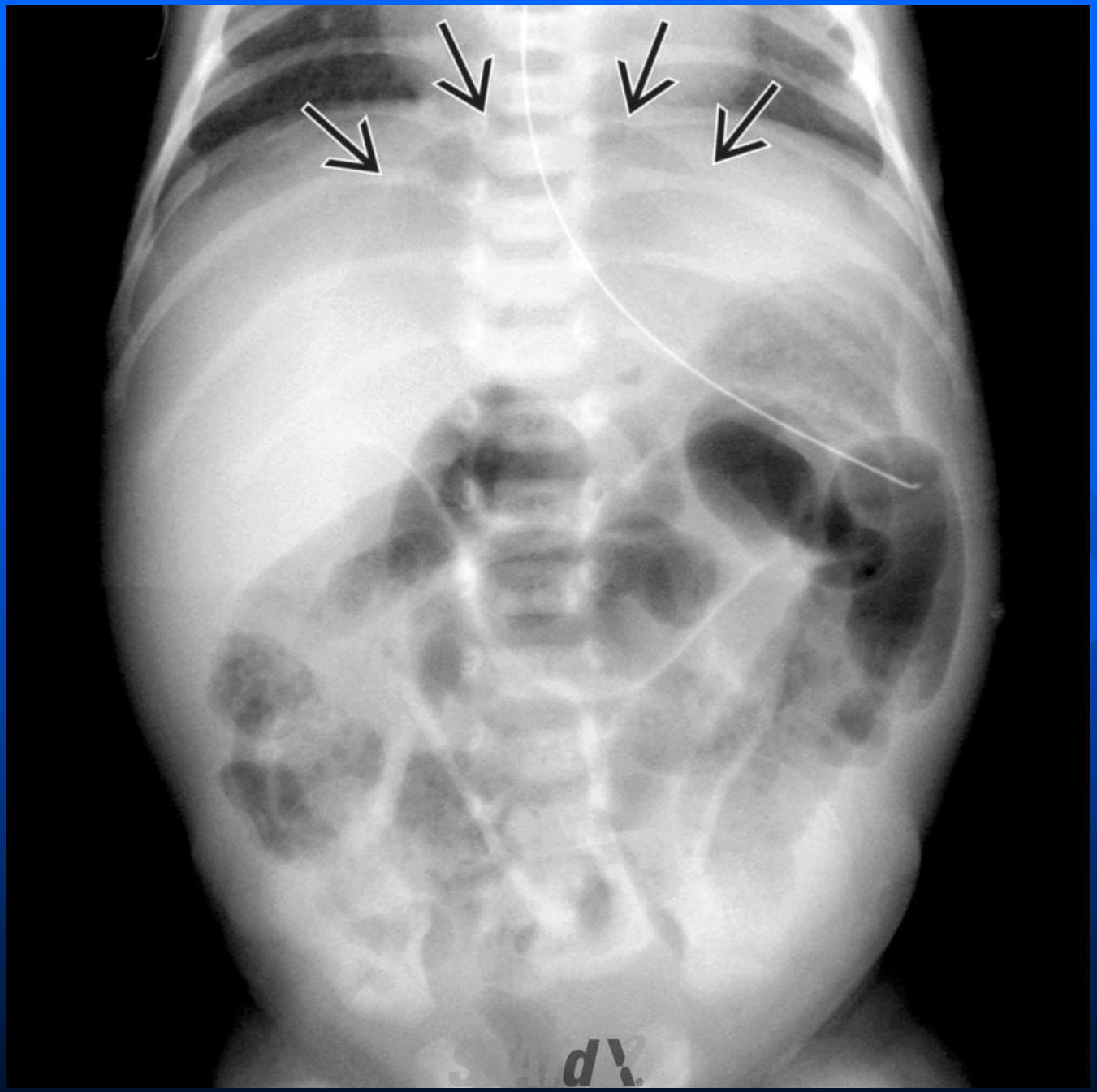
Subsequent supine AP radiograph (same patient) shows bubbly lucencies of pneumatosis in the LLQ (cyan open arrow). Branching foci of PVG (cyan solid arrow) are seen in the liver. This patient was managed conservatively for medical NEC.



Supine radiograph in a term infant with aortic coarctation, feeding intolerance, bloody stools, & spells of apnea/bradycardia shows a nearly gasless abdomen, a nonspecific finding of NEC.

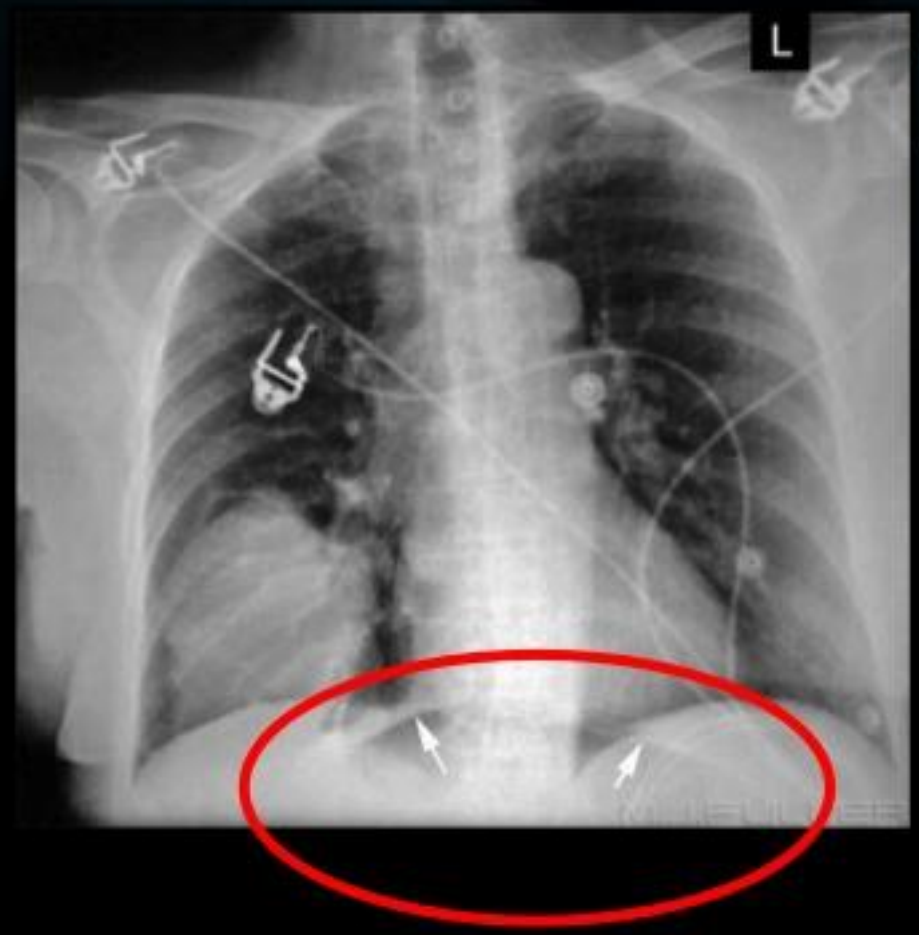


Abdominal radiograph in a premature infant with NEC shows a large amount of pneumoperitoneum causing abnormal lucency throughout the abdomen (white curved arrow). The falciform ligament (white solid arrow) is outlined by air; this appearance resembles the laces of an American-type football (the football sign).



Frontal radiograph of a premature infant with chorioamnionitis & NEC shows a cupola sign on supine imaging. The pneumoperitoneum is seen as a subtle, rounded lucency (black solid arrow) below the midline diaphragm.

10) The Cupola Sign



- **Dome-like**
- Air accumulation beneath the central tendon of the diaphragm

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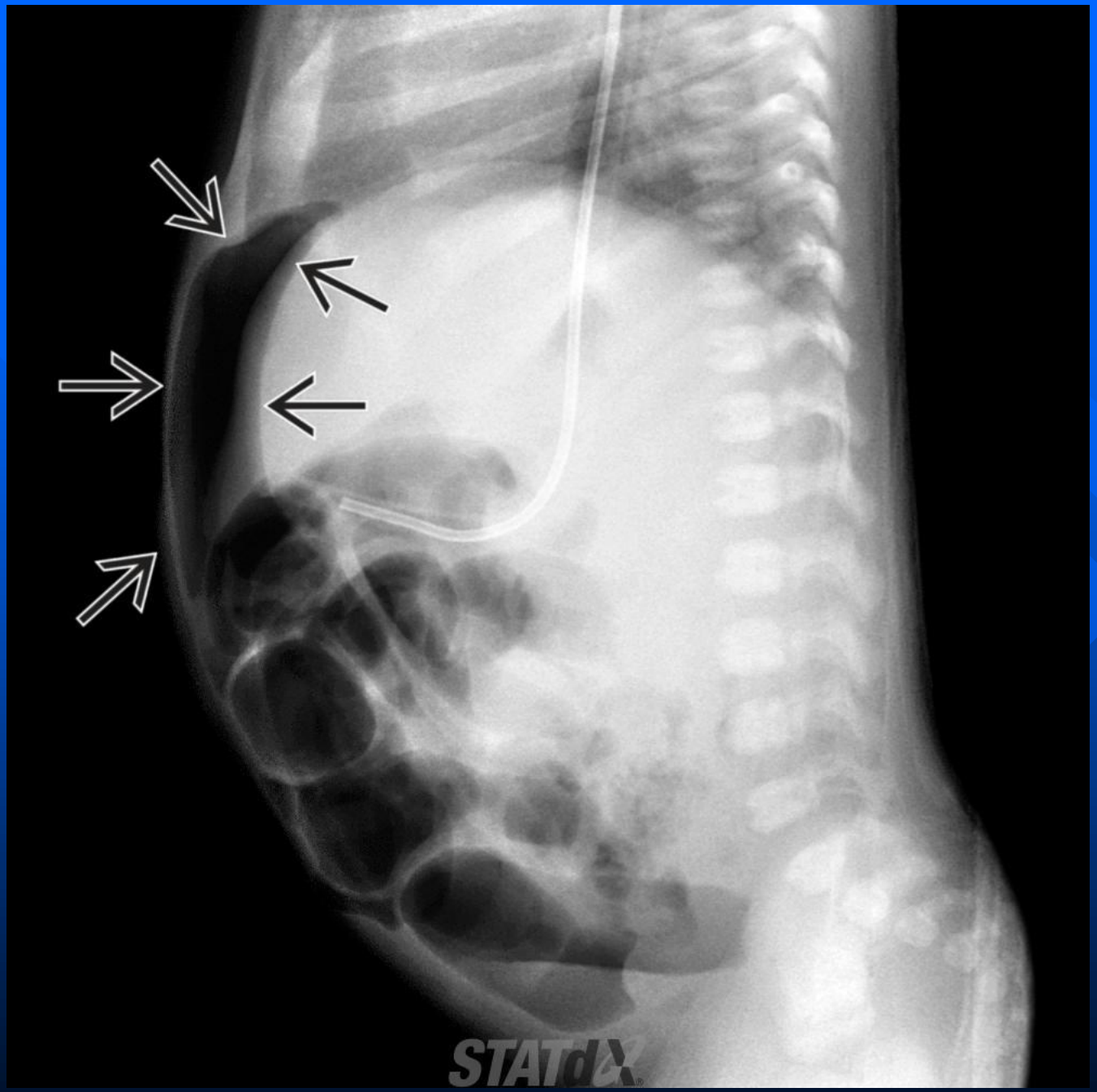

A cross-table lateral radiograph was obtained in the same child & confirms a moderate amount of free intraperitoneal gas (black solid arrow). Cross-table images deliver more radiation but can be a problem-solving tool if perforation is suspected. Note the persistently dilated bowel on all images.