

Clinics In Diagnostic Imaging (23)

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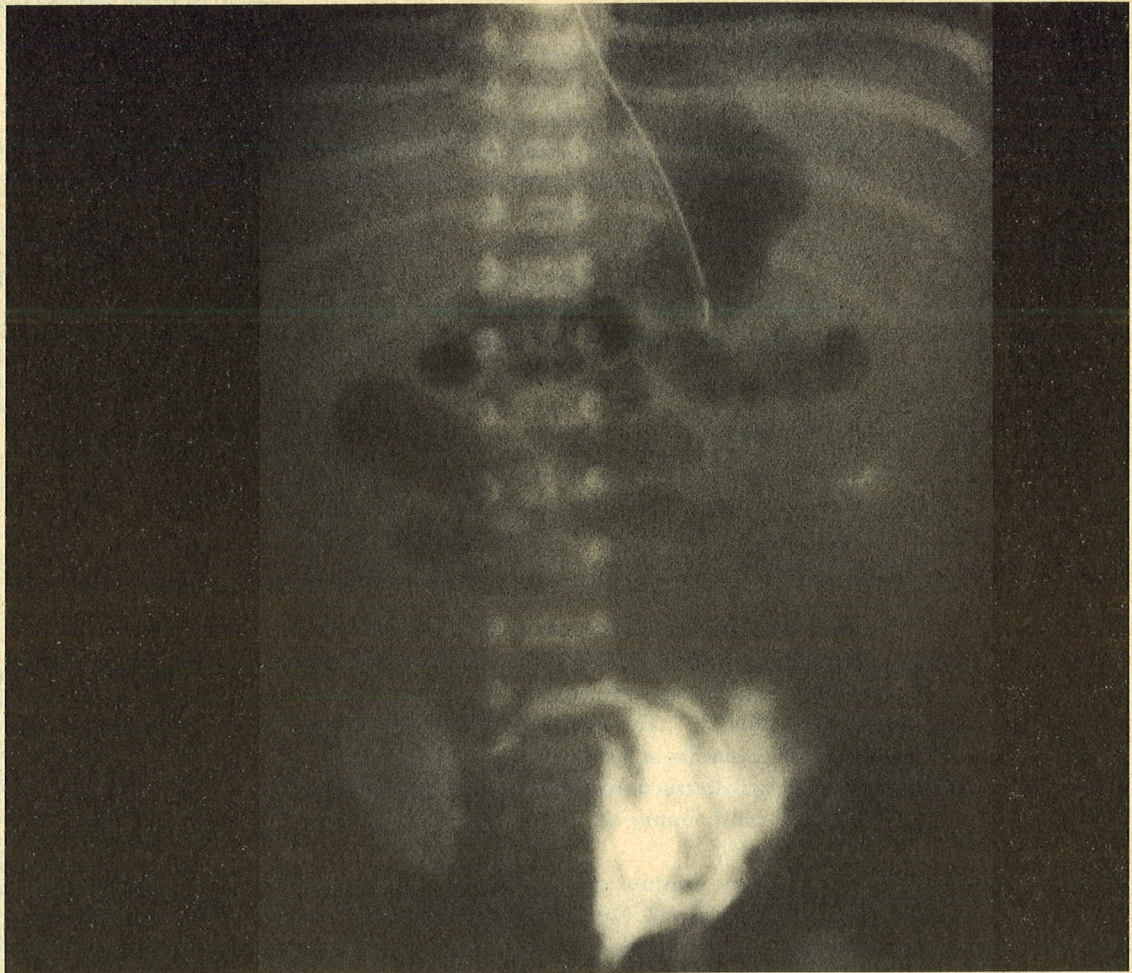


Fig 1 - Plain abdominal radiograph

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CASE REPORT

A 3-day-old male baby was admitted for loose stool and jaundice of one day duration. He was born at 36 weeks gestation by normal delivery and had an Apgar score of 8 and 9 at one and five minutes respectively. Physical examination was normal except for tachypnoea. Respiratory rate was 60/min. Routine haematological screening investigations were normal. He was given intravenous fluids and fed with formula milk. However, on the 7th day of life, he developed abdominal distension, respiratory distress and was noted to be lethargic with blood stained aspirate from the nasogastric tube. On physical examination, the abdomen was distended and bowel sounds were sluggish. Arterial blood gas analysis revealed severe

metabolic acidosis: pH 7.09, PCO₂ 21.1 mmHg, PO₂ 71.1 mmHg, HCO₃ 6.3, O₂ saturation 83.2%, BE-21.8. A clinical diagnosis of neonatal necrotising enterocolitis was made. He was treated with intravenous netilmycin and piperacillin and metronidazole. On the 14th day of life, a central line (Cavafex No 18) was inserted through the left femoral vein for administration of parenteral nutrition. However, 48 hours later, the abdominal distension had worsened and there was sonographic evidence of free intraperitoneal fluid. A non-ionic contrast agent (Ultravist 240) was injected into the left femoral vein (Fig 1). What does it show? What is the diagnosis?

IMAGE INTERPRETATION

The radiograph (Fig 1) shows a few gas-filled loops of small bowel. The central location of the bowel loops are in keeping with the presence of ascites. There is a large area of contrast extravasation over the left hemipelvis. Its dense and confined appearance is consistent with retroperitoneal leakage from a traumatised left iliac vein.

DIAGNOSIS

Traumatic rupture of the left iliac vein

CLINICAL COURSE

The diagnosis of neonatal necrotising enterocolitis was supported by results of subsequent investigation namely: stool positive for occult blood, positive C-reactive protein and blood culture which grew *pseudomonas aeruginosa*, sensitive to netilmycin and piperacillin. The intravenous catheter was removed and the neonate was treated conservatively with broad spectrum antibiotics. He recovered uneventfully after two weeks and was discharged on the 40th day of life.

DISCUSSION

Administration of total parenteral nutrition for various conditions, particularly for premature babies with chronic illnesses, is a routine procedure in neonatal intensive care units. However, extravasation of parenteral nutrition fluid is a complication rarely seen in day-to-day clinical practice. Femoral vein cannulation with 8.5 Swan-G catheter introducers allows expeditious intravenous access and rapid volume infusion⁽¹⁾. The injuries to the femoral vessels and their branches at 30 minutes and 24 hours varied from partial destruction of the internal elastic lamina only to crush injury of the media together with thrombosis⁽²⁾.

Traumatic rupture of the left iliac vein is not frequently observed. Cargile et al described 15% of isolated venous injuries and 36% with combined arterial and venous injuries⁽³⁾. The diagnosis in this neonate was delayed for 46 hours because the

abdominal distension and ascites were ascribed to the underlying sepsis. The documented complications of parenteral nutrition delivered via central venous catheters are legion but can be broadly classified as mechanical, thrombotic, infective and metabolic⁽⁴⁾. The early complication of injury to femoral vessels include haematuria, pseudoaneurysm, thrombosis and fistula. The late complications of injury to the femoral and the peripheral vessels include arteriovenous fistula, claudication and vascular insufficiency of the involved limb. Intra-abdominal extravasation has rarely been reported in infants⁽⁵⁾. Once diagnosed, intra-abdominal parenteral nutrition extravasation responds well to catheter removal together with paracentesis if there is respiratory compromise⁽⁵⁾.

REFERENCES

1. Meredith JW, Young JS, O'Neil EA. Femoral catheters and deep vein thrombosis: a prospective evaluation with venous duplex sonography. *J Trauma* 1993; 35:189-90.
2. Karlinder LE, Lidmen D, Franzen L. The effect of severe contusion on the vessels of the femoral region. An experimental morphological study. *Scan J Plast Reconstr Surg Hand Surg* 1991; 25: 1-2.
3. Cargile JS, Hunt JL, Purdue GF. Acute trauma of the femoral artery and vein. *J Trauma* 1992; 32:364-70.
4. Nour S, Puntis JWL, Stringer MD. Intra-abdominal extravasation complicating parenteral nutrition in infants. *Arch Dis Child* 1995; 72:207-8.
5. Krasna IH, Krause T. Life threatening fluid extravasation of central venous catheters. *J Pediatr Surg* 1991; 26:1346-8.

ABSTRACT

A 3-day-old male baby with neonatal necrotising enterocolitis had a central line (Cavaflex No. 18) inserted through the left femoral vein for administration of parenteral nutrition. Forty-eight hours later, he developed progressive abdominal distention with evidence of free abdominal fluid. A contrast injection done through the left femoral vein revealed retroperitoneal leakage of contrast from a traumatic rupture of the left iliac vein. The intravenous catheter was removed and he was treated conservatively with eventual recovery.

Keywords: traumatic rupture, left iliac vein, necrotising enterocolitis.