CASE REPORT

Easily missed, potentially fatal complication in an extremely preterm infant

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SUMMARY

A baby girl was delivered by emergency caesarean section at 23+6 weeks gestation weighing 440 g. Apgar scores were 1, 3 and 4 at 1, 5 and 10 min, respectively. She was intubated and transferred to the neonatal intensive care unit. Umbilical arterial and venous lines and an orogastric tube (OGT) were inserted. On day 4 of life the OGT appeared to be outside of the gastrointestinal tract on X-ray. Feeds were held and contrast oesophagography confirmed suspicion of an oesophageal perforation. She was treated with intravenous metronidazole, gentamycin and amoxicillin and placed nil by mouth for 10 days. Resolution of the perforation was confirmed on repeat contrast study (day 10) and feeds were restarted with no further complications.

BACKGROUND

Oesophageal perforation is an important iatrogenic complication in extremely low birthweight (ELBW) infants that could be easily missed. There is often a focus on the position of umbilical lines and endotracheal tubes in a newly delivered preterm infants and specific review of the position of the nasogastric tube may not be carried out. We present a case of oesophageal perforation in a preterm ELBW infant that highlights the importance of checking the position of the nasogastric feeding tubes when managing these infants.

CASE PRESENTATION

A baby girl was delivered by emergency c-section for maternal pre-eclampsia at 23+6 weeks gestation. Birthweight was 440 g. Apgar scores were 1, 3 and 4 at 1, 5 and 10 min. She was intubated and given surfactant in theatre and transferred to neonatal intensive care unit (NICU) on a ventilator. Umbilical lines and a size 6 F polyvinyl orogastric tube were inserted and she was started on total parenteral nutrition (TPN) and intravenous benzylpenicillin and gentamycin.

The first 48 h of admission were complicated by coagulopathy, thrombocytopenia, hypotension, resistant hyperkalaemia and a persistent metabolic acidosis. Her clinical condition improved on day 3; she was weaned from inotropic support and started on trophic feeds. There was a sudden deterioration on day of life 4 with a rising oxygen requirement. Blood testing showed a stable haemoglobin at 13.6 g/dL, white cell count 4.1×10^9 , neutrophils 2.3 and platelets remained low at 33×10^9 . C reactive protein was <0.3, prothrombin time was 15.8 s and fibrinogen 0.76 g/L. Chest X-ray (CXR)

showed some atelectasis of the left lung. On further review of the X-ray the tip of the orogastric tube was noted to be in the midline and oesophageal perforation was suspected, feeds were held and metronidazole was added to her antibiotic regime.

INVESTIGATIONS

- ▶ Chest X-ray (figure 1).
- ▶ Contrast oesophagography using a low osmolar contrast medium (iopamidol; figure 2).

TREATMENT

The baby was treated with intravenous metronidazole, gentamycin and amoxicillin and kept NPO for 10 days.

OUTCOME AND FOLLOW-UP

Resolution of the perforation was confirmed on repeat contrast study (day 10) and feeds were restarted with no further complications. On retrospective review of her CXRs since birth the OGT was noted to be in an abnormal position on X-rays taken shortly after admission to NICU and on all subsequent X-rays on days 2 and 3 of life this suggests that the perforation probably occurred during the first few hours of stabilisation after birth.

Figure 1 Chest X-ray on day 4 of life showing the tip of the orogastric tube in an abnormal midline position.

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Figure 2 Contrast oesophagography showing contrast leaking into the mediastinum.

DISCUSSION

Iatrogenic oesophageal perforation is a recognised complication in preterm extremely low birthweight (ELBW) infants. Perforation can occur during intubation, oropharyngeal suctioning or nasogastric/orogastric tube placement. It can present as abnormal location of a feeding tube on CXR, pneumothorax, pneumomediastinum or bloody oral secretions and inability to pass the feeding tube to the stomach. Incidence in one series of 371 infants weighing <1500 g was 1/125 with a higher incidence (1/25) in infants weighing less than 700 g.¹ Reported complications include pneumothorax,¹ chylothorax,² pericardial sac perforation³ mediastinitis¹ and death.¹ It may be misdiagnosed as oesophageal atresia due to compression of the lumen

of the oesophagus by mass effect created by the false passage. Misdiagnosis can lead to unnecessary surgery.^{4 5} Contrast oesophagography is helpful in confirming the diagnosis; however, it is important to use a low osmolar contrast medium due to the risk of chemical mediastinitis. Management is conservative with fasting, TPN and intravenous antibiotics. It has been suggested that the use of silastic nasogastric tubes would reduce the incidence of perforation but further research is needed in this area.¹ This is an important iatrogenic complication in preterm ELBW infants. Early recognition and conservative management avoids potential significant morbidity.

Learning points

- ▶ Iatrogenic oesophageal perforation is a recognised but rare complication in extremely preterm infants.
- ▶ A cautious review of all lines, tubes and catheters should be an integral part of any X-ray in order to prevent complications due to malposition.
- ▶ Reported outcomes are good when oesophageal perforation is detected early and managed conservatively.

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Competing interests None.

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