CASE REPORT

Fulminant pulmonary oedema after administration of a balanced electrolyte polyethylene glycol solution

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Figure 1 Chest radiograph at the time of intubation, showing pulmonary oedema.

The safety of balanced electrolyte polyethylene glycol (PEG) solutions has been documented in children.^{1,2} We describe a previously well child who developed fulminant pulmonary oedema after treatment with Golytely (Braintree Laboratories, Braintree, USA).

The 5 year old boy was electively admitted for treatment of constipation. A nasogastric tube (NGT) was passed for infusion of the PEG solution. Auscultation and aspiration confirmed intragastric position, but no abdominal radiograph was performed. Three hours after starting the infusion (100 ml/h) he was found stuporose, tachypnoeic, and cyanosed. The NGT was removed, and he was admitted to intensive care for ventilatory support (see fig 1).

Pulmonary fluid aspirated via the endotracheal tube had a total protein of 12 g/l and a very low fluid to serum protein ratio of 0.15.^{3,4} Analysis of the fluid by gas chromatography-mass spectrometry and pulsed amperometric detection of the PEG polymer, after high performance liquid chromatography on a Dionex column, revealed a PEG concentration about 75%

of the original reconstituted solution (1/3 dilution). We surmise that either the NGT was misplaced, or the stomach became overdistended, resulting in aspiration and pulmonary oedema.^{5,6}

It is evident that, even in healthy children, great care should be taken in administering balanced electrolyte PEG solutions, both by confirming intragastric placement of the NGT, and by close monitoring for signs of aspiration. We suggest that monitoring should include hourly observations of pulse and respiration, as well as continuous pulse oximetry. These precautions apply especially to children with neurological handicap who may have disordered swallowing and airway protection.

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Abbreviations: NGT, nasogastric tube; PEG, polyethylene glycol