NEONATAL INTESTINAL OBSTRUCTION BY MECONIUM PLUG RELIEVED BY GASTROGRAFIN ENEMA

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SYNOPSIS

A rare cause of neonatal intraluminal intestinal obstruction by meconium plug is described. Gastrografin enema is both diagnostic and therapeutic in such cases.

CASE REPORT

A full-term 3-day old boy was admitted to the Outram Road General Hospital on 19.9.74, after a normal delivery at the Kandang Kerbau Maternity Hospital. The infant had been well since birth until 18.9.74 when he began to vomit after every feed. No meconium had been passed since birth. Instead, the child passed some whitish material once, after which bowel movements ceased. On examination, the abdomen was soft and distended; peristalsis was seen and sausage-shaped masses were palpable above the umbilicus.

X-ray examination of the abdomen showed bowel distension with no air-fluid levels. There were meconium masses in the small intestine and the ascending colon (Fig. 1).

A rectal washout produced one small piece of inspissated mucus without any relief of the obstruction.

At this stage, the child was subjected to a Gastrografin enema, both for diagnostic and therapeutic purposes. It revealed the presence of meconium masses in the colon and small bowel (Fig. 2). After the enema, the child passed large amounts of meconium, and within the next twelve hours, the bowel distension subsided (Fig. 3) and oral feeding was commenced.

The child was discharged home well 7 days after admission.

Fig. 1. Plain abdominal film showing bowel distension and meconium masses.

ENEMA TECHNIQUE

Intravenous fluid and electrolytes were given to maintain hydration before and during the procedure.

Gastrografin was manually injected under fluroscopic control, using a syringe via a Foley catheter, taped into position in the anal canal, with the buttocks also tightly taped together to prevent leakage. The contrast medium was delivered through the colon and the terminal ileum till reflux into a dilated loop of ileum occurred, indicating that the main obstruction had been passed.

DISCUSSION

Among causes of neonatal intraluminal intestinal obstruction are meconium ileus secondary to mucoviscidosis and the ano-rectal meconium plug syndrome. There is yet a relatively rare and incompletely understood cause of intestinal obstruction by meconium. Many theories have been proposed as to its aetiology, including pancreatic enzyme deficiency, alteration of meconium composition and neonatal hypermagnesaemia. This report describes our experience with such a case of intestinal meconium plug obstruction which was relieved success-

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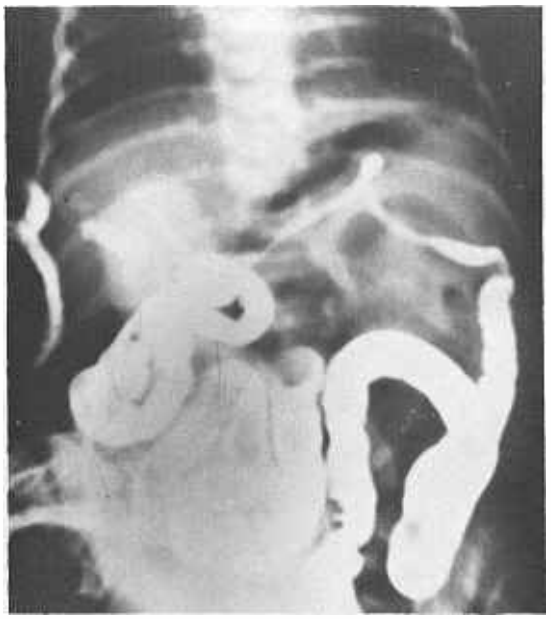

Fig. 2. Abdominal film following Gastrografin enema outlining meconium in the colon and small bowel.

Fig. 3. Plain abdominal film day after the Gastrografin enema, showing normal bowel gas pattern.

fully with a Gastrografin enema. We hope to draw attention to this rare condition and to the fact that a Gastrografin enema is both diagnostic and therapeutic in such cases.

Noblett (1969) described successful treatment of uncomplicated meconium ileus in the new born by means of water-soluble contrast enema. Other workers including Frech *et al* (1970) and Wagget *et al* (1970) have found similar success with the same method.

Gastrografin is a 76% aqueous solution of sodium methylglucamine diatrizoate with 0.1% Tween 80 and 37% iodine. It has a high osmolarity (1900 milliosmoles per litre), approximately six times that of normal plasma. It attracts fluid into the bowel from the circulation, loosening the inspissated meconium and its evacuant effect depends upon this property.

Tween 80, the wetting agent in Gastrografin, may aid the passage of fluid between the mucosa and the meconium during the filling phase of the enema.

Harris *et al* (1964) have shown in dogs that Gastrografin can cause reduction of circulating plasma volume due to shift of fluid into the bowel and have indicated that the use of Gastrografin in infants with depressed circulating plasma volume is hazardous. Rowe *et al* (1971) have also stressed these dangers.

It is to be emphasised that fluid and electrolyte imbalance has to be corrected prior to the Gastrografin enema and an intravenous infusion of fluid has to be maintained during the procedure.

Known perforation, peritonitis and gangrene are contra-indications to enemas.

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