Chest x-rays. On 9 September showed cardiomegaly, globular heart, changes in lung fields suggesting cardiac failure. On 16 September cardiomegaly, lung fields clear. On 5 November heart size at upper limit of normal.

Discussion

This patient had features of acute myopericarditis coexistent with evidence of Coxsackievirus B3 infection. This association has previously been described but several features of this case are unusual.

Patients with viral myopericarditis usually present with chest pain or dyspnoea and have clinical features caused by pericarditis, pericardial effusion, or cardiac failure secondary to myocarditis. In contrast, this patient presented with syncope—in retrospect Stokes-Adams attacks—and the clinical course was dominated by life-threatening arrhythmias. This resembles in some respects the description by Lim *et al.* (1975) of 10 patients with myocarditis, although with the exception of one case associated with adenovirus infection they were unable to prove a viral aetiology. All their patients were young, and most were female. They presented with syncope and heart block requiring temporary endocardial pacing in 9 cases. However, ventricular fibrillation was not a major problem in these patients; it occurred in only one case and another had ventricular tachycardia. With the exception of one patient with persistent heart block all recovered fully.

Bradycardia, usually sinus, is common in viral myocarditis especially when caused by influenza (Verel *et al.*, 1976). Atrioventricular block has also been described. Isolated case reports have documented the use of temporary endocardial pacing in myocarditis caused by 3 viruses: mumps (Thompson and Nolan, 1966), Coxsackievirus B2 (Gould *et al.*, 1972), and adenovirus (Lim *et al.*, 1975)—and other clinically similar cases have been described which lacked evidence of a viral aetiology. Junctional (nodal) bradycardia, which caused the patient's slow heart rate, seems to be uncommon in viral myopericarditis. The intraventricular conduction defect was also unusual; right bundle branch block with left posterior hemiblock has only twice been described in suspected viral myopericarditis (Forfang and Lippestad, 1974; Lim *et al.*, 1975). The present case is the first in which a virus has been identified.

The reported incidence of raised serum enzyme levels in viral myopericarditis varies from 14% (Smith, 1970) to 64% (Sainani *et al.*, 1968) and is usually slight. In this patient the levels were markedly raised. The cause of raised serum enzyme levels in myopericarditis is disputed; it is usually attributed to myocardial damage or to hepatic congestion (Colt-

man, 1962). An additional factor in this case was repeated DC defibrillation. However, the presence of a marked rise in enzyme levels in the first blood sample (before defibrillation) and the absence of any additional evidence of liver dysfunction suggests that in this case extensive myocardial damage was the major source of the enzymes.

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Improved tube for nasojejunal feeding in low birthweight infants

In the last few years nasojejunal infusion of milk formulas has been widely used for the feeding of low birthweight infants. The techniques of transpyloric intubation previously described are those of Rhea and Kilby (1970) and Cheek and Staub (1973). Besides the enthusiastic experiences of many, difficulties and complications relating to both methods of intubation have been encountered (Boros and Reynolds, 1974; Chen and Wong, 1974; Van Callie and Powell, 1975). Modifications of the original methods have been made by Rhea *et al.* (1973) and Loo *et al.* (1974). We describe a simple and improved tube for nasojejunal feeding by which we have successfully fed 47 infants with weights below 2000 g.

Methods

Transpyloric intubation was carried out by means of a silicone rubber tube 0.76 × 1.65 mm (Silastic Dow-

Corning) provided with a hollow olive-shaped stainless steel or gold plug fitted into the tip of the tube. Attempts to intubate patients with a silicone rubber tube without the plug were often unsuccessful.

A small plug 3 mm in length, 2.5 mm in outside diameter, and with a central canal 0.7 mm diameter, was used for infants below 1500 g. A larger plug 4 mm in length, 3 mm in outside diameter, and with a central canal of 0.8 mm, was used for those above 1500 g (Fig. 1).

Fig. 1 Stainless steel plug 3 mm in length, 2.5 mm in outside diameter and with a central canal 0.7 mm diameter.

To incorporate the plug into the distal end of the tube the plug was threaded on to a stylet (Fig. 2A) and the silicone rubber tube gently slid on to the stylet and then on to the plug (Fig. 2B), after which the stylet was removed (Fig. 2C). The tube was inserted into the jejunum as described by Cheek and Staub (1973).

A standard formula was infused by a perfusion pump at 50 ml/kg on the first day and, after the tube had reached the jejunum, it was gradually increased until the desired daily caloric intake was attained (130–150 cal/kg).

Results

Twenty-two infants < 1500 g and 25 infants between 1500 and 2000 g were intubated in the first 6 hours of life with this tube. None showed respiratory distress requiring assisted ventilation. Total time for successful tube placement varied from 1 to 24 hours, when the stainless steel plug was used, and from 1 to 10 hours when the heavier gold plug was used. Plug

placement was confirmed when bile was aspirated from the tube, or in some cases was checked radiologically.

No difficulties were encountered when the small plug was used. In 5 infants between 1520 and 1650 g, the larger plug failed to pass through the nose; the infants were then intubated successfully with the small plug. No complications relating to the nasojejunal tube were observed. The average duration of nasojejunal feeding was 31 days (8–47 days). The weight gain was in all infants better than that of infants fed conventionally.

Discussion

The nasojejunal tube eliminates many difficulties encountered with the techniques reported by Rhea and Kilby (1970), and Cheek and Staub (1973). It has the following advantages. (1) It is firm and there are no lateral holes in proximity to the plug so that it can be easily introduced through the nose without the use of a catheter, even in very small infants. (2) Being silicone, it can remain in the intestine for many weeks without changes in consistency, and without danger of perforation or intussusception. (3) The plug is fitted into the tip of the tube, so that there is no direct contact between the plug and the intestinal wall. (4) Milk is perfused through a bored plug, so that there is no dead-space haven for food or bacteria at the distal end of the tube, as in blind-ended tubes commonly used.

Summary

A simple tube for nasojejunal feeding is described. 22 infants with birthweight < 1500 g and 25 infants 1500–2000 g were fed during the first weeks of life. The tube eliminates many of the difficulties previously encountered with nasojejunal feeding.

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Fig. 2 To incorporate the plug into the distal end of the tube, the plug is threaded on to a stylet (A) and the silicone rubber tube gently slid on the stylet and then on to the plug (B), after which the stylet is removed (C).

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Tubular duplication of the bowel

Use of technetium 99m pertechnetate in diagnosis

Technetium 99m (^{99m}Tc) pertechnetate scanning has been of value in the identification of Meckel's diverticulum and cystic duplication of the bowel. Heterotopic gastric mucosa may also be present in tubular duplication of the bowel (Rodgers and

Youssef, 1975; Schwesinger *et al.*, 1975), but the preoperative diagnosis of this lesion by ^{99m}Tc pertechnetate scanning has not been reported.

Case report

A 4-year-old boy was admitted with a 3-week history of intermittent severe colicky abdominal pain. He had been otherwise well except that at age 2 he had had a single episode of abdominal pain and melaena. On examination there was slight abdominal distension. The rectum contained firm black stool; he appeared anaemic. X-rays of the abdomen showed nonspecific air-filled levels in the area of the right colon. Subsequent barium contrast studies of the oesophagus, stomach, and small bowel were normal.

^{99m}Tc pertechnetate scans at 2, 10, and 15 minutes showed increased activity in the area of the terminal ileum which paralleled gastric activity (Fig.). The findings were not characteristic of a Meckel's diverticulum, nor of a cystic duplication of the bowel.

Surgical resection was delayed to allow correction of anaemia with oral iron therapy, but 2 weeks later recurrence of symptoms necessitated exploration. 50 cm proximal to the ileocaecal valve, a 52 cm tubular duplication of the small bowel was identified. The proximal end originated at the base of the mesentery, adjacent to the duodenum, and terminated in the ileum, sharing a common ileal wall for 20 cm.

Fig. Preoperative technetium 99m pertechnetate scans showing diffuse activity in the duplicated bowel which increased in step with the gastric activity.