Resolution of pancreatic ascites with octreotide

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Abstract
A 7 month old infant with pancreatitis and ascites was managed successfully with subcutaneous octreotide and external drainage of a pseudocyst. An endoscopic retrograde cholangiopancreatographic examination showed no congenital abnormality and was consistent with chronic pancreatitis. Octreotide has a possible therapeutic role in pancreatic ascites.

Case report
A boy of 7 months was admitted with a short history of irritability. Over the next 24 hours his condition deteriorated and he developed ascites. Abdominal paracentesis revealed haemorrhagic fluid with a high amylase content (2200 IU/l). Serum amylase at this time, 72 hours after the onset of symptoms, was 110 IU/l (normal range 15-95 IU/l).

Acute pancreatitis with pancreatic ascites was diagnosed and medical management commenced with nasogastric suction, intravenous fluids, and antibiotics. Despite full supportive treatment the child's clinical condition continued to deteriorate. He developed severe respiratory embarrassment secondary to increasing ascites. Repeated paracentesis was required and 1400 ml of ascitic fluid were removed over a 10 day period. The ascitic fluid remained bloodstained and had a high amylase content (over 1000 IU/l).

INVESTIGATIONS
Direct questioning revealed no history of trauma or family history of pancreatic disease. Antibodies to coxsackie and mumps viruses were subsequently negative. Cystic fibrosis, hyperparathyroidism, hyperlipidaemia, and organic acidemias were excluded and pancreatic ultrasound examination of both parents was normal.

CLINICAL PROGRESS
Institution of subcutaneous octreotide therapy (15 μg twice a day) resulted in a dramatic decrease in the production of ascites such that further paracentesis was not required. Serial ultrasound and computed tomography showed an oedematous pancreas and a gradually enlarging pancreatic pseudocyst. This was drained under ultrasound control by insertion of a percutaneous catheter into the cyst through the body of the stomach. Subsequent ultrasound scans showed full resolution of the pseudocyst. Enteral feeds were reintroduced without relapse and the child made a complete and uneventful recovery.

Discussion
Acute pancreatitis is unusual in childhood and may present with abdominal pain and ascites. The diagnosis is confirmed by finding a high amylase value in either blood or ascitic fluid. Up to 30% of cases may not be discovered until postmortem.

Both accidental and non-accidental injury are important causes of pancreatitis. Infections such as mumps, enterovirus, and mycoplasma have also been implicated. Multisystem disorders including Reye's syndrome, haemolytic uraemic syndrome, and systemic lupus erythematosus can all be associated with acute pancreatitis, as can metabolic disorders such as organic acidemias, cystic fibrosis, hyperparathyroidism, and hyperlipidaemia types I, IV, and V. Drugs which can cause acute pancreatitis include high dose steroids, azathioprine, and metronidazole. Congenital abnormalities of the pancreas are said to be associated with increased risk of pancreatitis, however a proportion of cases remain idiopathic.

Ascites develops from leakage of pancreatic juice either directly into the peritoneal cavity through a breach in the duct or by communication with a pseudocyst. Damage to the duct may follow trauma or be secondary to acute inflammation. Pleural or pericardial effusions can occur.

When medical management has failed to control ascites, a surgical drainage procedure is usually required. This is associated with a significant mortality and the use of octreotide may reduce the need for surgical intervention.
Fructose breath hydrogen tests

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Abstract
Fructose absorption was studied by the breath hydrogen test in 114 healthy children aged 0-1-6 years, given either 2 g/kg or 1 g/kg of fructose. All 57 children given 2 g/kg had peak breath hydrogen excretions ≥ 20 ppm. At 1 g/kg only 25/57 (44%) showed incomplete absorption and the percentage incompletely absorbing fructose and the peak breath hydrogen value were significantly higher in children aged 1-3 years. Interestingly, this age distribution correlates with that of toddler diarrhoea.

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It has been shown by means of the breath hydrogen test that intestinal absorptive capacity for fructose is limited, partly dependent on the presence of glucose. Malabsorption of fructose would have clinical consequences, especially for toddlers, as they may consume relatively large amounts of apple juice. Discussion continues as to whether incomplete absorption of fructose in young children is normal, as opposed to a specific absorption defect. We therefore reinvestigated fructose absorption, using the breath hydrogen test, in children under 6 years of age.

Subjects and methods
The study group comprised 114 healthy children (59 boys). Mean age was 3-5 years (range 0-1-6-0). They were recruited from day care centres and kindergartens. The parents completed a questionnaire concerning actual diets and bowel habits.

Fifty seven children each were given 2 g/kg or 1 g/kg of fructose as a 20% solution after at least a six hour fast. The two groups were comparable in terms of age and sex. Breath samples were taken before fructose ingestion and at 30 minutes, 1 hour, 2 hours, 3 hours and 4 hours thereafter and analysed using the Lactoscreen (Hoek Loos) breath tester. An increase in breath hydrogen of at least 20 ppm over baseline was considered indicative of incomplete absorption of fructose. During the test and for two hours thereafter the children were observed for the presence of abdominal discomfort or diarrhoea.

The results are expressed as mean (SEM). Statistical analysis was performed using the $\chi^2$ test and Student’s $t$ test for unpaired data (two sided).

Results
All 57 children given fructose at 2 g/kg had breath hydrogen increases ≥ 20 ppm over baseline. Breath hydrogen increases varied from 21 to 146 ppm (mean (SEM) 64 (4) ppm; fig 1); there was no significant relation with age (fig 2A). Symptoms were noted in 12 children: abdominal pain in four and diarrhoea in three, five children experiencing both. Peak breath