

was emphasized by Bodian (1952). Necropsy examination of the liver in 46 patients, ranging in age from 2 days to 7 years, showed biliary ductule hyperplasia or focal biliary fibrosis or both, in 35 patients, 8 of whom were 2 weeks old or younger. Consequently, it seems probable that liver scans show a situation which is present in most CF patients.

We agree with Feigelson *et al.* (1972) that scintiscanning is an easy means of showing liver involvement, and the very small dose of radioactive material and short half-life of 99.5 minutes suggest that long-term complications from the radioisotope would be unlikely to occur. However, in our study scans did not show liver disease of an unsuspected severity, and they did not enable us to offer any modification of treatment. Since we did not find a correlation between scan appearances and the ages of the patients or their Shwachman scores, we do not think that the procedure would contribute substantially to assessment of prognosis in CF.

### Summary

Liver scans were performed on 16 cystic fibrosis patients. Most scans were considered abnormal. In most patients, the results of serological liver function tests were normal. Liver scanning in cystic fibrosis is unlikely to make a significant contribution to an assessment of prognosis.

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## Cholelithiasis in a neonate

It is well known that gallstones can occur in neonates and infants with haemolytic disease or congenital abnormality of the biliary tree; but their occurrence in an otherwise normal neonate has not previously been recorded in published reports in English. The lack of precedence leads to problems of diagnosis and treatment and these will be discussed.

### Case report

A Caucasian male, weighing 3.15 kg, was born at Nottingham Women's Hospital on 23 November 1973 to a 25-year-old para 1 mother. Labour was induced by membrane rupture, after 42 weeks' otherwise normal gestation, and delivery occurred uneventfully 1½ hours later.

The day after delivery the child began to vomit all feeds and was noticed to be slightly dehydrated. No organic cause was detected and he was kept under observation. The vomiting persisted, however, and the child was transferred to the Neonatal Medical and Surgical Unit, City Hospital, Nottingham. 4 days after birth the vomiting had become projectile in nature and did not contain bile. Abdominal examination at that time showed a mobile mass under the right costal margin about 1.5 cm in diameter. It was apparently separate from the liver and was lying anteriorly. X-rays at this time showed no significant abnormality. Blood cultures were sterile and there was no evidence of meningitis. Since the child continued to vomit it was decided to perform a laparotomy with a tentative diagnosis of congenital extrinsic duodenal obstruction.

At operation at the age of 6 days the only abnormality found was a very small inflamed gallbladder with a minute inferior perforation leaking yellow bile. During gentle examination of the perforation three small black concretions were extruded. A diagnosis of inspissated bile cholelithiasis was made and a cholecystostomy was performed. An operative cholangiogram was attempted but was unsuccessful because of leakage from the site of the perforation. The perforation was closed with two interrupted sutures and a fine tube was left sutured into the cholecystostomy.

Postoperatively the child was managed by intravenous infusion and nasogastric drainage, together with gentamicin and cloxacillin. Initially the cholecystostomy

tube drained bile freely, but the volume gradually diminished and after the tube was removed on the 7th day there was no further leakage. The baby's recovery was rapid and uninterrupted and he was taking full feeds by the 12th postoperative day. Qualitative biochemical analysis of the stones showed them to be composed of cholesterol, calcium, and bilirubin.

At no stage was the baby jaundiced or anaemic, and blood cultures were repeatedly sterile. There was no history of gallbladder or haemolytic disease in the family. The mother was slightly obese and had been taking oral contraceptives before conceiving this child. During pregnancy she took routine oral iron supplements. A baby born 2 years previously was normal.

Since discharge from hospital the child has made normal progress and has never been jaundiced. There has never been a palpable gallbladder on examination. An intravenous cholangiogram done at the age of 9 months showed good filling of the gallbladder but attempts to show the bile duct failed. Examination will be repeated at the age of 2 years unless there is prior indication.

### Discussion

Cholelithiasis occurring in a neonate has been reported on several occasions in the past, as far back as 1838, but not in an otherwise normal child.

Potter, reviewing published reports in 1928, quoted several cases of neonatal and indeed fetal cholelithiasis, but all these cases were associated, as far as one can tell, with either haemolytic disease or abnormality of the biliary tree. The youngest child reported by Walker, in a series from The Hospital for Sick Children, Great Ormond Street, of children presenting with symptoms of cholelithiasis, was 4 months (Walker, 1957).

In the absence of a predisposing cause the diagnosis is probably impossible to make in the neonatal period without proceeding to laparotomy. The usual radiographic and biochemical tests that may help in the older age group are impracticable or confusing at this time.

Having made the diagnosis at laparotomy one is faced with the problem of whether to perform a simple cholecystostomy or proceed to cholecystectomy. Cholecystostomy leaves the child liable to form further stones, but at this age cholecystectomy would be a difficult and possibly hazardous manoeuvre.

Probably the best approach is that described by Carswell and Willis (1969) who initially performed cholecystostomy on a child of four months with gallstones, but later had to do a cholecystectomy in the light of recurrent obstructive jaundice from more stones. Possibly early analysis of the composition of the bile secreted would allow the decision to be taken earlier if its make-up is shown to be lithogenic (Bouchier, 1973).

In the case presented no specific aetiology has yet been found. Prolonged follow-up is obviously essential since there may be a recurrence and further operative intervention prove necessary.

### Summary

Cholelithiasis occurring in a 4-day-old child is reported. This is believed to be the youngest normal child with the disease. The diagnosis and treatment are discussed.

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## Hydrocephalus treated by compressive head wrapping

Compressive cranial wrapping has been used in America as an alternative to shunt procedures for the treatment of mild to moderate hydrocephalus (Epstein, Hochwald, and Ransohoff, 1973). Shunts carry a considerable morbidity and mortality (Clark, 1969), making alternatives worthy of consideration. A technique similar in principle was described in Britain over 150 years ago (Barnard, 1823-24). The purpose of this paper is to remind paediatricians that compressive cranial wrapping is a viable alternative to shunt dependency, to describe a simple method of applying it in order to give a controlled, reproducible pressure, and to present a case in which it proved successful.

### Case report

A girl was born by spontaneous vertex delivery on 21 March 1973. A large thoracolumbar meningo-myelocele was present, which was closed surgically. Hydrocephalus developed almost immediately and was confirmed by ventriculography. At the age of 5 weeks a Spitz-Holter valve was inserted. At the age of 24 weeks the valve became infected with *Staphylococcus aureus* and had to be removed. Her head circumference was then below the 10th centile but steadily increased. At the age of 50 weeks when it was 48.2 cm (2.5 cm above the 90th centile), compressive cranial wrapping