In view of his deteriorating renal function, resistant hypertension, and widespread atheromatous disease, renal artery stenosis was suspected, and he underwent intravenous digital subtraction angiography. This showed a non-functioning right kidney and postostial stenosis of the left renal artery, with poststenotic dilatation. Renal vein renin studies showed no lateralisation, and peripheral concentrations were within the normal range. Because of his poor medical condition he was admitted for percutaneous transluminal renal angioplasty. Arterial angiography confirmed a tight stenosis with a pressure gradient of 100 mm Hg, falling to zero after dilatation. His blood pressure remained unchanged that evening at 200/120 mm Hg. There were no immediate postangioplasty complications, and his antihypertensive treatment was continued.

Over the next 24 hours he had a considerable diuresis and lost 2 kg in weight. On the morning after angioplasty, while sitting in a chair, he lost consciousness and was incontinent of urine; his pulse could barely be felt. On return to bed he regained consciousness; his blood pressure at this time was 130/80 mm Hg and his pulse rate 80 beats/min and regular. There were no new neurological deficits, and his supine blood pressure settled at 180/100 mm Hg. His antihypertensive treatment was reduced, and he suffered no further syncopal attacks. On the morning of his syncopal attack his packed cell volume had increased from 0·34% to 0·39% and total protein concentration from 70 g/l to 80 g/l. His serum creatinine concentration settled at 161 μmol/l, and his blood pressure was easily controlled with slow release nifedipine 20 mg twice daily at around 150/80 mm Hg; antiplatelet treatment was also started.

Comment

This patient had a solitary functioning kidney with a stenosed arterial supply and normal plasma renin activity. This is comparable to the one kidney-one clip model of experimental renovascular hypertension, which is not renin dependent.[2] After a technically successful dilatation his blood pressure did not fall until 12 hours later, after a large diuresis. This diuresis may have been induced by pressure or volume or related to poor tubular function.

We conclude that a large diuresis after percutaneous transluminal renal angioplasty may precipitate orthostatic hypotension. It is therefore important to monitor urine output and, if this is excessive, to ensure adequate volume replacement.

Hypovolaemia and hypotension should be avoided as such patients may also have cerebrovascular disease, and strokes may be precipitated.[3] It is important to observe these precautions after angioplasty in patients with single functioning kidneys or bilateral renal artery stenosis.

We thank Dr D J Thomas, consultant neurologist, for his help.

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Medical Unit and Department of Radiology, St Mary's Hospital, London W2
M SUTTERS, MA, MRCP, research registrar
M A AL-KUTOUBI, MD, FRCR, consultant radiologist
C J MATHIAS, DPHIL, FRCP, Wellcome senior lecturer and consultant physician
SIR STANLEY PEART, FRCP, FRS, professor of medicine

Correspondence and requests for reprints to: Dr Sutters.

Cerebrospinal fluid fistula after lumbar puncture

Cerebrospinal fluid leaking into the surrounding soft tissues is well known after lumbar puncture and is thought to be the most important factor in the genesis of postpuncture headache. We describe a unique case of hitherto unknown chronic external leak of cerebrospinal fluid through a fistula which developed after lumbar puncture.

Case report

A 16 year old boy with a clinical diagnosis of cauda equina syndrome was subjected to lumbar puncture. An 18 gauge needle was introduced in the L3-4 intervertebral space in the left lateral position and about 6 ml fluid collected in a single prick with no evidence of traumatic tap. Simultaneously 6 ml lipid soluble contrast medium was introduced. Subsequent myelography showed nothing abnormal. Following the custom in this hospital, we did not remove the lipid contrast after the myelography. The patient lay prone for the next three hours with his feet raised.

Twenty four hours after the lumbar puncture cerebrospinal fluid started oozing through the puncture wound. Pressure dressings with adhesive tape did not help. Epidural blood patching[1] was also tried but without success. Two months later the leak persisted and the fistula was sutured subcutaneously. The leak stopped for three days but then started again. After three months of persistent leak the patient was treated by absolute bed rest in the prone position with the head down and cisternal punctures were done daily for seven days, 10-20 ml cerebrospinal fluid being withdrawn each time. This completely stopped the leak within a week, and after a further two weeks' bed rest in the same position the patient was discharged. No leak was detected over the next eight months.

Comment

Internal cerebrospinal fluid leak of clinical importance is manifested by postpuncture headache. The average incidence of headache after lumbar puncture is 41%,[2] but this may be appreciably reduced by preventive measures.[3] These measures fail in about a third of patients, however, who therefore have clinically significant cerebrospinal fluid leak into the surrounding soft tissues. External cerebrospinal fluid fistulas occur in patients with head injury, infections, neoplasms, and hydrocephalus[4] and present as rhinorrhoea or otorrhoea, but there is no definite report of such a fistula developing after a lumbar puncture.[5]

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Department of Neurology, King George's Medical College, Lucknow, India
ALOK MOHAN KAR, MD, DM, professor of neurology
SUNIL PRADHAN, MD, DM, senior resident in neurology
PIYUSH MITTAL, MS, MCH, pool officer in neurosurgery

Correspondence to: Dr Kar.

Equality in death: disappearance of differences in postneonatal mortality between northern and southern regions of England and Wales

Evidence is increasing that the state of health in adulthood is closely linked to that in childhood.[1-3] For many years postneonatal mortality was higher in the industrial north of England than the more affluent south because of its greater proportion of working class families. After a plateau in the figures for England and Wales in the 1960s, however, postperinatal mortality fell during the 1970s.[4] We therefore looked at whether this fall also applied to postneonatal mortality and examined the present trend in northern and southern regions of England and Wales.

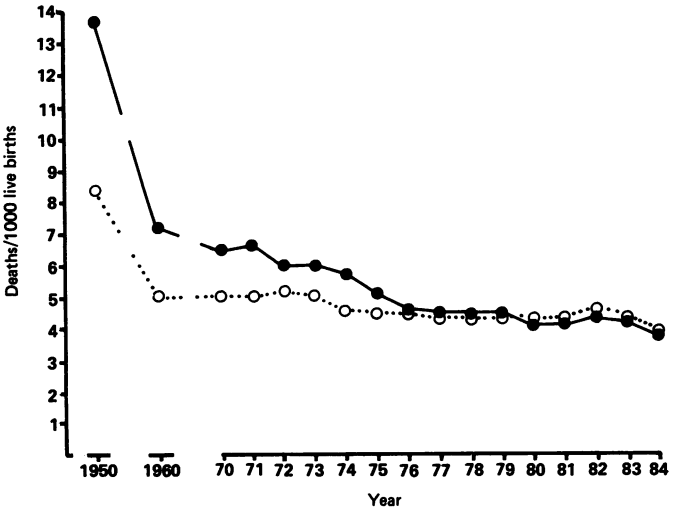
Methods and results

All figures were obtained from the Registrar General's annual statistical reviews and surveys (DH3 series) of the Office of Population Censuses and Surveys. Northern regions were taken as the north east, Yorkshire, the east Midlands, the west Midlands, the north west, and Wales. Southern regions were taken as East Anglia, London and the south east, the south, and the south west.

The figure shows the trends in postneonatal mortality in the northern and southern regions. Rates remained higher in the northern regions until the fall in the early 1970s, which brought equality with the south of England, and this persisted. Rates in the south of England remained the same after 1960. The fall in postneonatal mortality in the 1970s in northern regions fully explained the fall in the figures for England and Wales, which happened at the same time.

Comment

Postneonatal mortality shows the effects of environmental conditions during the first year of life free from the effects of fetomaternal interactions



Postneonatal mortality in England and Wales in 1950, 1960, and 1970-84, in northern (●——●) and southern (○---○) regions.

and is the best indicator of a nation's health and social progress. Concern about geographical differences in postneonatal mortality was expressed in the Court and Black reports. These geographical differences no longer exist; thus one inequality in health has been conquered. We believe that equality has been reached through the disappearance of deaths from infections of the respiratory and gastrointestinal tracts, since 1960 in southern regions and since 1975 in northern regions. Baird showed that in the north of England in the past a higher proportion of children were reared in poor and polluted environments with consequent lowering of the reproductive efficiency of future generations.[5] This effect may also explain why the fall in postneonatal mortality in northern regions was delayed for 15 years. The reports of Barker and Osmond generally support this concept in suggesting that attempts to lower mortality and improve health in adults must start in childhood.[2,3]

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Gosfield Hall, Halstead, Essex CO9 1SF
R R GORDON, MD, FRCP, retired consultant paediatrician

Selly Oak Hospital, Birmingham 29
R SUNDERLAND, MD, MRCP, consultant paediatrician

Correspondence to: Dr Gordon.

Treatment of thyroid cysts by aspiration and injection of sclerosant

Thyroid nodules are a common clinical problem. Between 5% and 20% of these nodules are cystic. Fine needle aspiration offers a non-surgical method of treatment,[1,2] particularly now that cysts can be identified by ultrasonography and fine needle aspiration cytology.[3] Cysts may recur, but injecting a sclerosant such as tetracycline seems reasonable.[4]

Patients, methods, and results

We studied 35 euthyroid patients. Initially, we investigated thyroid function, measured titres of antibodies, and obtained radioisotope (technetium-99m pertechnetate) and ultrasound scans. When a cyst was identified it was aspirated. Patients were followed up for at least one year; thyroid scanning was repeated in some patients, especially in those in whom nodules remained palpable or recurred. If a cyst recurred it was aspirated completely and, with the needle remaining in position, tetracycline hydrochloride 100 mg/ml in 0·9% saline injected: 1 ml was injected into smaller cysts and 2 ml if the volume aspirated exceeded 15 ml.

The table shows details of patients, their cysts, and the aspirations. In 23 patients a simple, single cyst was the only thyroid abnormality. The first aspiration produced an average volume of 9 ml (range 3-18 ml). In most cases (14) the fluid was brown, looking like altered blood; in the rest it was straw coloured, except in one in which it was colourless (it contained thyroglobulin 105 μg/l so was from a thyroid cyst).

In 12 patients the cyst recurred between two and 22 months later (average seven months). The second aspiration usually produced a similar volume of fluid (average 11 ml, range 5-28 ml), although in one patient with a painful recurrence after three months the second aspiration produced 28 ml compared with 18 ml on the first occasion. In 10 of these 12 patients the second aspirate was brown. Two patients had complex cysts of mixed solid and cystic elements and were referred for surgery; in both the lesion proved benign. The 10 other patients had the recurrence treated by tetracycline and had no further recurrence; two experienced local pain (probably because of a leak of tetracycline), but this subsided within a few hours.

In eight patients the cyst presented as a dominant nodule in a multinodular goitre. Four were treated satisfactorily by aspiration alone, but the other four had complex cysts that could not be emptied by aspiration and required surgery. Of the two patients with cysts associated with autoimmune thyroiditis, one responded to a single aspiration but the other had a complex cyst and was treated surgically. One patient had recurrent cysts associated with a tuberculous thyroiditis; repeated aspirations and antituberculous treatment led to complete resolution. Finally, straw coloured fluid was aspirated from one patient with a multinodular goitre and cyst, but additional fine needle aspirates from solid areas indicated a papillary carcinoma, confirmed subsequently at operation.

Details of cysts and aspirations in 35 patients

	Patients		Aspirations	
Type of cyst	No and sex	Mean age (range) (years)	Mean volume (ml) (range)	No
Simple*	21F, 2M	36 (17-61)	10 (3-28)	33
Multinodular goitre	8F	49 (29-74)	11 (2-55)	12
Autoimmune thyroiditis	2F	22, 50	7	1
Acute thyroiditis	1F	21	6 (3-9)	4
Carcinoma	1F	62	8	1

*No evidence of any other thyroid disease.

Comment

Most of the cystic nodules were simple cysts without any other definite disease and could be treated successfully by aspiration alone or by a second aspiration and instillation of tetracycline. Cysts associated with multinodular goitres proved more difficult to treat by aspiration as they were often complex and multilocular. Aspiration of all the fluid was often not possible, and, moreover, in some cases the size and heterogeneity of cysts precluded a satisfactory use of fine needle aspiration cytology.

We suggest that radioisotope scanning and ultrasonography of the thyroid are done before aspiration to identify cystic nodules and assess the rest of the gland. Initial treatment should be simple aspiration with follow up for at least a year as most recurrences occur within this time. Recurrence should be treated by reaspiration and instillation of 1-2 ml tetracycline solution. We agree with Treece *et al* that tetracycline is safe and effective.[4] The risk of primary thyroid cancer in patients with simple cysts is low,[5] but fine needle aspiration cytology of remaining solid tissue is an important adjunct in identifying the rare association.

We thank Dr Elizabeth Hudson for cytological examination of the aspirates.

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Endocrinology Research Group, Northwick Park Hospital and MRC Clinical Research Centre, Harrow, Middlesex HA1 3UJ
C J EDMONDS, DSC, FRCP, consultant in endocrinology
MARISOL TELLEZ, MD, MSC, associate specialist

Correspondence to: Dr Edmonds.