



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}

- 1 Barker DJP. Geographical variations in disease in Britain. *Br Med J* 1981;283:398-400.
- 2 Barker DJP, Osmond C. Infant mortality, childhood nutrition, and ischaemic heart disease in England and Wales. *Lancet* 1986;i:1077-81.
- 3 Barker DJP, Osmond C. Childhood respiratory infection and adult chronic bronchitis in England and Wales. *Br Med J* 1986;293:1271-5.
- 4 Sunderland R, Gardner A, Gordon RR. Why did postperinatal mortality rates fall in the 1970's? *J Epidemiol Community Health* 1986;40:228-31.
- 5 Baird D. Epidemiological patterns over time. In: Reed DM, Stanley FJ, eds. *The epidemiology of prematurity*. Baltimore: Urban and Schwartzberg, 1977:5-15.

(Accepted 9 June 1987)

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

Type of cyst	Patients		Aspirations	
	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.

- 1 Galvin G, Maurer H. Emptying of goitre cysts by small needle aspiration. *Dtsch Med Wochenschr* 1977;102:829-30.
- 2 Clark OJ, Okerlund MO, Cavaliere RR, Greenspan FS. Diagnosis and treatment of thyroid, parathyroid and thyroglossal duct cysts. *J Clin Endocrinol Metab* 1979;48:983-7.
- 3 Willemes J-S, Lowehagen T. Fine-needle aspiration cytology in thyroid disease. *Clin Endocrinol Metab* 1981;10:247-73.
- 4 Treece GL, Georgitis WJ, Hofeldt FD. Resolution of recurrent thyroid cysts with tetracycline instillation. *Arch Intern Med* 1983;143:2285-7.
- 5 Crile G, Hawk WA. Aspiration biopsy of thyroid nodules. *Surg Gynecol Obstet* 1973;135:241-5.

(Accepted 11 June 1987)

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.