geriatric medicine at Northwick Park Hospital, Harrow, where a CAT whole-body scanner has been available for some years now, I reviewed all admission to the unit over a seven-year period to see what differences in presentation existed between patients with intracranial neoplasm and stroke. This formed part of a review of the experience of this acute geriatric unit in the presentation and clinical course of brain tumours in the elderly.¹

Twenty per cent of all admissions to the unit were diagnosed as having a vascular stroke, as defined elsewhere.^{2,3} This represents over 1000 patients. Only four of these were subsequently found to have a brain tumour—that is, 0.4% of all strokes. During the seven-year period 30 symptomatic brain tumours were confirmed, but the majority of these were correctly diagnosed in life, the exceptions being the four patients already referred to. I would submit that the correct diagnosis is nearly always suggested by the history. Progressive mental and/or focal neurological symptoms are the two most significant features in the elderly, while headache or epileptic seizures are far less common than is the case with younger patients.

Finally, whereas over 1000 strokes and 30 symptomatic brain tumours (primary or metastatic) occurred during the study period, it is remarkable that there were only four patients in whom a diagnosis of subdural haematoma was established despite the large number of patients in whom this diagnosis was considered. Many elderly people fall; fortunately, it appears that very few of them suffer subdural haematoma as a result.

C TWOMEY

David Lewis Northern Hospital,
Liverpool

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² Geriatrics Committee, Working Group on Strokes. Royal College of Physicians, London, July, 1974.

³ Capildeo, R, Heberman, S, and Rose, F C, *British Medical Journal*, 1977, 2, 1578.

Organ transplantation and the fetal allograft

SIR,—Immunological studies may lead to the heart of a problem, but preceding clinical and experimental experience is not thereby rendered obsolete or irrelevant. Indeed it may assist immunologists.

Long ago it was shown that sensitivity could be abolished in a patient with tuberculosis by repeated small injections of tuberculin¹ and this did not diminish resistance to the disease. Similarly, the immunity conferred by BCG does not depend on the degree of tuberculin sensitivity induced in the individual.² The tuberculous mother becomes tuberculin negative during pregnancy,³ but resistance to tuberculosis is not diminished. For example, Cohen⁴ reported on 715 pregnant tuberculous women confined in a maternity unit for such patients and found that only 51 (7.15%) showed any evidence of regression, a figure no more and possibly less than would have been expected in a comparable group of non-pregnant tuberculous women. This unit was started in 1937 at Black Notley Hospital, Essex, and most of these women had no benefit from chemotherapy. Long-term follow-up of tuberculous women has shown that the effects of pregnancy have been beneficent and lasting.⁵ So also is the effect of pregnancy

at an early age on the later incidence of breast cancer.⁶

Therefore the letter from Mr J M Maxwell Anderson (29 July, p 355) may offer an analogy derived from the tenfold increase of α_2 -glycoprotein during pregnancy. There is a tenfold increase of oestriol in pregnancy which is associated with the immunological inertia of pregnancy. This inhibits the action of oestradiol. Are we therefore being offered an immunological explanation of a preceding valid clinical experience? Allergy was always a dirty word to those treating tuberculosis.

M C WILKINSON

Buckfastleigh, Devon

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² P D'Arcy Hart, P d'A, Sutherland, I, and Thomas, J, *Tubercle*, 1967, 48, 201.

³ Scadding, J G, *Tubercle*, 1956, 6, 371.

⁴ Cohen, R C, in *British Obstetric and Gynaecological Practice*, ed A Clayl and A Bourne, p 537. London, Heinemann, 1963.

⁵ Lyman, D R, *Yale Journal of Biology and Medicine*, 1943, 15, 464.

⁶ Lemon, H M, *Cancer*, 1970, 25, 423.

Sjögren's syndrome, bromhexine, and tear secretion

SIR,—Dr K Frost-Larsen and others have presented the results of a clinical study (17 June, p 1579) from which they claim that bromhexine is valuable in the treatment of Sjögren's syndrome.

Sjögren's syndrome is, by definition, a condition in which the principal components are keratoconjunctivitis sicca, arthritis, and dry mouth. Only three of their 29 patients satisfied this definition. The only criterion for admission of the patients to the trial was a Schirmer test result of less than 10 mm in both eyes on two occasions. We note that their test was performed with the patients' eyes closed, contrary to the method described in 1903 by Schirmer and later by Duke-Elder.¹ Duke-Elder states that the Schirmer test is a "rough and ready test, without any pretence to accurate assessment, which only provides an indication of excessive lacrimation, marked hyposcretion, or an absence of tears." Pinschmidt² performed Schirmer tests on the normal eyes of his laboratory staff and found inconsistent and abnormal results which varied on retesting. Bijsterveld³ and Lachman and Hazleman⁴ also found the Schirmer test to give a poor indication of tear flow. The conclusion drawn by Dr Frost-Larsen and his colleagues that bromhexine stimulates lacrimal secretion is invalid because their Schirmer test readings were not suitable for statistical analysis. Lacrimal gland function is more accurately measured by the estimation of lysozyme in the tears⁵ and we have described a method of quantitative tear lysozyme assay.⁶

The authors appear to place emphasis on the effect of bromhexine on the break-up time of the tear film, but it has been shown recently that the tear break-up time is a misleading test.⁷ If anything, it is a test of the integrity of the microvillous system of the corneal epithelium which can be disordered by diseases which mimic keratoconjunctivitis sicca.

We were interested to read that some patients' symptoms of dryness resolved while they were on bromhexine. However, our experience has taught us that a patient's complaints of "dry eyes" cannot be considered

diagnostic as the concept of dryness is often conveyed to the patient at a previous consultation. We cannot understand why bromhexine should stimulate lacrimal secretion. Wright⁸ suggested that the drug was capable of influencing mucus production by the conjunctival goblet cells.

Notwithstanding our remarks we will be interested to investigate further this line of treatment because anything which mitigates the lot of the patient with keratoconjunctivitis sicca is very much worth while.

IAN MACKIE

Department of Ophthalmology,
St George's Hospital,
London SW17

D V SEAL

Public Health Laboratory,
Central Middlesex Hospital,
London NW10

¹ Duke-Elder, S, in *A System of Ophthalmology*, ed S Duke-Elder, vol 8, p 132. London, Kimpton, 1965.

² Pinschmidt, N W, *Southern Medical Journal*, 1970, 63, 1256.

³ van Bijsterveld, O P, *Ophthalmologica*, 1973, 167, 429.

⁴ Lachmann, S, and Hazleman, B, *Hospital Update*, 1975, 1, 617.

⁵ Mackie, I A, and Seal, D V, *British Journal of Ophthalmology*, 1976, 60, 70.

⁶ Mackie, I A, and Seal, D V, *British Journal of Ophthalmology*, 1977, 61, 354.

⁷ Vanley, G T, Leopold, L M, and Gregg, P, *Archives of Ophthalmology*, 1977, 95, 445.

⁸ Wright, P, *Transactions of the Ophthalmological Society of the United Kingdom*, 1975, 95, 260.

Rape and the laboratory: blood-grouping of hair

SIR,—Following the review of the laboratory examinations available for investigating allegations of rape in your leading article (15 July, p 154) may I draw your attention to recently published work which will significantly increase the evidential value of human hair examination in such cases?

The microscopic comparison of hairs from victim and alleged assailant is unlikely to be of significant evidential value unless there are gross dissimilarities between the hairs with respect to colour and structure, when it may be possible to make an exclusion on such grounds. Certainly, as you point out, a positive identity match is impossible. However, a feature of living hairs which have been forcibly removed from the scalp, such as may happen during the fracas accompanying a sexual assault, is the presence of sheath cells associated with the root of the hair. Indeed, the presence of such cells is often cited as evidence of a hair having been snatched or tugged rapidly from the scalp.^{1,2} We³ and independent workers in Japan^{4,5} have shown recently that such cells provide the basis for the blood-grouping of hair using the genetic variants associated with enzymes such as phosphoglucomutase (PGM), 6-phosphogluconate dehydrogenase (6PGD), and esterase-D (EsD). These variants are easily demonstrated using conventional starch-gel electrophoresis on a single hair root.³ PGM is especially valuable as it divides the population into three common phenotypes, PGM 1, 2-1, and 2, with frequencies of 58%, 36%, and 5.5% respectively. In addition, it is possible to carry out the electrophoretic examination either before or after microscopy without loss of root morphology or other microscopic characteristics of the hair. The PGM variants may also be detected in pubic and chest hairs forcibly removed.

The blood-grouping of hair based on the ABO characteristics associated with the