

the same price as the non-opaque variety.—
We are, etc.,

EDWARD BOWMAN.
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Myeloma and Neuropathy

SIR,—Dr. D. I. Rushton's report of a case of peripheral sensorimotor neuropathy in association with a localized myeloma (24 July, p. 203) is of particular interest since it is the sixth in which the myeloma has been sclerotic, a relatively high incidence of osteosclerosis since Aguayo *et al.*¹ were only able to find 20 cases of osteosclerosis myeloma in the literature. The first case was Victor *et al.*'s case.^{1,2} The second and third cases were reported by Odelberg-Johnson³ and Aguayo *et al.*¹ Brain told Aguayo *et al.*¹ of a fourth. Admittedly Rushton's case showed only "an area of sclerosis," but cases of sclerotic myeloma with neuropathy should be carefully noted until it is clear whether sclerosis is really more frequent in patients with neuropathy. In our own case,⁴ as in that of Rushton, the myeloma was solitary and in a vertebra, but was densely sclerotic. It was published in the local medical journal as a clinicopathological report. It is ironic that it escaped the attention of workers only four miles away.—I am, etc.,

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REFERENCES

- 1 Aguayo, A., Thompson, D. W., and Humphrey, J. G., *J. Neurol. Neurosurg. Psychiat.*, 1964, 27, 562.
- 2 Victor, M., Banker, B. Q., and Adams, R. D., *ibid.*, 1958, 21, 73.
- 3 Odelberg-Johnson, O., *Acta radiol. (Stockh.)*, 1959, 52, 139.
- 4 Small, J. M., Moxon, C. P., and Woolf, A. L., *Bgham med. Rev.*, 1961, 20, 546.

C.S.F.-protein Fractions

SIR,—The value of a knowledge of the total cerebrospinal-fluid (C.S.F.) protein in neurological disease is well recognized. It is less easy to determine the protein fractions in cerebrospinal fluid. However, in this laboratory a method has been evolved making use of the Chromoscan as a transmission instrument. The method is relatively simple and may be of interest in other laboratories.

The total C.S.F. protein is first demonstrated by a turbidimetric method, and at the same time the red-cell and white-cell count. One millilitre of C.S.F. is then taken and dialysed against 40% sucrose in physiologically normal saline using Viskin 32/32" tubing at room temperature until the volume has reduced to almost zero, or, if the protein concentration of the original is over 150 mg., until 0.1 ml. of the C.S.F. remains. The protein in the sac is taken up in 0.1 ml. of saline if the volume has been reduced to zero. The saline is added through a hole in the top of the dialysis sac and left in contact with the protein in the sac for two hours in the cold. Periodically the sac is removed from the fridge and the protein-saline solution in the sac rolled between the fingers, so that all protein on the wall will have the chance of dissolving. If no saline is added the sac is still left in the cold for two hours with periodic rolling to ensure solution of the protein.

At the end of two hours 0.01-ml. aliquots of protein solution may be withdrawn from the sac and applied in a line to a cellulose acetate strip

which has been soaked in barbitone buffer pH 8.6. The point of application should be half-way along the 10×2.5 cm. strip, and several strips are prepared. The strips are electrophoresed in a Shandon Tank, using 1 ma. per strip, and separation is effected in less than an hour. After blotting the strips dry they are stained in Ponceau Red and the excess dye removed with 5% acetic acid. The strips are then allowed to dry between folds of filter paper, pressed flat with a weight.

It has been found possible to appreciate visually some of the protein bands from C.S.F. of protein content 50–60 mg./100 ml. in the original. The strips may be scanned using the Chromoscan as a transmission instrument.

The procedure has been checked by diluting normal serum to a concentration of 60 mg./100 ml., reconcentrating, and comparing the scans before and after. It has been found possible to identify pre-albumin, albumin, α_1 , α_2 , β , and γ globulin peaks by this method. By careful preparation of the electrophoretic strip it is possible to obtain results from successive strips which differ by no more than 2% for the albumin and globulin fractions. Cerebrospinal fluids with initial protein concentrations of 40–500 mg./100 ml. have been successfully treated in this way.

The method of protein analysis is now being applied to clinical cases and will be evaluated in relation to the specific cases later.—I am, etc.,

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Antidepressant Drugs for Enuresis

SIR,—In his article on incontinence of urine (10 July, p. 91) Dr. Douglas Gairdner does not mention the use of the new antidepressant drugs in the treatment of enuresis. There are few cases of so-called functional enuresis which will not respond to amitriptyline (20 mg. at night for an 8-year-old, with another 10 mg. in the morning in resistant cases). Imipramine in divided doses through the day has also given good results. Enuretic children often become dry within a week of starting treatment.

I cannot remember seeing a child with functional enuresis who did not have at least one parent with a depressive diathesis, and it might very well be that enuresis is part of a genetically determined depressive illness. It is possible that monoamine oxidase inhibitors could be equally effective, but one would hesitate to use them in view of the difficulty in controlling a child's diet.—I am, etc.,

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J. C. GATES.

Indomethacin Suppositories for Arthritis

SIR,—With regard to the article by Dr. L. P. J. Holt and Dr. C. F. Hawkins (22 May, p. 1354), we have recently used indomethacin suppositories in 11 patients. Nine of these had gastric intolerance to anti-inflammatory drugs by mouth, gastric ulcers being demonstrated by barium meal in two cases. A dose of 100 mg. at noon and 100 mg. at night was found to be most effective. In all cases proctoscopy showed normal rectal mucosa, a finding noted by the authors.

Seven of our patients had rheumatoid arthritis, and five of these made a good response without side-effects. One of this group complained of giddiness, which was

relieved by halving the dose given in suppository form while maintaining the same amount of symptomatic relief. In one case where no improvement was made on indomethacin by mouth therapeutic response was obtained by the suppository form. In two further cases of rheumatoid arthritis indomethacin capsules were given in a dose of 25 mg., three times a day, together with a 100-mg. suppository at night. Considerable relief of morning stiffness occurred.

Two cases of acute gout with severe dyspepsia obtained relief within 48 hours while on indomethacin suppositories—in one case twice daily and in the other three a day—without side-effects.

We endorse the findings of Dr. Holt and Dr. Hawkins that indomethacin suppositories are of use in gaining relief from arthritis where capsules are contraindicated, or to supplement total daily dosage. It is particularly useful when morning stiffness is the dominant symptom.—We are, etc.,

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F. DUDLEY HART.

Plasma-renin Concentration in Hypertension

SIR,—In their recent paper Dr. J. J. Brown and his colleagues (17 July, p. 144) have pointed out the inverse relationship between plasma-renin concentration and serum sodium. Observations in this laboratory have demonstrated a similar inverse relationship between plasma renin and diastolic blood-pressure in normotensive subjects. It is well known that patients with essential hypertension have usually a rather low plasma-renin concentration, while among patients with renal artery stenosis some have a high plasma-renin concentration. It is also known that the kidney responds to a fall in blood-pressure by increased output of renin, and it is suggested, therefore, that the usefulness of a plasma-renin reading is increased if account is taken of the blood-pressure at the time the specimen is taken.

Measurement of plasma renin may distinguish a normal kidney from one which is maintaining a plasma-renin level inappropriate to the systemic blood-pressure, as may occur in renal artery stenosis. The total range of plasma-renin concentration in normal subjects is wide: reference to the blood-pressure narrows the range, and reference to the plasma sodium narrows it further. It is suggested that use of a nomogram relating serum sodium, diastolic blood-pressure, and plasma renin may help more accurately to distinguish appropriate from inappropriate renin secretion.—I am, etc.,

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P. T. PICKENS.

Anaphylactoid Shock Due to Penicillin

SIR,—Dr. A. M. Fox's account of Gerstmann's syndrome resulting from anaphylactoid shock induced by oral penicillin in to-day's *B.M.J.* (24 July, p. 206) is most interesting, but I beg to dispute his opening statement, as I reported an anaphylactoid