

quinoxaline dioxide test. All the copper sulphate tests were negative.

In retrospect, we think that a concentration of 0.5% quinoxaline dioxide in white soft paraffin is unnecessarily high for patch testing in view of the very strong positive results we obtained. We think a concentration of 0.01% would be sufficient for use in future suspected cases.

We conclude that quinoxaline dioxide is a potential sensitizer and that sensitivity to it was associated with the development of contact eczema in the five patients mentioned above.

We are indebted to Dr. C. W. Marsden, Imperial Chemical Industries Ltd., Pharmaceuticals Division, for providing us with helpful information about quinoxaline dioxide and for sending us a sample of it which was used to prepare the patch tests.

—We are, etc.,

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Atheroma of the Aortic Bifurcation

SIR,—We read with interest Mr. R. C. Lallemand and others' (29 April, p. 255) report of localized atheroma and thrombosis at the aortic bifurcation in six relatively young women. We wish to point out that in 1958 and 1960 this type of lesion was commented upon by Starer and Sutton,^{1,2} who attributed the early onset of occlusion to embolization from the heart. Again in 1961 one of us, J. H. Louw,³ reported on localized aortic or aorto-iliac disease in young females. The material removed was atheromatous and in none of them was there evidence of proximal cardiac or aortic disease. It was then suggested that the pathogenesis in young females differs from that in other patients, and our subsequent studies have shown that aortic hypoplasia plays an important role. It is, therefore, of interest that two of the cases reported by Mr. Lallemand and colleagues had hypoplastic aortas.

These authors also refer to some interesting work by Womersley⁴ and Gosling,⁵ and here we have to disagree with them. Womersley showed on theoretical grounds that the proportion of a pulse wave that is reflected by a bifurcation depends on the "area ratio"—that is, the ratio of the sum of the cross sectional areas of the branches to the cross sectional area of the parent vessel. Therefore, at the aortic bifurcation:

$$\text{Area ratio} = \frac{\text{sum of cross sectional areas of iliac arteries}}{\text{cross sectional area of the aorta}}$$

Gosling *et al.* calculated that reflection will be minimal when the ratio is 1.15 and that the proportion reflected (and the size of the standing pressure wave) will increase progressively with any divergence from that "ideal" value. A study of 45 randomly selected anatomical and postmortem adult cadavers in our laboratories gave a completely different value for this area ratio. Using a caliper we measured the circumference of the opened aorta at its bifurcation and the iliac vessels at their origin. Using these direct measurements we found a mean value for the area ratio of 0.734; S.D. 0.214; S.E.M. 0.032. With a randomly selected group of this size, these figures would appear highly significant and we feel that the figure 1.15 derived from theoretical considerations and from aortography may well be ideal from a hypothetical point of view, but should

not be taken as the normal in man. Furthermore, our findings suggest that the area ratio used in the design of prostheses for replacement in this region should approximate to the figure of 0.7 rather than to the higher figure given by Womersley, Gosling, and Lallemand.—We are, etc.,

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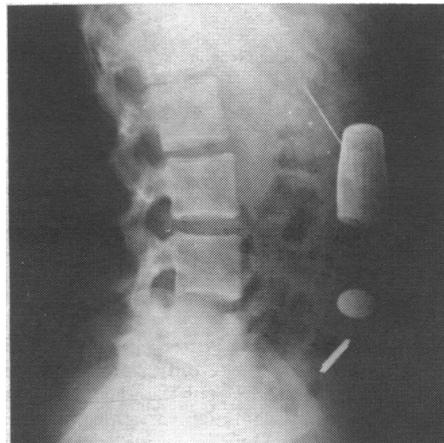
- 1 Starer, F., and Sutton, D., *British Medical Journal*, 1958, 1, 1255.
- 2 Starer, F., and Sutton, D., *British Medical Journal*, 1960, 2, 644.
- 3 Louw, J. H., and Roberts, W. M., *South African Medical Journal*, 1961, 135, 346.
- 4 Womersley, J. R., *Physics in Medicine and Biology*, 1958, 2, 313.
- 5 Gosling, R. G., Newman, D. S., Bowden, N. L. R., and Twinn, K. W., *British Journal of Radiology*, 1971, 44, 850.

Removal of Darning Needle with a Fibreoptic Gastroscope

SIR,—A sharp foreign body was successfully removed from the stomach with a fibreoptic gastroscope. Twelve similar cases were described at a recent meeting of endoscopists in Bristol in March of this year.

A 29-year-old woman was admitted to the London Hospital following a grand mal seizure. She was known to have been mentally subnormal and epileptic since infancy, with an I.Q. of between 55 and 60. Four days after admission she complained of diffuse abdominal pain and, although physical examination revealed no abnormality, a straight abdominal x-ray showed numerous foreign bodies, including a large darning needle, in the stomach (Fig.).

Conservative management was undertaken with regular x-ray surveillance, and large doses of Isogel to aid passage of the sharply pointed needle. All the objects other than the needle passed without incident into the large intestine. The needle, however, re-



mained in the stomach, and after ten days observation it was decided to attempt its removal with the ACMI forward-viewing fibreoptic gastroduodenoscope. After an overnight fast and a 10 mg intravenous injection of diazepam the needle was located with ease lying along the greater curvature. It was grasped without much difficulty with the biopsy forceps. Careful attention was paid to orienting the needle in the axis of the gastroscope. The end of the forceps was withdrawn just within the biopsy channel; the instrument, forceps, and needle were withdrawn together, as is the usual practice at oesophagoscopy. A constant flow of air

maintained the patency of the oesophagus and the needle was viewed throughout the manoeuvre. Particular care was taken as the needle was withdrawn through the pharynx.

The majority of ingested foreign bodies pass through the gastrointestinal tract without difficulty. In a recent series of 660 patients under the age of 16, only 43 of the 412 patients not subjected to oesophagoscopy required operative intervention (20 November 1971, p. 469). In a series of 35 patients who had ingested pins and needles only three required operative removal and the rest were managed with radiological observation in hospital.¹

The indications for active intervention and removal are the danger of perforation and failure to progress. Various methods of removal of foreign bodies from the stomach are described including the use of the rigid gastroscope, special forceps or magnets, and gastrotomy. The use of the fibreoptic gastroscope for this purpose has not previously been described in the literature.

Gastroscopy with this instrument, in trained hands, is a simple and safe procedure with rare complications. We anticipated impaction in or perforation of the oesophagus by maintaining its patency with a continuous flow of air, by ensuring the orientation of the needle, and by constant visualization throughout withdrawal.

We wish to thank Dr. J. R. Ellis for permission to report the details of this case.

—We are, etc.,

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- 1 Siddons, A. H. M., *Proceedings of the Royal Society of Medicine*, 1939, 32, 885.

β -Thalassaemia, G-6-PD Deficiency, and Atypical Cholinesterase in Cyprus

SIR,—In 1966, a W.H.O. scientific group working on haemoglobinopathies and allied disorders pointed out certain areas where more detailed studies on the incidence of thalassaemias and G-6-PD deficiency were considered necessary in anticipation of the importance of these disorders as a public health problem.¹ Among these areas was Cyprus where clinical reports suggested a high incidence of both these hereditary red cell abnormalities, but detailed studies on their incidence were scanty. Banton,² using red cell osmotic fragility as a screening test, reported a 20% incidence of the thalassaemia trait, whereas Plato *et al.*³ found an incidence of only 6-8%.

We studied a representative sample of male Greeks, consisting of 158 army recruits of the National Guard of Cyprus aged 18-20 years originating from all over the island. In addition to the β -thalassaemia trait and G-6-PD deficiency it was thought worth investigating the prevalence of atypical cholinesterase (ACAH) as there was evidence from the literature suggesting that it is high.

For the detection of the β -thalassaemia trait, Hb, Ht, red cell counts and morphology, osmotic fragility, starch gel electrophoresis, and Hb F and Hb A₂ were determined. The methods and criteria used were identical to those described elsewhere.⁴ G-6-PD activity was estimated by the B.C.B. decolorization test, and atypical cholinesterase by a screening test using RO2-0683 as in-