Dr. EVANS: I think the polycythaemia there is not polycythaemia rubra vera, is it?

Dr. LEWIS: As far as I am concerned it really is rather meaningless, but the name has been applied to this combination. A group of these patients studied at Johns Hopkins were found to have so-called "stress" polycythaemia or relative polycythaemia related to a shrinkage of plasma volume. But, in fact, approximately 30% of patients with polycythaemia do have hypertension.

Blood Volume

Dr. OAKLEY: May I offer an alternative explanation for the drop in blood pressure? There is a third contributor to the blood "pressure" which is often not spoken about very much and that is the blood volume. When he was polycythaemic he had an increased circulating blood volume—when the polycythaemia was subsequently treated his blood pressure fell and blood volume studies were then repeated and the comment made that no further treatment was needed. This was because the blood volume had fallen to normal, and with it his blood pressure, and perhaps this is the best explanation for the loss of his hypertension.

Professor BYWATERS: The high viscosity of the blood in polycythaemia increases the work of the heart.

Professor R. STEINER: I don't think we can accept this story of aortic stenosis becoming severe in the last few weeks or months. In retrospect when we looked at his old films it was realized that he had calcific aortic stenosis in 1958.

Professor GOODWIN: But you can't quantitate it, can you?

Professor STEINER: No.

Dr. A. BRECKENRIDGE: There is another relationship—we showed that approximately 30% of patients with untreated hypertension had a raised uric acid, but of course these were not the patients that over-produce uric acid—they're the ones that under-excrete it.⁴ I think this is another facet to this very complicated problem.

Professor BOOTH: So if he'd had essential hypertension in addition to everything else this would have encouraged the retention of uric acid too. The other thing that interested me was the intensity of the fibrosis of the myocardium in a patient with apparently patent coronary arteries.

Dr. EVANS: This type of fine fibrosis lying in between the muscle fibres one tends to find with severe hypertrophy of the left ventricle, particularly when there is an associated aortic valve stenosis.

Professor BOOTH: So that your diagnosis of hypertension, ischaemic heart disease, plus aortic stenosis is all quite correct.

Dr. OAKLEY: All patients with severe aortic stenosis have ischaemic heart disease (but not necessarily coronary artery disease).

Dr. BRECKENRIDGE: In recent surveys it has been shown that patients with a raised uric acid have an increased incidence of ischaemic heart disease.

Professor BOOTH: Thank you. Any other points?

Professor GOODWIN: Can hyperuricaemia account for the myocardial fibrosis?

Dr. EVANS: I don't know in this particular instance whether there was any uric acid in the heart.

Professor BYWATERS: It would not produce a generalized fibrosis. Certainly tophi have been described in the mitral valve—this is quite likely to occur—it might possibly be found that crystals are present because of the calcific fibrosis, but I don't think it contributes anything.

Professor BOOTH: And really we have quite enough to explain it already. Thank you all.

We are grateful to Professor J. P. Shillingford and Dr. E. D. Williams for assistance in preparing this report, and to Mr. W. Brackenbury for the photomicrographs.

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NEW APPLIANCES

Substitute for Gauze Swabs during Surgery: Preliminary Report

Mr. I. G. SCHRAIBMAN, Western Infirmary, Glasgow, writes: Most surgeons will be familiar with the numbing fear experienced when the scrub nurse, after some minutes of increasingly frenzied burrowing among the drapes, announces that the operative and postoperative swab counts do not tally. This may result in prolongation of the anaesthetic, disruption of theatre and radiology department schedules, and at very least the generation of considerable warmth in the theatre. If the error passes unremarked, the surgeon may well be accorded the distinction of appearing anonymously in the annual review of one of the medical defence societies.

The human factor can never be eliminated, and the risk will remain so long as obscuring fluids have to be mopped from the operative field.

It seemed reasonable to suppose that the risk could be lessened if the number of objects to be counted was limited; but as gauze swabs can be used only once the number used (and therefore the risk) is in proportion to the bloodiness of the procedure. For the number of swabs to be limited, therefore, they would have to be reusable, and in line with current post-mortem practice it

was decided to use polyurethane sponges instead of swabs.

Ordinary commercial polyurethane foam sponge was purchased and cut with a sharp knife to the required size. The actual sizes selected were arbitrary—namely, 6 by 4 by 1½ in., 4 by 2 by 1½ in., and 2 by 2 by 1 in. (15 by 10 by 3.8 cm., 10 by 5 by 3.8 cm., and 5 by 5 by 2.5 cm.). Three of the first and six each of the latter were used for a major operation—for example, gastrectomy or colectomy—but only the two smaller sizes for smaller procedures—for example, hernias and varicose veins. For potentially infected operations—for example, where the bowel was to be opened—two separate sets of sponges were used, the contaminated ones being removed together with contaminated instruments and drapes, when the dirty part of the procedure was completed.

The sponges were wrapped in paper packets and sterilized by a standard theatre autoclaving procedure. Before use samples of the centre of some sponges were cultured but revealed no growth.

The absorptive capacity was increased by prior wetting of the sponge with saline. When the sponge was full of blood it was

wrung into a measuring jug kept solely to register blood loss. It was then rinsed in normal saline and wrung out again ready for use. Sponges could be autoclaved four to six times before irreparably losing their shape and fluid-holding capacity.

It is now planned to impregnate the sponges with a radioactive substance for x-ray visualization.

Sponges were used in 19 major and 23 minor procedures without untoward effects. There were no unexpected wound infections and no sponges were lost. The only situation in which the gauze swab was to be preferred was for friction dissection, mounted on a forceps, as sponges would tear.

Polyurethane sponges have three advantages over gauze swabs: (1) as they are reusable a finite and limited number of them is required, regardless of the length or bloodiness of the operation; (2) a reasonably accurate running total of blood loss can be kept; and (3) commercially made sponges may be marketed at about half the price of gauze swabs on a unit for unit basis. The cost decreases with each reautoclaving, and, of course, the do-it-yourself variety come cheaper.