

Vagotomy for Peptic Ulcer

SIR,—Mr. C. G. Clark's studies of diarrhoea after vagotomy and after gastrectomy (April 29, p. 1250) confirm our own studies at the West London Hospital. We found,¹ as he has, that diarrhoea was a much milder affair after gastrectomy than after vagotomy. We found too that after vagotomy diarrhoea is not related to the type of drainage operation used. We have seen also, as he has, the patient after gastrectomy with anastomotic ulceration and no diarrhoea. After nothing more than vagal section to cure the ulcer, disturbing and permanent diarrhoea has resulted.

He is aware, as we are, that surgeons experienced in vagotomy may leave nerve trunks undivided, which are both demonstrated and localized by the electrical stimulation test. He makes it very clear that to perform vagotomy and then prove its incompleteness days or weeks after operation by the insulin test-meal makes little sense.

I was interested, too, in the paper by Mr. J. P. Lythgoe, comparing the insulin test-meal and the electrical stimulation test (April 29, p. 1196). I was sorry to read that in three cases in the Manchester series no response was obtained, before nerve section, from the electrical stimulation test. If the vagus nerves are stimulated in the absence of any atropine-like drug, the stomach must contract and a response must be obtained. Clearly, in these cases there has been some, perhaps small, fault in technique, and I wonder if the cuffed gastric tube was nicely placed in position and had not slipped. Mr. Lythgoe suggests that the test is not sensitive. The reverse is our experience, and I have already published evidence for the sensitivity of this test by transverse section of the small nerves detected.²

I have elsewhere pointed out that when the coeliac division of the posterior nerve arises in the chest it may lie away from the main posterior trunk, but nevertheless it may give gastric branches. In this kind of nerve-distribution the surgeon may pass his finger between these nerve trunks. Thinking that he has the main trunk within his grasp, he leaves the coeliac branch outside it. I wonder if this accounts for some of the cases of apparent incomplete nerve section in the Manchester series. This difficulty can be entirely prevented if the surgeon takes the trouble to palpate the coeliac loop as it passes to the coeliac ganglion on the posterior abdominal wall.

I can assure Mr. Lythgoe that he need have no fear about the absence of atropine. It is given on the table after the test is completed.

I do not think there are any anatomical studies which support Mr. Lythgoe's thoughts that vagal nerve-trunks come through the diaphragm except through the oesophageal hiatus and on the outside of the oesophagus. The paper by Chamberlin and Winship³ which he quotes presents no difficulty. These workers showed that nerve-trunks may be multiple and may be located at different points on the circumference of the oesophagus. All would be picked up within the electrode, and their paper, if anything, emphasizes the need for a test which can both demonstrate and localize retained trunks.

A false-negative response after the insulin test-meal is probably not uncommon, and Dragstedt, in one of his papers, I believe insisted on repeated testing before accepting a negative response as true.⁴ Hollander,⁵ whose name is associated with the test, has pointed out that cholinergic nerves arise in the thoracic segments of the spinal cord and pass through the coeliac plexus to the stomach. He stated, "Hence, until evidence to the contrary has been adduced, the insulin test must be considered in relation to all gastric secretory nerves, and not restricted to the gastric vagi alone."

The important thing, however, is that if a surgeon performs vagotomy and thinks he has divided all trunks, and then he applies the electrical stimulation test, he will find sometimes that nerve-trunks remain undivided, and these he can demonstrate and localize and then go back and find them. In the hands of surgeons very experienced in this operation this would be probable in 10 to 15% of cases, and the nerve-trunks would be small. In the hands of less experienced surgeons the incidence of incomplete nerve-section would be higher and the size of the nerve-trunks greater. The electrical stimulation test is the only one which can be used during operation. It is safe and sensitive. Should it not always be used?—I am, etc.,

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REFERENCES

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- ² ———, *Ann. roy. Coll. Surg. Engl.*, 1960, **26**, 231.
- ³ Chamberlin, J. A., and Winship, T., *Surgery*, 1947, **22**, 1.
- ⁴ Dragstedt, L. R., and Woodward, E. R., *J. Amer. med. Ass.*, 1951, **145**, 795.
- ⁵ Hollander, F., *Gastroenterology*, 1948, **11**, 419.

Safety Belts in Cars

SIR,—I am writing in regard to your annotation on safety belts in motor cars (April 29, p. 1226). There are occasions when the driver may owe his life to the speed with which he can get out of the car. A few years ago my car skidded in the snow over an embankment. The bank sloped for 100 yards (90 m.) at a gradient of 1:3. As the car went over the edge, I opened the door, which had a push-button release mechanism (often considered dangerous), and fell on to the grass. The momentum of the car must have carried the vehicle right over me.

Such accidents may be very rare, but, if there had been a safety belt to release, it is certain that, like the car, I should have been a total loss.—I am, etc.,

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D. W. HALL.

SIR,—Your timely annotation (April 29, p. 1226) calls attention to the need for greater use of safety belts in cars. Two important questions are, however, unanswered: Which type of belt should be worn? How much force should the whole assembly withstand under test conditions?

Colonel J. P. Stapp, whom you acknowledged to be an expert in this field, feels that the lap-strap alone offers the best protection. His reasons, paraphrased from his paper on "Human Factors of Crash Protection in Automobiles"¹ (with which Kulowski² is in agreement), are as follows:

Shoulder and diagonal harnesses alone will restrain the upper trunk but will not prevent the knees moving forward, thus not preventing bone and joint injuries to the lower limbs. A lap-strap will keep the main mass of the body anchored to the seat and will prevent lower-limb injuries. However, with a lap-strap forward flexion of the body at the hips is possible and thus concussion can occur.

It may now seem that a combination of lap-strap with shoulder or diagonal belt offers the best solution. Unfortunately, this is not so because of the possibility of whiplash injury to the neck.

Restraint of the type provided by shoulder or diagonal harnesses holds the trunk rigidly in the upper part, and whiplash injury is possible, *unless a head-high seat back is provided. It therefore follows that shoulder restraint should not be applied unless a head-high seat back is fitted.*

Lap-strap restraint only, which allows the body to bend at the hips, will not produce whiplash injury, but may result in concussion. Colonel Stapp thinks that the head