SOME AIDS TO SURGICAL TECHNIQUE

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1. CLOSURE OF MESENTERIC DEFECT AFTER GUT RESECTION

When closing the mesenteric gap following small-bowel resection, the most common technique employed is suture using an atraumatic needle. This has two disadvantages:

(*a*) It is very easy to puncture a vessel in the mesentery, with the formation of a rapidly spreading haematoma which may be difficult to control.

(*b*) The suture may occlude one of the vessels supplying the anastomosis, especially one of the vasa recta which are end-arteries. This may not be immediately obvious, and it may be an aetiological factor in the causation of a leaking anastomosis. The possibility of this happening may perhaps account for the preference by many surgeons for a lateral anastomosis.

It has been suggested that puncture of the vessel can be avoided by passing the eye of the needle first — this renders the needle non-atraumatic, since a loop of suture has to be pulled through. It also implies that a bigger bite of mesentery has to be taken, to allow the double loop to be passed. However, it is still possible to injure a vein with this technique, and it does not obviate the possibility of picking up a vessel and occluding it as mentioned in (*b*) above.

Because of these difficulties an alternative technique was described by Hamilton Bailey. This consists of picking up the mesenteric edge on each side with an artery forceps and tying over both forceps. This does prevent the puncturing of vessels, but has disadvantages. The forceps may have a fairly substantial vessel in their grasp, which will be occluded by the suture — this may be duplicated on both sides. If the mesentery is at all fatty, as it so often is, a substantial bite will be required to prevent it tearing out; in these circumstances a feeding vessel is particularly liable to be occluded.

Fattiness and friability lead to easy tearing of the mesentery with haemorrhage when forceps are applied. This haemorrhage is again difficult to control; in fact its control may jeopardize the blood supply further. It seems therefore that this method is open to criticism.

Suggested Method

A method which would obviate the disadvantages mentioned would therefore appear to be welcome. It is suggested that use be made of the ligatures which have secured the mesenteric vessels after division of the mesentery. One of the ends of every alternate tie should be left long, and at the conclusion

of the anastomosis the long ends on each side of the mesenteric gap should be tied together, thus closing the defect. This eliminates the possibility of puncturing or occluding vessels and of tearing the mesentery, and also shortens the operation.

2. THE PREVENTION OF POST-THYROIDECTOMY HAEMORRHAGE

One of the postoperative complications of thyroidectomy is haemorrhage into the cavity left by the removal of the gland. This may sometimes arise from one of the larger arteries, but far more commonly it is a venous bleed, involving a small or large vessel. A 'milking' test has been described to detect a leak of the anterior jugular veins, but there are numerous other vessels disturbed during thyroidectomy, and it would be an advantage to test all such vessels to forestall all degrees of postoperative bleeding.

The operation is usually carried out with the patient in the slightly reversed Trendelenburg position, which reduces vascular congestion of the head and neck, a fact which is well utilized by the neurosurgeon. This position is not usually changed until the operation is completed.

Suggested Method

It is suggested that, before wound closure is commenced, the table is tilted into a steep Trendelenburg position. This raises the pressure in the vessels of the operation site, especially the veins. On a number of occasions this has led to a severe venous bleed and on more numerous occasions to smaller bleeds. This has usually been due to the blowing off of a ligature by the markedly raised venous pressure, a process that may easily be simulated during the postoperative straining period. It is then an easy matter to locate and check the source of the bleeding. This 'testing' position should be maintained for 4 - 5 minutes; at the same time the self-retaining retractor should be removed.

This has been found to be a useful manoeuvre which may lead to a diminished incidence of major or minor postoperative bleeding.

3. THE ADVANTAGES OF ELEVATION IN SOFT-TISSUE SURGERY OF THE LOWER LIMBS

Operations which require access to the posterior aspect of the lower limbs necessitate the following procedure: A general anaesthetic which will allow endotracheal intubation, the passage of the tube with its attendant disadvantages, turning the patient on to his abdomen, and re-turning the patient after completion of the operation. Should the operation involve procedures on both anterior and posterior aspects of the limbs, e.g. in dealing with both saphenous systems, it will also involve redraping the patient after he has been turned. Redraping is so tedious that it is tempting to deal with veins situated on the back of the leg and thigh from the front, with attendant difficult access and unsatisfactory results.

Accordingly, a simple technique was instituted to: (*a*) dispense with the endotracheal intubation; (*b*) eliminate turning the patient twice, with its disadvantages; and (*c*) eliminate the redraping.

Suggested Method

The method is simple. A nurse's cloth over-boot has two eyes placed near the toes, through which a metal ring is passed. The boot is sterilized and tied on the patient's foot by its tapes. The ring is then connected by a sterile cord to a pulley attached to the wall. This is a standard fixture, being used in most theatres by the ENT surgeons for fixing mouth gags.

This enables the patient's foot to be raised any degree up to a right angle (Fig. 1). By this means it is possible to deal first with the long saphenous system, then elevate the

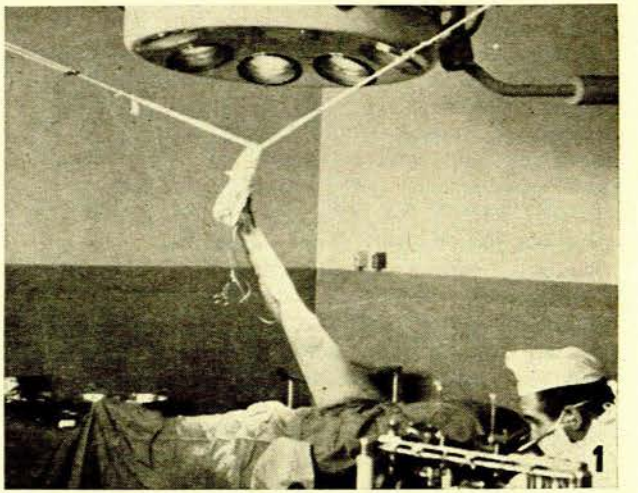

Fig. 1. Leg raised by pulley and tape running through cloth over-boot tied on to foot.

leg and attend to the short saphenous. An additional advantage is that it is unnecessary to place the table into the Trendelenburg position during the stripping to diminish the venous pressure and the bleeding. The elevation of the leg will diminish the pressure more than the positioning of the table, and without the disadvantages of this manoeuvre. Avascular stripping is a particularly noteworthy feature of this technique. It also dispenses with compression by sterile bandages during the actual stripping, which has been advocated to diminish the bleeding.

Further, the foot, which is difficult to sterilize adequately, is excluded from the operation site — this can be accomplished by a surgical glove, but it is far more difficult to apply this with full asepsis. Finally it also allows the leg to be bandaged with the minimum of discomfort and with little extra help, a factor of some importance where assistance is limited.

I have used this method to advantage for operations on varicose veins and lymphoedema, and for various other soft-tissue operations.

SUMMARY

1. The disadvantages in the common techniques of closing the mesenteric defect following gut resection are discussed, and a method is suggested for avoiding them.
2. A suggestion is made for reducing the incidence of haemorrhage following thyroidectomy.
3. Operation on the soft tissues of the lower limbs in the elevated position offers considerable advantages.

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