Discussion

Among patients who exhibit the post-phlebitic syndrome in varying degrees, not all are suitable for popliteal vein ligation, and this should not be practised indiscriminately if the best results are to be obtained.

Unsuitable cases are: (a) Those in which the main vein has not recanalized. These will be excluded by the ascending phlebogram. In doubtful cases a phlebogram from the popliteal vein may help. (b) Those in which venous function has returned to normal. These will show normal venous pressures. Their sole symptom is ulceration. (c) Those with maximal valvular incompetence. In these, exercise will produce little or no drop of venous pressure from the resting level and may even show it to rise.

When these cases have been excluded, note should be taken of the presenting symptoms in the remainder before operation is advised. The most consistently good results are obtained where pain is a prominent symptom, be it bursting pain, cramp, or painful ulcer or eczema. The results in treating oedema are less satisfactory, and experience suggests that where oedema is a predominant cause of complaint ligation may not abolish it. It is too early to say to what extent ligation will help to prevent recurrent ulceration, especially as most patients continue to wear elastic support and so complicate the problem. In suitable cases excision and grafting of the ulcers of patients whose veins have been tied may well prove helpful in producing a lasting cure. Venous-pressure measuring is a simple investigation and not purely a research weapon. Its routine use is a most valuable help in the selection of patients in whom popliteal vein ligation is contemplated.

Summary

A series of 30 legs, the seat of valvular incompetence of the deep veins, is presented; on these popliteal vein ligation was performed.

A simple method of measuring venous pressures at rest and during exercise is described. It is shown how these readings coupled with ascending phlebography can establish the diagnosis of valvular incompetency of the deep vein.

Treatment has been by ligation and division of the popliteal vein. Figures for the 3-15 months follow-up are presented, and are contrasted with the results of other authors.

It is shown how those results could be improved by the selection of cases by means of their venous-pressure changes.

The operation is most useful in those patients in whom pain is a prominent feature.

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USE OF DECAMETHONIUM IODIDE IN ANAESTHESIA FOR PERORAL ENDOSCOPY

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In the early papers on the use of D-tubocurarine in anaesthesia, note was made that a combination of curarization with thiopentone-nitrous-oxide anaesthesia provided satisfactory conditions for peroral endoscopy. It is usually preferable to perform these examinations under local analgesia, but, as Dinsdale (1949) has pointed out, there may be indications for using general anaesthesia—for example, in children, in very nervous patients, or where there is difficulty in obtaining relaxation of the jaw.

Bourne (1947) contributed a paper on the use of D-tubocurarine for intubation. However, one authority has described its use for this purpose as a steam-hammer blow; thus a pointer is given to the main disadvantage of using D-tubocurarine in these cases—if an adequate curarizing dose is given, then depression of the patient persists for about three-quarters of an hour. Attempts to avoid this by reducing the dose of D-tubocurarine lead only to unsatisfactory results. However, as Bourne points out, the toxic effects are less than when deeper anaesthesia with ether is employed.

Suitable anaesthesia for peroral endoscopy and intubation is, however, provided by the use of decamethonium iodide in conjunction with thiopentone—a combination which seems to avoid almost entirely the disadvantages of the D-tubocurarine-thiopentone technique.

The important desiderata for peroral endoscopy are relaxation of the jaw, an open glottis, and lack of reflex response. Relaxation of the jaw is usually stated to accompany anaesthesia with thiopentone; but this cannot be guaranteed, and very often the stimulus of introducing a laryngoscope will cause the jaw muscles to tighten. In the edentulous this factor is less important, but where there is a full set of long teeth, especially in association with some degree of inferior retrusion, profound relaxation is essential.

As Gray and Halton (1946a, 1946b) noted, D-tubocurarine is a potent preventive of laryngeal spasm. In an adequately curarized patient the cords are almost invariably seen to be well abducted, and this is essential for atraumatic intubation or bronchoscopy. This lack of spasm makes it possible to perform oesophagoscopy without intubation (Organe, 1947), as there is no anxiety about loss of control of the airway. It is preferable, however, to intubate such cases. A special advantage of curarization applied to oesophagoscopy is that the relaxation of the post-cricoid sphincter makes passage of the oesophagoscope a very easy procedure.

Decamethonium iodide prevents reflex motor response by producing a block at the myoneural junction of skeletal muscle. The use of topical anaesthesia to depress reflexes

on the afferent side is an important adjunct. For this reason we prefer to spray the throat in all cases with a 2% solution of amethocaine hydrochloride at the beginning of anaesthesia: in bronchoscopies 1 ml. of the solution is introduced into the trachea by means of a laryngeal cannula or by injection through the cricothyroid membrane. It is not known whether decamethonium iodide has any protective effect against possible cardio-inhibitory and other reflexes of the vago-vagal type; although it is uncertain how common or dangerous such phenomena may be, topical anaesthesia provides an additional safeguard in this respect. Notable advantages of the method are lack of explosion danger, greater safety than chloroform anaesthesia, low toxicity, and speed.

Technique

Suitable premedication, including atropine or scopolamine, is given one hour pre-operatively. The estimated dose of decamethonium iodide (ranging from 3 to 5 mg. in adults) is injected intravenously and is immediately followed by little more than a sleep dose of thiopentone (0.3–0.5 g.) given slowly through the same needle. An oral airway is inserted and the 2% amethocaine hydrochloride spray directed down it. Oxygen is then administered by inhalation or inflation for three to four minutes until the relaxant effect is maximal. This is an important point, as apnoea, should it occur, is well tolerated in the presence of full oxygenation of the lungs. A small additional dose of thiopentone is now given and the endoscopy is begun or the endotracheal tube introduced.

Maintenance is usually ensured by further doses of thiopentone given intermittently during the operation. Where an endotracheal tube is used nitrous oxide and oxygen are administered; trichlorethylene has occasionally been employed as a supplement. In rare instances where the operation has lasted more than 15 minutes, further doses of decamethonium iodide have been given as indicated.

Should respiratory depression or apnoea occur, it is the duty of the anaesthetist to maintain adequate oxygenation of the patient; this involves (1) the maintenance of a clear airway and (2) artificial ventilation. The former is secured by the instrument in bronchoscopy or by the tube in other cases. Adequate respiratory exchange should be ensured by gentle compression of the flanks and lower ribs (as in Schäfer's method) or, in the intubated cases, by rhythmic pressure on the rebreathing bag of the anaesthetic apparatus.

Discussion

The method described has been used in 50 operations for peroral endoscopy and in 250 cases for endotracheal intubation. The ages of the patients ranged from 3 to 82 years. Satisfactory operating conditions were obtained in all.

The dosage of decamethonium iodide has approximated to 0.5 mg. per stone (6.35 kg.) body weight. This high rate is important, as adequate curarization is an essential part of the technique. In no instance has delayed return of respiration been encountered. Recovery can always be confidently predicted within a 20-minute period from administration; however short the operation, the residual period elapsing before recovery can only be brief, and during this interval oxygenation can easily be maintained by ventilation with oxygen, simple anaesthetic apparatus being used. For this reason the antagonist—pentamethonium iodide—has never been employed. The unfortunate side-effect of ganglionic block by this drug renders its use

inadvisable on most occasions; its employment in surgery is likely to be limited to the deliberate production of hypotension to reduce haemorrhage during certain operations—for example, fenestration. This technique is unsuitable where the administrator is not skilled in the care of the apnoeic patient or where adequate facilities and equipment are lacking. Dyspnoea is a contraindication to the use of the method.

Jaw clonus has been encountered occasionally during the induction period; this may be associated with the anticholinesterase effect of decamethonium iodide. However, in all instances it has been transitory and has provided no obstacle to intubation.

No qualitative difference has been evident in comparison with other relaxants: an apparently greater ease of laryngoscopy noted early in the series is probably due to the fact that a relatively high dosage of the short-acting decamethonium iodide was employed. In contrast to the observations of Doughty (1950), irritability of the respiratory tract has not been greater than with other relaxants; our experience in this respect is confirmed by Harris and Dripps (1950).

It is believed that this method possesses definite advantages, especially over D-tubocurarine, in that the short-lived action of decamethonium iodide approximates closely to the average duration of these relatively short procedures.

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Medical Memoranda

A Toxic Effect of Thiouracil Hitherto Undescribed

The object of this communication is to set on record a hitherto undescribed side-effect of thiouracil.

CASE REPORT

The patient, a woman aged 48, during a period of intense business anxiety in November, 1947, became "nervy," developed palpitation, and lost 42 lb. (19 kg.) in weight during the next six months. In July, 1948, her doctor asked me to see her because she had a persistent tachycardia and had failed to regain her normal weight in spite of considerable improvement in her general condition with rest and sedatives.

She was a small-boned but not very thin woman, and weighed 7 st. 6 lb. (47.2 kg.) in her indoor clothes. In spite of some nervous agitation under examination she did not give the impression of being a neurotic subject. Her pulse was regular at 120, the thyroid gland was slightly enlarged, and she had a fine tremor of the outstretched hands. There was no exophthalmos or other abnormal eye sign, and her skin was not unduly moist. Her heart was normal and her blood pressure 160/74.

At that time I did not regard the clinical evidence of thyrotoxicosis as strong enough to justify a change in treatment. Six months later, however, though there had been no alteration in weight, her thyroid gland had enlarged and she had developed exophthalmos of the right eye; moreover, she complained of always feeling hot, and her skin was moist.