bladder, uterus, or for orthopædic wrenchings, osteotomies, etc., the patient must be fully under. In these I abolish the corneal reflex, and, if needful, push the anæsthetic to three per cent chloroform—of course watching the respiration all the time, and slacking back when all cause of shock is over. A regularity of depth of anæsthesia often means an absence of post-anæsthetic sickness. An irregular anæsthesia, one moment light, then deep, is most dangerous.

For warmed ether, I pump air through or over ether in a Wolf bottle, and then through a copper coil in a thermos flask filled with boiling water. This apparatus is illustrated and can be used for intratracheal ether. Mercury blow-out is attached.

Instead of using a foot or hand bellows, oxygen may be bubbled through or over the ether. This is most useful in cases of shock, such as orthopædic wrenchings, osteotomies, or in abdominal operations when there is traction on the intestines, gall bladder, etc.

From observation of many thousand cases, I have come to the conclusion that the velvet hand style of surgeon is the one who obviates shock more than another, and that if the operator and anæsthetist are in accord, and work together, it adds greatly to the safety of the patient.

VARICOSE ANEURYSM FOLLOWING BULLET WOUND OF ARM: EXCISION, AND END-TO-END ANASTOMOSIS OF BRACHIAL ARTERY.

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Private —— was admitted to the Military Hospital, Devonport, on October 18, 1916, with a history of having been wounded five months previously. Wounds at the time healed rapidly, there was no excessive hæmorrhage; progress uneventful.

On admission: There were healed wounds of the left arm 3½ to 4 inches above the elbow joint. Entrance on inner aspect over the line of the brachial artery; exit wound more external at outer border of biceps. There was some swelling about the size of a walnut in the line of the wound and the artery. The swelling pulsated strongly, was expansile, and a well-marked thrill and bruit were demonstrated. X-ray examination revealed nothing further, no foreign body or injury to the bone was seen. There was also some tenderness on pressure over the swelling, and continuous pain referred along the distribution of the median nerve in the index, middle and radial side of the ring finger of that hand. No anæsthesia or paralysis. Radial pulse on the affected side somewhat delayed.

A diagnosis of arterio-venous aneurysm and of varicose aneurysm in particular, with some involvement and pressure on the median nerve, was made, and operative treatment decided upon.

Operation.—Under ether anæsthesia an incision about six inches long was made over the swelling, and by careful dissection the brachial artery and median nerve were isolated above, and then traced downwards towards the sac. The nerve was first dissected free from the sac, to which it was intimately adherent by dense scar tissue, and then by working from below upwards and retracting the biceps outwards, the nerve was completely freed, and found to be intact. The next step consisted in freeing the vein and in suturing the lateral opening in it with fine catgut. The sac itself was then dealt with. On laying it freely open and removing some small clots, it was found to be bilocular—one portion being

anterior, the other posterior, to the main vessel—also that the origin of the anastomotica magna was involved in the sac. The possibility of a reconstructive endo-aneurysmorrhaphy was considered, but thought inadvisable in view of the bilocular condition of the sac. On account of the involvement of the anastomotica magna and its necessary ligation, it was decided that it would be better, if possible, to excise the whole of the sac, and to perform end-to-end anastomosis of the main vessel rather than ligature it above and below. The anastomotica magna was therefore ligatured, and the sac excised completely, and left in the wound for further use. End-to-end anastomosis of the brachial artery was then done by Dourrance's method (intima to intima), using fine but strong catgut, the elbow being flexed to a right angle in order to approximate the cut ends of the vessel without tension. The excised sac was then trimmed into a roughly quadrilateral shape, and this was used to reinforce the suture line in the form of a cuff or sleeve. On removal of the tourniquet, the junction was found to be quite satisfactory in that no leakage occurred, and the artery pulsated freely below. A transplanted pad of fat and fascia was also sutured around the nerve, in order to prevent any fresh adhesions forming in relation to it, and the deeper parts of the wound were closed by catgut sutures, and the skin by interrupted sutures of silkworm gut. A tourniquet was left loosely in position, in case it should be necessary to control the circulation, and the elbow kept flexed to nearly a right angle by means of a bandage to prevent any tension on the sutured artery. The next day a radial pulse could be demonstrated at the wrist, but this was somewhat weak and delayed; it, however, improved very much later on. Healed *per primam*; sutures removed on the tenth day; progress uneventful. The pain was now quite absent, and the pulse was easily palpable at the wrist. Patient was discharged to duty some weeks later perfectly well.

Note.—A tourniquet was used in this case to control the bleeding during the operation; this was, however, not necessary, and I am firmly convinced that it was a mistake. It would have been preferable to have used a light clamp on the vessel itself sufficient to control the circulation through it and no more—the use of a tourniquet causing so much vaso-constriction as to make the operation doubly difficult on account of the marked diminution in the calibre of the vessel concerned.

An X-ray examination is always advisable in all cases of plastic operations as a preliminary measure to eliminate the possibility of a foreign body or a sequestrum being present with their attendant risks of latent sepsis, even when the wound has healed—and some months have elapsed since it has done so. I have seen such latent infections lighted up afresh during operative interference even after a period of between three and four months of a completely healed wound. This has, I believe, been generally recognized as a source of danger in all war wounds, such as we are dealing with to-day, and foreign bodies, such as bullets; when in situations difficult of access, are frequently left alone even when causing considerable inconvenience if the wound be healed; how much more important is it then to be able to eliminate the risks of sepsis in such operations as arterial suture, bone grafting, and tendon and nerve transplanting, where the whole success of the operation depends primarily on irreproachable technique as regards asepsis?

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