

of healing action in the wound, and the fluid contained in it was of a very watery character; there was no suspicion of septic changes. The divided section of the isthmus appeared quite fresh, as though repair had not yet commenced. The other organs were comparatively healthy except the liver. In the second case, which occurred a fortnight after the former, the patient passed into a very serious condition within twenty-four hours of the operation. The temperature ran up to  $101^{\circ}$ , and subsequently reached  $104^{\circ}$ ; the pulse was 128, and she became very restless. The dressings were early removed, and the wound was seen to be discharging freely a thin watery fluid; on cutting the stitches more of this fluid escaped. The cavity was left open and packed with dry salicylic wool. For twenty-four hours her condition seemed precarious, and during this time the packing of the wound was changed as often as it became wet. By this means distinct improvement came about, and convalescence was gradually established. In considering these cases, Paul noted that in his earlier operations nothing of the kind had been seen, and concurrently with this remembered that he had formerly been very careful not to squeeze or handle the gland until he had secured the main vessels, whilst latterly he had been in the habit of controlling hæmorrhage, which is often very considerable, by grasping the organ. "I take it that squeezing the gland may help to liberate secretion contained in the follicles, and that the same may escape into the wound from the lymphatics in the divided capsule round the severed isthmus, the lymphatics being the normal channel for absorption of the secretion." He advises that in operating for Graves's disease, the isthmus should first be freed, ligatured and divided, and until this has been done the greatest gentleness should be exercised in handling the gland. The lobe to be removed should then be separated from within outwards, with only the slightest possible degree of handling. On the first onset of symptoms, the wound should be freely opened up, and packed with dry wool or gauze, so as to prevent absorption of the secretion from the raw surfaces. Booth, of New York (*Med. Record*, Aug. 13, 1898), reports eight cases dealt with by thyroidectomy, of whom one died, five were cured, and another was improved, but had been operated on too recently to have reached the point of maximum benefit, which is always somewhat delayed. The order of improvement noted by Booth corresponds with that observed by others, viz. first the goitre diminishes, next the nervous symptoms disappear, then the pulse-rate and vasomotor phenomena improve, and the exophthalmos last of all.

No further records of importance have been forthcoming in

the treatment of Graves's disease by total excision of the cervical sympathetics. Old statistics have been dished up by Jaboulay and Jonnesco, but nothing new has been added.

#### V.—SURGERY OF THE VASCULAR SYSTEM.

*The treatment of aneurysm by extirpation* forms the subject of a valuable lecture by Pearce Gould (*Clin. Journ.*, July 20, 1898), in which he contrasts it with that of proximal or Hunterian ligature, under four headings:—1. The operation itself is more difficult, and sometimes impracticable; the rapidity of the Hunterian method may be a matter of importance in weakly subjects. 2. As to the mode of cure, it must be remembered that the "irreducible minimum" required is the total occlusion of the vessel at the site of dilatation. This is brought about in the Hunterian proceeding by indirectly influencing the circulation, but in extirpation it is the direct result of the operation. This point may be illustrated by a case reported in the *Brit. Med. Journ.* (Dec. 25, 1897), by W. M. Willis, in which a popliteal aneurysm was apparently cured by ligature of the femoral at the apex of Scarpa's triangle, and yet five years later the sac refilled, forming a tumour which simulated, and was supposed to be, a sarcoma, requiring extirpation for its cure. 3. The interference with the circulation in the limb varies considerably in the two operations, and the variation is not in favour of the Hunterian method. When an aneurysm is extirpated, the circulation is interfered with at one spot alone, viz. where the sac has been removed, and the very removal of the sac may assist in establishing the collateral circulation by removing a cause of pressure upon the collateral trunks. In the Hunterian proceeding the blood stream is cut off at two different levels, viz. at the site of ligature, and again in the aneurysm, whilst the presence of the consolidated sac may interfere with anastomotic branches. This is especially the case in the popliteal trunk, where the articular branches are important anastomotic connections, and hence gangrene is more frequently noted after ligature of the main trunk than after extirpation. 4. As to the range of applicability, the advantage is still on the side of extirpation, since it may be utilised in cases where ligature is attended with great difficulty or danger, as also for leaking or ruptured aneurysms when the Hunterian proceeding is inapplicable.

In confirmation of the views expressed in this lecture, two cases of importance may be referred to, in which extirpation has been employed for aneurysms of the external iliac and subclavian arteries respectively. Dollinger (*Pest. med.-chi. Presse*,

No. 49, 1897) operated on a man, aged 32, who had suffered from pain and swelling in the right groin for two years. The mass was pulsatile, and extended from just above the line of Poupart's ligament for  $2\frac{1}{2}$  in., and was  $1\frac{1}{2}$  in. in breadth. The patient could not stand the pain of digital compression, and the idea of tying the common trunk was not liked; the existence of a well-marked collateral circulation also favoured the idea of extirpation. An incision was made parallel to Poupart's ligament, and the peritoneum pushed forwards sufficiently to enable a ligature to be applied to the trunk, about an inch above the sac; the narrowed common femoral was next tied below, and the sac was then easily removed. The patient did well and made a good recovery.

Moynihan (*Annals of Surgery*, July, 1898, p. 1) relates a case of subclavian aneurysm treated in the same way. The sac extended from the outer border of the scalenus, and was apparently about as large as a hen's egg. The method of operating employed was as follows:—A large curved incision was made with its convexity downwards over the centre of the clavicle, and the flap thus marked out was dissected up. The clavicle was cleared at each end, drilled in four places to carry silver wire, two holes at each end, and divided between the drill holes. The attachments of the sternomastoid to this portion were divided, and the central part of the clavicle was thus easily turned down and held out of the way. The aneurysmal sac was thereby freely exposed, and cleared up to the border of the scalenus anticus. A ligature was passed round the second part of the trunk, exposed by gently pulling aside the scalenus, and a fourfold strand of fine catgut was tied tightly around it. Another ligature was applied just above the sac, but outside the former, and the vessel was divided between the two. It was then a simple matter to free the aneurysm entirely, as far as the first part of the axillary, which was secured by a triple strand of catgut. The clavicle was replaced and fixed in position by sutures passed through the drill holes, and the wound was then closed. Unfortunately, the further history of the case was complicated by the presence of sepsis, and the ultimate outcome was that the subclavian trunk gave way and the innominate had to be subsequently tied, a proceeding from which the patient, more or less exhausted by previous hæmorrhages, never rallied. There are several points worthy of notice in this case. The method of reaching and exposing the artery was novel, but commends itself as extremely valuable; the chief risk is in the possibility of wounding the subclavian vein which lies nearer to the bone than the artery; it must be well protected by the insertion of a spatula

behind the bone when the drill is being employed. In 1897 it was pointed out that the application of a tight ligature to this vessel is dangerous, and it seems probable that the secondary hæmorrhage in this case was partly due to that fact and partly to the existence of sepsis. Had the Ballance-Edmunds method of ligature been employed and sepsis avoided, I see no reason why the operation should not have been successful.

Two other cases of *ligature of the innominate artery* have been reported during 1898, neither of them successful, unfortunately. In Gay's case (*Med. and Surg. Reports of the Boston City Hospital*, 1897, p. 296) failure resulted from omitting to tie the common carotid together with the innominate, and from the fact that wound infection occurred, owing to a defective steriliser having been employed for the silk. In the second case (Schumpert, *Medical Record*, Sept. 3, 1898) failure was due to cerebral softening. The vessel was tied close to the aorta with a strand of braided silk, drawn tight enough to occlude the vessel, but not to wound the coats. Death occurred on the ninth day, and at the autopsy the ligature was found lying quietly encapsuled.

Two cases of *ligature of the first part of the subclavian*, one on each side of the body, have also been reported. Schumpert (*op. cit.*) operated on the left side, and claims that it is only the second operation of the sort that has ever been attempted. The case was fully successful. Curtis (*Annals of Surgery*, April, 1898, p. 540) operated on the right side; the inner end of the clavicle was cleared and turned outwards, and the vessel secured about an eighth of an inch from the thyroid axis by two fine catgut ligatures placed in close approximation.

*Distal ligature in the treatment of aneurysms* forms the subject of two interesting papers by Heath (*Brit. Med. Journ.*, Feb. 19, 1898), and Le Dentu (*Presse Méd.*, March 2, 1898). In both it is admitted that this proceeding is applicable only to aneurysms of the aorta or occasionally of the main vessels of the neck, and they relate at length some of the results that have been obtained. The method of cure in aneurysms of the root of the carotid seems somewhat difficult to explain, but Le Dentu suggests that it is largely due to an aspiratory influence exercised by the current of blood passing through the aorta upon the stagnant blood lying within the *cul-de-sac* formed by the ligatured carotid, so that the vessel is emptied and allowed to contract. A case has recently been reported by Cheyne (*Brit. Med. Journ.*, Oct. 22, 1898) in which he tied the left carotid for an aneurysm of the aorta, but the patient died of cerebral embolism. Another case has been

under the care of Prof. Rose and myself (*Brit. Med. Journ.*, Dec. 3, 1898), where we had occasion to tie first the common carotid and then the subclavian, both on the left side, for aneurysm of the aorta involving the root of the carotid, and, possibly, of the subclavian. The result in this case proved everything that could be expected or desired; the dyspnoea and pain both passed away, and the patient is able to get about again in comparative comfort. Of course the aortic dilatation persists, but the pulsation is less forcible than formerly, and had nothing been done it is probable that the patient would long ago have died.

*Aneurysm of the abdominal aorta* treated by introduction of gold wire and electrolysis. Noble, of Philadelphia (*Phil. Med. Journ.*, June 25, 1898), relates a case in which Stewart's plan of treatment (commented on in the "Year-Book for 1898," p. 189) was applied with brilliant success to an abdominal aneurysm. The patient was an Englishman, thirty-seven years of age, who had suffered from syphilis fifteen years previously, and who came under observation for acute abdominal pain of a boring character, together with severe gastric disturbance. On examination of the abdomen an aneurysm the size of a large foetal head was found midway between the ensiform appendix and umbilicus. Treatment by rest, iodide of potassium, opium for the relief of his pain, and the administration of nourishing food in small quantities frequently repeated seemed utterly unavailing, and the patient gladly agreed to operation. The abdomen was opened, and the aneurysm exposed by separating a number of adhesions. A small cannula was introduced into the sac, blood spurting out of it to a distance of several feet. Eight and a half feet of hard drawn No. 30 gold wire were introduced into the sac, and the positive pole of the battery was connected with the end of the wire, the negative with a clay plate beneath the patient's buttocks. Electrolysis was maintained for about thirty-seven minutes, the current being gradually increased until it reached 70 milliamperes, at which it was kept for six minutes. By this time the pulse was very rapid, and the patient's condition not at all good. The wire was cut short, the cannula withdrawn, the abdomen closed, and the patient put back to bed, the operation having occupied two hours and ten minutes. "There was no pain after the second day, and improvement was rapid. The pulsation in the stomach of which the man had complained so much before disappeared entirely, and he was able to retain nourishment without difficulty. He was kept in bed about eight weeks, and when discharged the mass had lessened to the size of a small orange, and gave no pain. The man returned to his home apparently well." This is the eleventh case on record

of treatment of aneurysms in this way, and we cannot but feel that it is a valuable addition to our means of dealing with some of the more hopeless cases of this terrible affection.

*Wounds of the thoracic duct.*—The extension of operative procedures for carcinoma of the breast into the supra-clavicular fossa is responsible for a number of cases of this type, and it is important not only to remember its possibility but also to recognise how it may be treated should it unfortunately occur. Four new cases are reported from America during 1898 (*Annals of Surgery*, June and August, 1891, pp. 719 and 229), and five by Wendel (*Deut. Zeit. f. Chirurg.*, Bd. xlvi., p. 437). It must be remembered that the main thoracic duct communicates with the venous circulation in the so-called *angulus venosus* at the junction of the left subclavian and jugular veins. Wendel has made a number of careful dissections and confirms what has already been pointed out, viz. that it is the usual thing for the duct to terminate, not in one main branch but by a number of smaller trunks, and thus it is possible for one or more of these to be injured, giving rise to an escape of chyle, and yet on tying or otherwise stopping the flow, no evidence of lymphatic obstruction occurs. Wendel also states that there is sometimes a communication between the thoracic duct and the vena azygos major, as also with the renal vein, a condition found in four out of twenty-nine observations. As to the treatment to be employed for an accident of this type, should it be recognised at the time of operation—if the wound in the trunk is longitudinal it may be practicable to close it by suture without totally occluding the vessel; this was successfully accomplished by Cushing in one of the cases mentioned above. Failing this, a ligature should be applied, and should this tear off, as is not uncommonly the case, tamponade of the wound must be resorted to, and in all probability it will suffice. Should the lesion not be recognised at the time, and the wound closed, evidence of distension in the latter will soon manifest itself, and sooner or later chyle will escape externally. This should be dealt with by opening up the wound, looking for, and if possible tying, the divided vessel, and, failing this, tamponade.

#### VI.—ABDOMINAL SURGERY.

*The surgery of the stomach.*—No organ within the abdomen has received so much attention during 1898 as this viscus, and a great impulse has been given to it partly by the record of cases of total gastrectomy which have been reported, and partly by the publication of statistics of the work of many surgeons during the past few years. In reality the stomach appears to be one of the