

Statistics have proved that the risk to the patient from the use of the ligature is greater than that from compression; and we should have been glad to have given a greater number of cures from the latter than those we now record.

The notes of the following case were taken by Mr. Henry Hutchins.

E. C—, aged forty-two, was admitted into the above hospital on June 13th, 1860. He was a healthy-looking, moderately-muscular man, had enjoyed good health, and was actively employed in Chatham-dockyard. About twenty-one days before admission, his right knee-joint felt stiff, and movement caused pain. At this time he felt a swelling in the popliteal space, which "throbbed." He stated that he was of temperate habits, had lived comparatively well, and had pursued his ordinary work until within a few days of admission. During work he had felt some pain in the back of the knee, extending down the leg and foot. Since the first observation of the swelling it had gradually enlarged, and the pain had become more and more severe. The diagnosis of the nature of the disease was very easy. The sac was large, filling the whole of the popliteal space. Pressure on the femoral artery perfectly arrested the pulsation through the sac and caused it to become partially empty. In this state there seemed to be a considerable mass of solid material, doubtless fibrine, forming the walls of an aneurism; and under these circumstances Mr. Birkett thought that it was a favourable case for the application of pressure on the trunk of the femoral artery. After rest in the recumbent posture for a few days, with attention to his general health, pressure was commenced and maintained by means of a weight and the clamp for a week. This treatment he endured very well for a few days. He then became very irritable, intolerant of the pressure, and suffered from pyrexia. The leg became slightly cedematous and hot. The nights were passed without sleep, his appetite failed, and no beneficial influence had resulted to the tumour by the means employed. The febrile symptoms having been arrested by the administration of the usual remedies, on the 22nd of June (after pressure for seven days), Mr. Birkett applied a ligature around the femoral artery at the usual place. After all pulsation had ceased, a tumour of considerable size remained, but not larger or more solid than when the man was admitted. This observation seemed to show that no appreciable amount of fibrine had formed in the sac, as the result of the pressure which had been applied. The temperature of the limb was preserved by covering it with cotton-wool. He was put under the anæsthetic influence of chloroform during the operation, which produced no embarrassing after-consequences. The edges of the wound were brought together and maintained *in situ* with plaster. The ligature was brought out at the inferior extremity of the wound. In the evening the temperature of the surface of the leg was low. Being rather restless, he took forty minims of tincture of opium.

June 23rd, 1860.—He passed a comfortable night. The leg is warm; but he complains of a sensation of pricking in it.

He never manifested an untoward symptom after the application of the ligature, which was removed at the dressing of the wound on the nineteenth day. The sac slowly diminished, becoming harder and harder and more circumscribed. In the knot of the ligature a perfect circle of the outer coat of the artery was enclosed. This was demonstrated somewhat accidentally, in consequence of observing some tissue adherent to the silk, which, when floated in water and unravelled, proved to be as above described.

The patient left the hospital on the 3rd of August, quite well in health, although the wound was not completely closed. It was quite healed three weeks afterwards.

Oct. 26th.—Tumour no longer perceptible; health very good; limb rather weak.

#### ANEURISM OF LEFT POPLITEAL ARTERY; PRESSURE ON FEMORAL; LIGATURE; CURE.

(Under the care of Mr. BIRKETT.)

R. C—, aged thirty-nine, was admitted September 21st, 1860. He was engaged as a shipwright in Chatham dockyard, and was a strong, muscular man, apparently in robust health. Has been temperate, and has lived well. He stated that three months since a plank of wood struck him on the outside of the left knee-joint. The force of the blow was sufficient to knock him down, but he resumed work soon afterwards on the same day, and continued at it until September 17th. Two months since he felt aching and pain, "like rheumatism," behind the knee, which extended thence downwards and forwards in front of the tibia. He felt a lump in the popliteal space a month ago.

The existence of an aneurism of the popliteal artery was easily diagnosticated. By arresting the stream of blood, the sac could be emptied completely, it was thought, for scarcely more than a slight fulness in the region then remained. The pulsation throughout the tumour was very strong, and the whole popliteal space was filled by it.

After rest and constitutional treatment with tonics, and a light, nourishing diet, pressure was commenced with a clamp and weight applied over the femoral artery in the upper third of its course. It required a heavy weight and strong pressure even to control the flow of arterial blood; to arrest it, much more than the patient could endure for any length of time. It should be here stated that this man enjoyed more than the usual intelligence of people of his class; that his mechanical tastes enabled him to comprehend the *rationale* of the means employed, and that he readily seconded the efforts of the surgeon by every means in his power. He calmly persevered in maintaining a certain amount of pressure for a few days; but he at last became restless, partly from loss of sleep and the constraint of his posture. An irritability of the sartorius muscle, too, seemed to be induced, which prevented the apparatus from effecting its object. The site also at which pressure was made became very sore and painful. No change had occurred in the sac. At last, on the tenth day after the employment of pressure, he would endure it no longer, and, having heard of the case before related, he urged Mr. Birkett to apply a ligature on the artery.

This operation was performed on October 9th at the usual place, and when the man was under chloroform. The artery was small and its tunics thin. The edges of the wound were adjusted by means of plaster, and the ligature brought out at the centre of the wound. The sac contracted into a small compass. The patient never experienced the slightest untoward result, and the ligature came away on the twenty-fourth day after its application. The wound immediately healed, and the man left the hospital on the 9th November, 1860. In the knot of the ligature, likewise in this case, was a circle of the coats of the artery. At the time the patient left the hospital, scarcely a trace of the sac remained.

#### ST. MARY'S HOSPITAL.

#### ANEURISM OF THE POPLITEAL; TREATMENT FIRST BY COMPRESSION, SUBSEQUENTLY BY LIGATURE OF THE FEMORAL ARTERY; RECOVERY.

(Under the care of Mr. URE.)

RICHARD D—, aged thirty-two, stonemason, a stout Cornishman, was admitted into the Blomfield ward October 28th, 1859, complaining of a painful tumour in his left ham. He stated that he had always enjoyed good health, and that his habits were temperate. He was quite well up to three months before admission, when he was troubled with a slight pain in the calf of the left leg; this gradually increased, and a month later he noticed a swelling in the left ham about the size of a marble. The leg and foot then became swollen, and he gave up work for a short time; but as these symptoms appeared to be subsiding, he resumed his work for a fortnight, when the pain returned; and, the tumour in the ham having attained a considerable size, he consulted a medical man, who advised him to come up to town at once, which he accordingly did.

Upon examination, a pulsating tumour, of the size of a turkey's egg, was found in the popliteal space of the left leg, the beating being synchronous with the action of the heart. On applying firm pressure over the femoral artery the pulsation ceased. On placing the stethoscope over the tumour, a bellows murmur (*bruit de soufflet*) was distinctly audible; and a similar murmur, though very slight, was heard when listening to the heart.

Oct. 30th.—Mr. Ure having determined to treat the case by compression, this was commenced to-day. A double compress, well padded, was applied along the middle third of the course of the femoral artery, so as to diminish the current of blood through the aneurismal sac. The general health is good.

Nov. 1st.—Complains of numbness in the leg, with severe pain in the region of the tumour.

5th.—Still complains of pain, though it is not so severe; he is very restless at night; can stretch his leg more freely than before. Thickening of the walls of the sac is apparently going on, with diminished impulse.

8th.—He is very restless and uneasy. As he could not bear

the double compress well, he has been supplied with two instruments, with which pressure is made in the groin and in the middle of the thigh alternately. Appetite good; bowels costive; pulse natural.

18th.—Impatient and irritable; functions disturbed; looks pale and anxious; numbness in leg and foot; pulsations in the tumour weaker, and deposit going on.

26th.—Although the deposit seems to have become pretty thick and firm on the depending portion of the tumour, yet, on removing the tourniquet, the impetus of the current of blood is felt very strongly, especially laterally, where the walls are thin and bulging. There appears to be a little effusion into the knee-joint, and the œdematous condition of the limb is increased. The patient is very irritable and impatient, and it is pretty evident that, for the last few days at least, he has been in the habit of loosening the tourniquet almost directly after it has been applied; taking these facts into consideration, it was agreed, at a consultation to-day, that ligature of the artery under the circumstances was advisable.

27th.—Quarter to two P.M.: The patient being placed under the influence of chloroform, Mr. Ure proceeded to tie the artery in the usual manner. With a small scalpel he made a linear incision of about three inches and a half in length, commencing about two inches and a half below the middle of Poupart's ligament, cutting in the axis of the limb, and keeping to the inner side of the sartorius muscle. Having made the incision through the skin and superficial fascia, he then divided the fascia lata on a director to nearly the same extent, exposing the femoral sheath; a portion of this was taken up with a pair of forceps and divided for about three-eighths of an inch so as to admit the aneurism needle, which was then carried round the artery from the inner to the outer side, and the vessel firmly secured. The edges of the wound were now brought together with strips of plaster, the whole limb enveloped in a flannel roller, and the patient put to bed.—Five P.M.: Is very comfortable; has very little pain down the leg; pulse 100, full.

28th.—Eleven A.M.: Has had a pretty good night, and complains only of an occasional jumping pain in the thigh; there is a little oozing from the wound; no perceptible difference in the temperature of the two limbs.

Dec. 1st.—Wound has healed by first intention; there is a slight exudation of healthy-looking pus from the point where the ligature emerges; no pain.

10th.—The tumour is smaller and softer, and quite free from pain; there is still a little discharge from the neighbourhood of the ligature, which appears firm.

13th (seventeenth day).—Ligature came away this morning.

19th.—No sensation in the toes; faint but distinct on the dorsum of the foot. Limb to be encased in cotton-wool.

Jan. 7th.—He gets about very well with the aid of crutches, and is able to put his foot to the ground. The sensation in the toes is gradually increasing.

22nd.—Left the hospital cured. The tumour in the ham is quite firm and hard, and the collateral circulation fully established. His health is first-rate.

It may be remarked that the numbness of the leg, which was somewhat troublesome during his recovery, was attributed by Mr. Ure to the pressure of the over-distended neurilemmal vessels of the sciatic nerve, which were necessarily increased in size during the establishment of the collateral circulation.

### LONDON HOSPITAL.

#### ANEURISM OF THE POPLITEAL ARTERY IN AN OLD MAN WITH AN ARCUS SENILIS; TREATMENT BY COMPRESSION; CURE.

(Under the care of Mr. ADAMS.)

THE notes of the following case were taken by Mr. D. H. Dyte:—

Wm. G—, aged sixty-seven, by occupation a storekeeper, was admitted on December 21st, 1860. This patient, a tall and thin man, of florid complexion, in whom the "arcus senilis" was well marked, stated that he had always enjoyed good health; but that ten days previous to admission, whilst walking, he suddenly felt a severe pain in his left ham, which was followed by numbness, extending down the leg of the same side. Thinking he had sprained his knee, he applied warm fomentations, soap liniment, &c.; but at the end of three days, not finding any relief from this treatment, and noticing a swell-

ing at the seat of pain, which began to increase in size, he consulted his medical attendant, who informed him of the serious nature of his disease, and recommended his immediate removal to the hospital.

Dec. 21st.—On admission, the symptoms above described were complained of, and there was found upon examination a violently pulsating tumour, of the size of a small orange, occupying the lower part of the popliteal space. This tumour could be rendered empty and flaccid by pressure upon the femoral artery, and upon removal of the pressure it would rapidly re-fill, and pulsate as before. The patient was closely questioned, but he emphatically stated that he had never received any injury at the part, and that he had not felt any pain nor inconvenience, nor had he observed any swelling, before ten days prior to admission. He was placed on full diet, and ordered to remain perfectly at rest.

28th.—The tumour had not increased; the pain and numbness continued as before. A bladder containing snow, which was afterwards exchanged for ice, was applied to the tumour, and an attempt was made to effect pressure upon the femoral artery against the pubis by means of a weight. This was found to be ineffectual on account of the man's restlessness, and was consequently abandoned.

Jan 1st, 1861.—The patient still complains of numbness in the leg; but the pain is not so great as hitherto. After some considerable trouble, a Signoroni's tourniquet was applied to the artery, about an inch below Poupart's ligament, and perfect control over the aneurism was thus obtained. The instrument could not be applied at any other part of the thigh, as the man would not bear the pain caused by it. The application of the ice was now discontinued.

8th.—The pain and numbness not so much to-day. The tumour has very slightly decreased in size.

15th.—The tumour has become somewhat harder and firmer, is rather smaller than hitherto, and pulsates less violently. The artery above the point of pressure is a little enlarged, and has assumed the appearance and character of a small fusiform aneurism.

22nd.—About this time the patient suffered from a severe attack of catarrh and bronchitis, for which suitable remedies were administered, and the application of the tourniquet was ordered to be discontinued.

31st.—On the re-application of the tourniquet, the aneurism was found to have attained its original size. In the course of a few days, however, it had again diminished.

Feb. 11th.—The tumour is gradually becoming smaller and harder, the pulsation less distinct, and on some days could not be felt at all. The patient feels quite well, and does not complain of any pain.

26th.—The tumour is now the size of a large walnut, is hard and firm, and scarcely any pulsation can be felt in it. There is a small artery (sural?) running across it, which pulsates distinctly.

March 26th.—The aneurism has not diminished in size; but is much harder and firmer than hitherto. Not the slightest pulsation has been felt in it for the last fortnight. The patient, however, has complained of great pain and numbness in the ham, and down the leg, the superficial veins of which are much distended. Strapping and bandaging was ordered; but this, having irritated the skin, was discontinued, and an elastic cotton bandage was applied instead. He experienced great relief from it; and is able to sit up, and walk about the ward with the aid of a stick.

April 12th.—The patient does not complain of any pain or numbness, and walks about without inconvenience. The tumour continues to diminish in size, and is very hard and firm.

19th.—He is now quite convalescent, the tumour being about as large as a walnut and not causing any inconvenience. There being no reason for the patient remaining in the hospital, he was discharged, cured.

The man's heart had been examined, but no sign of disease could be detected.

### ST. THOMAS'S HOSPITAL.

#### ANEURISM OF THE FEMORAL ARTERY; COMPRESSION; LIGATURE OF THE VESSEL; SECONDARY HÆMORRHAGE; LIGATURE OF THE EXTERNAL ILIAC ARTERY; FATAL RESULT.

(Under the care of Mr. SOLLY and Mr. SYDNEY JONES.)

E. C—, a groom, aged thirty-three, was admitted into Abraham ward, under the care of Mr. Solly, Nov. 14th, 1860. He was a very robust, healthy-looking man, and said he was