

with antelexion. Another statement is made as to acute retroflexion being met with "without any symptoms." I am one of those who deny this *in toto*. I have never seen such a case, at all events. I do not say that there is no such thing as acute retroflexion without dysmenorrhœa—that is another matter. The canal may be much bent, and yet there is no dysmenorrhœa, though this is of course an exceptional occurrence. Dr. Herman appears to think that an acute bending should be always attended with the same results; but this is opposed to a rational view of the matter, and it is not logical, for these exceptional cases are explainable when the exact history of each individual case is known; and then it will be found that there have been very marked symptoms formerly, the patient having acquired toleration of the malady; or that there are still symptoms of a marked character present, but which have been overlooked. Dr. Herman states that in 138 cases of backward displacement (53 retroversion and 85 retroflexion) there was dysmenorrhœa more or less severe. I find that the percentage of dysmenorrhœa was for the retroversion cases 56 per cent., and for the retroflexion cases 75 per cent., showing that painful menstruation was far more common in the cases of flexion than in the cases of version. This is a fact which Dr. Herman admits, and he cites statistics of Winckel and Emmet which, in fact, tell the same story. He argues, however, that if the bending of the uterus occasions the pain, there should be no pain in the version cases when the uterus is not bent. Dr. Herman denies the existence of evidence of blocking or specimens of retention of fluid in retroflexion. He slurs over very decidedly the three recorded cases which he quotes; they seem to be very good cases, nevertheless. There may be little post-mortem evidence, but there is abundant clinical evidence of the occurrences in question. I have had very numerous cases under my notice in which, with a very large congested retroflexion, there have been temporary cessation of the menstrual flow followed by expulsion of clots and much blood in a non-congested state; also of pouching and gushes of puriform fluid after menstruation is over. He objects to the theory of congestion from strangulation of the uterine vessels. He asserts that the uterus may be found bent without such strangulation. Here, again, it is to be replied that the negative evidence of specimens in the post-mortem room afford no sufficient answer to frequent clinically observed facts. It may be that the bending of the uterus acts slightly in compressing the vessels at the sides of the uterus, but it is unreasonable to deny that the vessels in the uterine walls undergo compression when the uterus is bent. Any way, acute congestion and acute flexion being found together, the acute congestion disappears on unbending the uterus, and this is a fact I have observed over and over again. Dr. Herman, rejecting this latter explanation of the congestion, tries to account for it by the existence of pressure on the veins of the uterus by the sacro-sciatic ligaments. This appears to be mere trifling. I have in practice recognised the effect of the pressure of these ligaments in a few cases, and this pressure may in some cases even mould the fundus into a certain irregular shape. But in the majority of instances of acutely congested retroflexions the fundus has a perfectly spherical smooth shape, and there are no tight bands to be felt. I consider this attempt to avoid the acceptance of the flexion theory unworthy of Dr. Herman's style of argument.

(To be concluded.)

A CASE OF SACCULATED INNOMINATE ANEURYSM,

TREATED BY SIMULTANEOUS DISTAL LIGATURE OF
COMMON CAROTID AND AXILLARY ARTERIES.

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THE process of testing the distal ligature for the cure of aneurysm has gone on rapidly of late, having acquired an impetus since the introduction of improved methods of ligature by which the dangers of operating on large vessels have been reduced. In the present paper I wish to record an account of a case in which resort was had to the operation with a rapidly fatal result.

A. B.—, aged forty years, was admitted to the Queen's Hospital on Oct. 16th, 1883. He gave the following history. He was quite well six weeks before. About that time he experienced considerable pain in the back of the head and neck, and found a difficulty in swallowing. On Oct. 3rd he had to give up work on account of pain in the right shoulder and arm. On the 7th he suddenly lost his voice, and since that date has spoken only in whispers; his breathing became noisy at the same time. He has not had syphilis or been a drinker, but has worked very hard as a labourer at a coal wharf. He was quite unaware of any swelling or tumour till the discovery was made on his application at the hospital. He sought relief for sore-throat with difficulty of breathing and swallowing.—20th: I saw him for the first time in consultation with colleagues. There was then a considerable pulsating tumour immediately above the right sterno-clavicular articulation and inner end of the clavicle, which extended upwards along the course of the common carotid to beyond the cricoid cartilage, and laterally from the episternal notch as far out as the middle of the clavicle. The trachea was pushed to the left side. Pulsation was heaving and expansile, and accompanied by faint blowing murmur, which was audible as low as the third right costal cartilage. The note further reads thus: He complains of pain and difficulty in swallowing and points to the level of the cricoid cartilage as the seat of obstruction. He speaks in a hoarse whisper; there is stridor, audible both in inspiration and expiration, but there is no urgent dyspnoea. Has occasional attacks of severe paroxysmal cough. Laryngoscope shows right vocal cord fixed and motionless during respiration and phonation. Lungs expand equally; breath sounds normal and equal on both sides. Pupils equal, normal. Heart sounds normal; apex-beat immediately below nipple; occasional palpitation. Urine normal; pulse averages 70; temperature normal. Right radial pulse was thought by some to be smaller than the left, but was not perceptibly so to me. Some numbness of the right arm complained of. Treatment was milk diet, to keep in bed, and take twenty grains iodide of potassium three times a day.—23rd: At a consultation to-day it appeared that the tumour was making progress in every direction. The dyspnoea and paroxysmal coughing attacks were worse, and there was slight dusiness of the face. The aneurysmal nature of the swelling could not admit of doubt, though other pulsating tumours of this region are common, and often simulate aneurysm. It became a matter of much greater difficulty to discover which arteries were involved. Was it the innominate alone, or were the carotid and subclavian, one or both, implicated? or did it even reach to the aorta? It appeared pretty certain that the innominate was affected, and there was every reason to suppose the carotid to be also implicated, for the tumour extended up the course of this vessel for some distance. I thought, however, that the subclavian was probably free, my reason for excluding it being derived from the fact that there did not seem to be any difference in the pulsation of the two radials, and also from the evidence of palpation of the tumour, this appearing rather to overlap than to implicate the vessel. I believe that simple sacculated aneurysm of the innominate is rather a rare disease, the majority of innominate aneurysms as diagnosed being found to implicate the neighbouring trunks. Mr. Barwell endeavours to render the differential and diagnostic symptoms in a precise form, but he does not appear to have had actual cognisance of a specimen. With the symptoms as described by Mr. Erichsen there is tolerably close accord, the most marked discrepancy being the absence of any sign of retarded venous circulation in my case.

It was obvious that any operation determined on must be done at once, as otherwise the rapid growth of the tumour would soon render any interference impracticable, and further, that the only form of operation feasible was by distal ligature. I preferred to operate on the two vessels simultaneously; but as the posterior triangle was partly occupied by the aneurism, I selected the first part of the axillary as a more convenient spot than the subclavian. This does not in any way alter the position of the ligature to the neighbouring branches or collaterals, and I shall throughout allude to it as identical with the subclavian. A like proceeding was adopted by Malgaigne in 1845 in a similar case, though he seems to have placed the ligature further on among the large branches, at a point where it was almost impossible to succeed. The operation was performed on October 25th, under Listerian details, and the material used was a piece of common gut tied tightly. The axillary ligature presents nothing noteworthy; it was easily done

by an incision parallel to the clavicle as usually described. The carotid operation required some care to place the ligature in the middle of the short space at disposal between the upper end of the aneurism and the bifurcation of the vessel, but both were accomplished with perfect satisfaction. I will summarise the after-progress as shortly as possible. For the first two days it appeared as if there was some diminution in the size and force of pulsation of the aneurysm, but afterwards it became evident that its growth had not been in any way modified, except perhaps for the worse. The right radial pulse was not perceptible for the first twenty-four hours, but afterwards it became increasingly so till the time of his death, when it was a distinct thrill. The left radial pulse was enormously increased in force and tension. The carotid wound healed by primary union and was practically sound at the time of death. The subclavicular wound was more difficult to manage, because the ligature lay at the bottom of a deep cavity which could not be drained by gravitation. On the 26th, the day following the operation, dyspnoea and cough were rather more troublesome than before. On the 27th he had symptoms of bronchitis with tenacious mucus and moist râles, and the face was more dusky. This condition got steadily worse, the dyspnoea and paroxysmal cough being very severe. He died on the 30th, the fifth day after the operation. Laryngotomy, performed a few hours before death, failed to afford any relief to his dyspnoea. The cerebral functions remained throughout unaffected by the ligature.

An autopsy showed the lungs deeply congested and cedematous. The bronchial mucous membranes were of deep red colour, and the tubes themselves full of tenacious and frothy mucus. The arteries of the brain on the left side were empty and contracted. The trachea, heart, aneurysm, and vessels involved were removed in a mass for dissection. When this was completed it was seen that a sacculated aneurysm, the size of a small orange, was situated on the innominate artery. The mouth of the sac, an oval opening about three-fourths of an inch in its longest diameter, was in the anterior wall of this vessel, about its middle. Looking from the front it appeared as if the aneurysm implicated both carotid and subclavian vessels for some distance, and it was not until these vessels had been opened from behind that it became evident they were simply overlapped and compressed by the tumour in front of them. A prominent feature was the way in which it bulged inwards the lateral wall of the trachea. The wall of the sac was thick, not laminated, and had expanded over it muscles, large veins, vagus nerve, and other structures. The cavity was about three-fourths full of soft, recent (post mortem?) clot. The aorta and large arterial trunks were universally atheromatous.

In my further remarks on this case I wish to invite attention to the following points:—1. The question of recovery from the operation, with the choice of the best material for the ligature of large arteries in their continuity. 2. The attainment of the object for which the operation is undertaken—viz., the cure of the aneurysm, with a consideration of the method on which the distal ligature is supposed to act.

The material used was a piece of common gut, tied as tightly as possible. From the appearances presented by the specimen, I think there is no doubt that the two important desiderata of a ligature—viz., permanent occlusion of the vessel, with early union of the wound over it—were in process of accomplishment. Both ligatures at the time of death still retained a very firm hold on their vessels. Around both the process of consolidation and repair is proceeding most satisfactorily. The classic clot is also well seen. The carotid wound was practically healed, there being no trace of purulent infiltration around the ligature, which was embedded in plastic matter. In the subclavicular wound there was more evidence of irritative inflammation round the ligature, but no purulent infiltration. The clot on the proximal side of the carotid ligature extended in a long, slender thrombus to the aneurysmal sac, where it expanded into the large recent clot which partly filled that cavity.

It appears that the material of the ligature is of less moment than obtaining early union with healthy action and repair of the wound. A silk ligature in an aseptic wound is better than a gut one in a suppurating cavity. Secondary hæmorrhage is nearly always preceded by the evidences of unhealthy action and suppuration of the wound. The advantages of the gut ligature are forfeited unless perfect antiseptic precautions with good drainage of the wound are ensured, for otherwise strangulation of the outer coat of the vessel may proceed to ulceration, as in the case of silk or

thread, whilst the particular disadvantage of the material, want of security, is also more likely to appear under the same circumstances. I have never yet, however, in an experience of seven vessels of the largest size, found a good stout piece of common gut, previously tested, fail me, or fall short of effecting permanent occlusion of the artery.

The appearances presented by the aneurysm lead up to the next question—How is the distal ligature supposed to act, and what are the forms of aneurysm which stand a chance of being benefited by it? Is it to be supposed that the distal ligature reduces the force and velocity of the circulation in the aneurysm, and thus favours consolidation by coagulation of the blood? This I believe is the generally received view, as it was that of Brador and Wardrop. No doubt the volume of blood passing through the sac may be diminished, but the tension within it is not necessarily so, and the momentum of the circulation is still transmitted from the heart to the aneurysm. This is not at all analogous to what pertains in the Hunterian ligature, in which the velocity of current, momentum, and tension are all reduced. An additional explanation, one advocated by Mr. Holmes, and apparently almost necessary is to be sought. It is that the clot which forms on the proximal side of the ligature extends down the artery into the sac, developing thrombosis in this cavity. This is favoured, in fact rendered possible, by the comparative stasis which occurs there. Both processes therefore are contemporaneous and necessary. It is seen in actual operation in this specimen, in which a long slender clot extends from the point of ligature of the carotid into the aneurysmal sac, though I cannot say how much of the large clot now filling this sac may be post mortem. We do not see any such clot from the subclavian ligature, for reasons which are obvious; the ligature of the third part of the subclavian still leaves its first part almost as open as before, and the thrombus extends back only as far as the next large branch. Therefore I would ask what benefit can possibly follow ligature of the subclavian? There can be no thrombus developed along this vessel, and it does not seem to me that its ligature can produce any material diminution in the force and velocity of the current, for some collateral enlargement of the branches with increased tension and velocity within them and the parent trunk must very quickly follow the application of the ligature. Mr. Holmes supposes such a diminution of current in the interval preceding the establishment of this collateral enlargement as to permit of coagulation within the sac, because he cannot deny the evidence of direct benefit in some cases of subclavian ligature. But this evidence does not appear to be very strong, the most important case being Mr. Bryant's, which lived three years and a half after ligature of the subclavian alone.

Up to the present date there appears to have been about thirty-five cases of double distal ligature for aneurysm at the root of the neck.¹ Of this number twenty-nine were simultaneous, and six were consecutive, the subclavian being ligatured at a varying interval after the carotid. Of the whole thirty-five, twenty-three had their fatal termination hastened by the operation, or died outright. In at least six the progress of the disease was not interfered with, and in the remaining six a practical cure is claimed, one having the term of life prolonged four years and a half, one three years and a half, and the others living from two years downwards. Of the six cases of consecutive ligature I do not find that any one derived additional benefit from the second operation, that on the subclavian. The statistics of ligature of the common carotid are at least as favourable as those of the double operation. I find twenty-nine cases of distal ligature of this vessel for aneurism of all kinds. Of these, nineteen died from the operation, in six the progress of the disease was not arrested, and in four a cure or great improvement is claimed, one of the cases living to a good old age, and being in fact the only absolute cure amongst them all.

In comparing the results of the two operations it is to be noted that, with one exception, every one of the cases of double ligature in which recovery from the operation followed was done subsequent to 1877, a diminishing mortality marking improved methods of ligature and wound treatment. The earlier operations consequently are almost useless in determining the value of the proceeding as a measure for the cure of aneurysm. The patients did not live long enough to give the operation a chance of benefiting their aneurysms. We must not, in fact, compare results dependent on the

¹ Holmes' System of Surgery, vol. iii. 1883. Aneurysm.

ligature of large arteries twenty years ago with the results of the methods now in vogue; and yet the statistics of the single ligature (carotid) given above are wholly included in the earlier period, the last recorded operation being in 1866. A consideration of this throws emphasis on the increased risk of the subclavian ligature, a risk which does not appear to be counterbalanced by evidence of equivalent advantage in curing the disease.

It is never safe to deduce general conclusions from single cases, and I do not now wish to do so; but it does appear that the evidence of the subclavian ligature having contributed to the cure of aneurysms at the root of the neck is very slender, whilst *a priori* and theoretical reasoning is against the probability of such being the case. The ligature of the common carotid on the distal side of the sac in cases of aneurysm limited to the root of that vessel does, however, hold out a reasonable prospect of cure or material benefit. In reviewing this case I must admit that the operation failed to arrest the progress of the tumour, in fact, that it undoubtedly hastened it and increased the pressure on the trachea. This increasing pressure, combined with the effects of exposure and ether at the operation brought on bronchitis, and thereby caused death a little earlier than it would otherwise have happened. I can scarcely imagine a case in which the conditions were anatomically more favourable than in this, unless it be an aneurysm implicating the root of the carotid only. But though anatomically favourable it was in one feature, clinically, most unfavourable. This was the feature of rapid growth—not seven weeks from the time of first appearance till death—a condition well known to be unfavourable to success in many surgical operations. This feature of rapid growth is frequently offered as a justification for the operation, but to me it appears that it materially weighs against the probability of success, and that the most we can hope for by the operation is to favour and aid the tendency which already undoubtedly exists in a certain proportion of cases to undergo spontaneous recovery or cure; in other words, that the cases most likely to be benefited by the operation are those which might be supposed from their slow progress to stand least in need of it.

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SOME NERVOUS DERANGEMENTS OF THE HEART.¹

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THE diseases of the heart proper are (1) valvular, (2) muscular, and (3) nervous. With the first division the profession at large is fairly intimate. Their essential feature is the murmur found therewith,—each its own. But a murmur when heard is not always the outcome of valvulitis; nor, on the other hand, is the characteristic, or indeed any, murmur heard always where there can exist no moral doubt about the presence of disease, especially in the sigmoid valves. Nor does the experience of the dead-house conflict with this clinical observation. The diseases of the heart associated with a murmur are now generally recognised. The second division includes hypertrophy, dilatation, and mural decay, otherwise fatty degeneration. With the first two forms of mural change, and the circumstances under which they are met, all are familiar; while the relations of fatty degeneration to pre-existing hypertrophy with atheromatous changes in the arteries, otherwise the condition known as “the gouty heart,” are now fast being generally realised. With the nervous affections of the heart—the third division,—however, less general familiarity exists. Yet they constitute a large division, are frequently encountered, and are certainly on the increase at the present time. Consequently intimate acquaintance with them and their features is highly desirable. Of the first two divisions of heart-affections it may be said broadly, they force themselves upon the patient’s consciousness rather by their consequences—some outcome of their existence—than directly. The one exception to this statement is the palpitation induced by effort in structural change in the heart, involving essentially the condition of dilatation. When the muscular wall of the heart

is dilated, so that the individual fibrillæ are stretched and elongated, then demand upon the heart is followed by palpitation, or, in other words, violent systolic contractions. But when the person is quiet and the body at rest, this palpitation does not occur. Its great characteristic is that it is essentially associated with *effort*. This distinguishes muscular failure from those conditions of cardiac derangement which are truly neurosal. Of course, a neurosal affection of the heart may coexist with the condition of dilatation; and then some pains may be requisite to separate the different component factors of the case.

Putting aside such complex conditions, and also the other complex conditions where attacks of palpitation are set up by spasm of the arterioles (very common with the gouty heart), otherwise angina pectoris (vaso-motoria), as not included in the present consideration, I propose to draw attention to certain purely nervous derangements of the heart. The first of these is pure intermittency—a halt in the usual rhythmic stroke of the ventricles. It may occur at short intervals, or only be found once in one hundred beats. This is a mere disturbance of rhythm. It is very commonly met with in old, or elderly men, where organic changes may readily be suspected. As so associated it is apt to occasion groundless alarm. It may possibly be linked with some degenerative change, some defective nutrition of the cardiac ganglia, coexistent with fatty degeneration of the muscular fibrillæ; but of this we know nothing certainly as yet. Perhaps before long the subject may attract the attention of our young friends who study pathological processes and follow their minutest operations under the searching lens of the microscope. At present we can only suspect such an association from clinical observation solely; though the subject is one which promises to repay well the labour the microscopist may bestow upon it. But frequently there are no evidences of any mural decay—any degeneration of the muscular fibrillæ in cases where the halt is well pronounced. In such cases it is without significance; at least in the present stage of our acquaintance with the subject. Some years before his death the late Nestor of our profession, Dr. Archibald Billing, paid me the compliment of consulting me for an intermittent action of his heart, which was of this kind—viz., without significance. When found with other semeia of degenerative change it has a significance, which, however, is borrowed from them rather than furnished by itself. When intermittency is increased by effort, then it is well to carefully examine the condition of the circulatory organs. When it is found with irregularity of rhythm, and this becomes more pronounced on exertion, you may be pretty certain that there is something more present than a mere “neurosal halt.” As a pure neurosis, intermittency is the resultant product of some emotional hurricane, profoundly impressing the nervous mechanism of the heart. Such a case came under my notice in the person of a Canadian who had had his warehouse burnt down. Next day his pulse was distinctly intermittent, but is now almost quite regular. For some three years he carried with him the memory of that night of excitement in the form of a distinct intermittent halt in the action of his heart, of which he was disagreeably conscious. Such “neurosal halt” is very frequently encountered in practice. Contrasting with this insignificant halt stands the opposite condition where a halt in the radial pulse is commonly found, yet there exists no corresponding absence of the ventricular systole. Here the cardiac contraction is often too feeble to furnish a pulse-wave extending to the radial artery, at least one perceptible to the finger; and such an asystolic condition is fraught with danger. It is, however, sometimes found in aged persons in very cold weather, where its significance is not quite so ominous.

A very common neurosal disturbance of the heart is palpitation. As related to the hysterical temperament it is found in attacks of hysteria along with a tight artery, and the free secretion of aqueous urine of low specific gravity,—the physiological outcome of high arterial tension. At other times it is strictly emotional, and here its causal relations usually demonstrate its nature. In some cases, mostly females, it comes on during the night, awaking the patient in a fright, and causing great alarm. Especially alarming is it if accompanied by distinct halts, when the patient thinks her hour of dissolution has come—“like a thief in the night.” Such nocturnal palpitation has various relationships. It is common in women at the menopause where there is a suspicion of gout; it is found in others after coitus, or after some correlative discharge from the genera-

¹ Read before the Medical Society of London, Nov. 19th, 1883.