CLINICAL REMARKS

ON A

CASE OF ANEURISM OF THE DORSAL ARTERY OF THE FOOT.

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It is not always from great, or from what are sometimes called the best, cases in surgery that most may be learnt. To the patient, momentous issues may be at stake, and yet the duty of the surgeon may be clear and simple, and easily performed; or the case, to the patient, may be a comparatively trivial one, and may admit of remedy in various ways, yet the questions that arise thereon may lead up to some of the most difficult problems of surgery, and tax to the utmost all the ability, knowledge, and skill of the surgeon.

In illustration of this, I ask your attention to-day to a case in which the patient himself certainly regarded his trouble as a trifling one, although in its treatment some of the largest principles of surgery were involved. Let us, if you will, try to make the most of it now, by using it as a text for the discussion of some of them.

A man aged 49, a labourer, in good health, was on the 28th of March last admitted with a simple fracture of both bones in the middle third of the right leg. When the limb was examined, a pulsating tumour was discovered on the dorsum of the right foot, behind the angle between the first and second metatarsal bones, over the cuneiform—obviously an aneurism of the anterior tibial artery at this spot. The tumour was well defined; in size and shape, like the shell of a small limpet; throughout uniform, soft, and compressible. The investing structures were quite natural. All pulsation was controlled by pressure on the artery immediately above, and then the tumour forthwith became flatter and smaller in every way.

The man was fully aware of its existence. His wife said that she had for some years noticed the tumour when she washed his feet. He never thought much about it, but observed that it varied in size. He stated that six months ago it became larger, and then began to throb and became more troublesome, being painful on pressure. As he expressed it, the lump was very much in the way.

Now I need not tell you that this is an extremely rare situation for an aneurism. I never saw one here before, and I can find no record of a similar case.* What was the cause of it?

Aneurisms, you know, may be due either to disease or to injury of the arterial wall. In either case, the tissues are so damaged, or the structure impaired, that the coats no longer afford adequate resistance to the pressure of the blood. The changes in the arterial tunics, which for the most part precede the formation of aneurism, are classed under the head of degeneration; and, although these changes are various in kind and degree, they all tend to a common result: they disqualify the artery, or the portion of it affected, for the part it has to play in the transmission of blood. Injuries, too, are of various kinds, and lead to aneurism in various ways. A wound of an artery, which may be a simple incised one, may heal; but the cicatricial tissue, from its very nature, may afterwards yield into an aneurism; or one or more of the arterial coats may be split, or cracked, or bruised, or otherwise damaged, and so give way before the force to which it is continually exposed. And, of course, injuries of all kinds are likely to tell with tenfold effect upon an artery already the subject of disease.

Now, in this case we failed to detect evidence of arterial disease in any part of the system. Auscultation gave no sign; and, wherever the arteries could be felt, their elasticity was unimpaired. The anterior tibial itself along the dorsum of the foot was quite natural to the touch. I should say it even gave the impression of being a remarkably healthy vessel. It was, perhaps, rather large, but without a trace of rigidity, and the pulsation was in every respect normal. In these circumstances, you see it was very improbable that the artery had been the seat of disease where the aneurism now was. Although I do not suppose observations have been very exact on this point, I think it must be rare that isolated patches of degeneration occur in distant arteries without evidence of disease elsewhere. Again, in extensive disease of the arterial system, which is common in advanced life, we

do not, in point of fact, as one of its effects, see aneurism of the distant arteries. How familiar we are with the evidence from touch of diminution of elasticity or undue rigidity of the walls of the distant arteries; and yet, from experience, we cease to think of the occurrence of aneurism consequent on this. Not that there can be any question of the relation of degeneration of the arteries, or impairment of their properties, to the occurrence of aneurism, as cause and effect; but the form of degeneration—the atheromatous—which usually tends to aneurism, affects, for the most part, the larger vessels; while in the smaller (though not in the smallest) arteries is usually seen that form of degeneration which is called calcareous. For these chief reasons, then, I conclude that the aneurism in the present instance was of traumatic origin. I believe it to have been the result of some injury which the artery had sustained there; not the result of a wound, or of any severe or sudden violence, for there was no evidence of this; but the artery, perhaps from rough pressure, as from a boot, may have been repeatedly bruised, and so gradually weakened. This idea was somewhat strengthened by the fact that at this spot, where the vessel rests on the cuneiform bone, it was rather more prominent than elsewhere. This, I need not say, is merely guesswork; and for the view I will only claim that there is, perhaps, less to be said against it than against any other suggestion.

When we talked of getting rid of what the patient himself called the jumping lump, he accepted the idea as a very pleasant one; and, on the whole, it seemed proper to interfere with it. It was not only a source of continual annoyance and trouble to the man, but it might at any time, either in the natural progress of the disease, or more likely because of injury, have ulcerated and given way, and so have led to severe hæmorrhage and other mischief, which would have called at once for prompt surgical measures in far less favourable circumstances. These considerations, with the probability that the aneurism might be obliterated without great risk of any kind, induced us to advise the man to have it treated. Indeed, the opportunity appeared to be a singularly favourable one. The fracture compelled confinement, and during this period the aneurism might be cured without further loss of time. Two troubles would thus be disposed of at once.

Obviously, various plans of treatment were open to us.

Pressure on the artery above, on the dorsum of the foot, with or without simultaneous pressure on the tumour itself.

The injection into the sac of some substance to coagulate the blood there, preventing at the same time undue extension of the coagulum or blockade of the vessels beyond by firm pressure with a metallic ring around the tumour. This is a plan which I have often adopted in the treatment of nævi.

Acupressure of the dorsal artery.

Ligature of the artery above, or of the artery both above and below; or ligature of the artery above first, and subsequently below if need be; or ligature of the artery both above and below, and then extirpation of the sac.

After duly weighing these several plans, we elected to try, in the first instance, as the simplest and safest, pressure on the artery above and over the tumour; and, that failing, ligature of the dorsal artery above, to be followed, if need be, after an interval, by ligature below.

In the first place, pressure, carefully watched, involved least risk of all; but that it would succeed appeared to be doubtful, because of the character of the aneurism; for, although the pulsation of the tumour was at once completely controlled by pressure upon the artery with the finger alone, yet, from its shape, compressibility, and collapse, it seemed to me to be an instance of true aneurism, as pathologists often use the term, or, as it may be, perhaps, better expressed, of aneurismal dilatation; that is, I believe it to have been an expansion of the entire arterial wall, all the coats having been dilated. I concluded, therefore, that we should hardly get coagulum in the sac from pressure; and that, therefore, pressure would be of only temporary advantage; that dilatation would recur when the blood was allowed to flow again with full force through the sac.

And, next to pressure, it seemed to me that ligature of the artery involved less risk than any of the other steps. I could see no advantage in acupressure over ligature on this score: while the injection into the sac of perchloride of iron, or of anything else, might set up destructive mischief which we could not easily control. Moreover, the ligature above, by permanently reducing the pressure on the sac, would, in all probability, prove an efficient remedy; or, at the worst, by subsequent ligature of the artery beyond, if need be, it could hardly be conceived that the disease would not be efficiently controlled. If that were done, there appeared to be no sufficient reason for interfering any further with the sac itself. We elected, therefore, as aforesaid, to try pressure first, and, that failing, ligature.

* Quite recently, however, another instance has occurred. BRITISH MEDICAL JOURNAL, December 8th, 1877, p. 804: a case of "Spontaneous Aneurism of the Arteria Dorsalis Pedis, under the care of Mr. Adams."

But then came another question, which had to be considered at the time. If the artery were tied, it what place would it be best to apply a ligature? Now, you see this question involved the consideration of one of the most important principles of surgery. I need not tell you that, in tying an artery for the cure of an aneurism in what is now the ordinary way, as in the operation of Hunter, the ligature is placed on the vessel at some distance from the sac; and thus, while the direct current of blood is still cut off from the sac to an extent usually sufficient to cure the disease, the artery itself is injured by the operation at a spot where it is far less likely to be diseased or impaired than close to the aneurism; and hence the chance of its repair is proportionately greater. Now, had I been guided simply by these considerations, I ought to have tied the anterior tibial artery somewhere above the ankle-joint—say in the lower third of the leg; but then there were two important facts in the present case which had to be brought into the question. I have already given reasons for the belief that the aneurism here arose from injury rather than from disease. As I have said, I had every reason to believe that the rest of the artery was fairly healthy. Again, while pressure with the finger afforded proof that pulsation of the sac was controlled by arresting the stream in the artery just above, I could by no means be sure that ligature of the artery some inches higher up would be as efficient or even nearly so; for, as you all know very well, the farther we go from the heart outwards, the more ample is the collateral circulation in relation to the main trunks; and, as a matter of fact, had I tied the artery above the ankle in the leg, I must have had branches of importance between my ligature and the aneurism. Therefore the principles which are usually paramount elsewhere—as, for instance, in popliteal aneurism—were not in force here.

Well, then, fourteen days after admission, we began with compression. Pressure by means of a pad adequately supported, and sufficiently great to arrest its pulsation, was applied to the artery on the dorsum; and pressure tolerably firm, but equable, was applied also over the tumour through a thin layer of cotton-wool. This was kept up for several hours on more than one occasion, but not without discomfort to the patient, which gradually increased, and worried him so much that at length he begged earnestly for some change of plan. Indeed, the integument over the sac had become somewhat congested. Very soon after the pressure was removed, the tumour appeared unchanged, and, as the man expressed it, jumped as much as ever.

On May 1st, the fracture was found to be firmly united; the splints were removed, and the leg supported by a stiff bandage. Then, on the 11th, about a month after the trial of pressure, we tied the dorsal artery with an ordinary silk thread about an inch and a half or two inches above the upper margin of the aneurism. Immediately upon tightening the ligature, there was total arrest of pulsation in the tumour, and the sac became flaccid and soon shrank. All was quiet there for two or three minutes; but then the very feeblest pulsation in the tumour could be both seen and felt. The edges of the wound were brought carefully together by two sutures, and covered with oiled lint; a small pad of cotton-wool was placed over the aneurism, and the whole foot was lightly enveloped in a flannel bandage. It seems to me that the return of this feeble pulsation in the sac so soon after the application of a ligature is an interesting fact. How did the blood find its way to the tumour in sufficient force for this purpose? Was it through the tarsal or even the metatarsal branch which might intervene between the ligature and the tumour; or was it by a regurgitant stream supplied through the external plantar? I cannot be sure; but, as all this pulsation was arrested by slight pressure upon the distal extremity of the tumour, I suspect that the latter was the chief, if not sole, source of it.

But the next day the tumour was quite pulseless, and on the next it had shrunk so much that its prominence was hardly visible. From this time, it gradually subsided. For several days, it could be felt as a small firm nodule, hardly perceptible to sight, but easily defined by touch. The wound went on uninterruptedly well; it closed by direct union, except in its centre, where the double thread passed out. The ligature came away on the nineteenth day, and in two days afterwards the small channel it maintained was closed too. The man left the hospital on June 2nd, three weeks from the operation; and, after a holiday of six weeks at our convalescent home, the tumour was no longer visible, and could hardly be felt.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—The fourth meeting of the twenty-second session was held at the Royal Kent Dispensary, Greenwich Road, on Friday, January 4th, at 8 P.M.: W. Johnson Smith, F.R.C.S. (President), in the Chair. Dr. J. Milner Fothergill read a paper on "Some Conditions which Simulate Organic Disease of the Heart".

FOREIGN BODIES IN THE MEATUS.

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FROM time to time, it has occurred to me to see considerable damage done by rash and persistent efforts to extract foreign bodies from the auditory canal. The late Mr. Hinton has used the expression "aural surgery is simply surgical common sense, and needs comparatively little insistence on special points beyond that which a trained surgical instinct would suggest". "Common sense" and "surgical instinct" appear alike to be blunted when, with a remarkable absence of both, persons are yet to be found who can be rash enough to employ clumsy force and ill-contrived instruments in the removal of what often is, even after a prolonged residence, a comparatively harmless tenant from the external meatus. I would say a few words for common sense and surgical instinct, such as anatomical knowledge might suggest to anyone who pauses to reflect on the form and design of the external passage of the human ear. In the *child*, the meatus is remarkably narrow; it is mainly cartilaginous; it is often congenitally contracted; its skin-lining is directly continuous with the membrana tympani, and is intimately connected with the periosteum of the temporal bone; it is close to the dura mater, and closer still when gaps occur in the osseous canal. In the *adult*, the canal is more spiral, the osseous portion is proportionately larger; but the entire passage may be described as a coiled tube, about one inch in length, consisting of two portions, situated almost at an obtuse angle to each other, the junction of the two being marked by a peculiar contraction, any further closure of which, in consequence of inflammation or thickening, completely shuts off the bony internal pouch from the external funnel. Two things are at once evident from these simple considerations of the anatomy of the passage: first, that the direction of any extracting or expelling force must depend on the portion of the canal in which it is applied; secondly, that, having in view secondary consequences, and also the effect which inflammation has in frustrating our effort to remove a foreign body from the passage, we should employ no force which is in the least calculated to excite that inflammation. The greater the swelling of the epidermis with subcutaneous cellular effusion, and it may be perioritis, the greater the jamming the foreign body, whatever it is, gets. If it be hard and angular, this is more likely to occur than if it be smooth and round. If it be pushed into the pouch in front of the membrane, and the latter be contused in attempts to catch it, the more likely are we to have inflammation of the membrane and resulting perforation, with tympanic mischief. If the canal become so swollen that the foreign body cannot be seen, and its removal be still attempted, then the effects of this "groping in the dark" are more disastrous: further inflammatory mischief and tighter jamming. Now, what is it that, in the large proportion of cases, fixes foreign bodies in the ear?—attempts at removal. If the body do not occupy the calibre of the canal, it lies in it, and there is a space for the expelling force to be directed from behind on to it. If it be so large as to fill the entire calibre of the passage, which is rarely the case, it will, previously to being interfered with, in all probability lie loosely in the passage, its further entrance being arrested by the contraction of the wall. In my experience, the most frequent seat of the arrest of a foreign body is at the junction of the cartilaginous and osseous portions of the meatus. It becomes *arrested* here, or is driven beyond against the membrane by extractive efforts. Every touch of an instrument, no matter how gentle, sends it further in: each forcible effort tends to further *impaction*. Of course, there are some bodies so small and so shaped that it is a matter of no difficulty to catch them with a forceps and withdraw them. But I think it may be laid down as an axiom in aural surgery that, in the case of any arrested body in the meatus, where any space exists between the foreign substance and the wall of the meatus, the only agent which should be employed is water. If the body be impacted, or if it completely occlude the canal, much will depend on the nature of the body, its shape, the material of which it is composed, the length of time it is lodged, the presence or absence of inflammation, the kind of instrument at hand. It is my conviction that, in all recent cases, those quickly brought to the surgeon, syringing is the best means to adopt; in all cases where inflammation is not present, no matter how long the body lies lodged, syringing is also the best means; and, in cases where inflammation is present, I prefer, as a rule, to wait, using means to subdue it, with gentle syringing daily; and, if patience only be exercised, success in the end is almost certain. I prefer to make no remark here as to instruments. The instrument suited for one occupant of the canal will be found valueless for another. The shape and the