or the other the precedence. I have never used cold baths because those who advocate them admit their danger to a weak heart, and the risk from their use in intestinal hæmorrhage, and dwell upon the special skill and training, not easily available, which is needed in giving them, and because I doubt whether they possess any real advantages over cold sponging, which I prefer and freely use, or the wet pack. My observation leads me to think that small doses of quinine, and possibly a little wine, slightly moderate the febrile disturbance and, of course, do not interfere with the free use of cracked ice and cooling drinks.

Of the antipyretic drugs, phenacetine is by general consent the least depressing to the heart. In neuralgia of the fifth pair, indeed for almost everything covered by the vague term headache, it is invaluable. I have given it in doses of twenty grains repeated in an hour for several successive days with the greatest relief to severe pain in the head and without apparent harm, in the first week of typhoid fever. In health the small dose, in my experience, has oftener than not produced a slight feeling of exhilaration. In fever, the drop of the temperature from the same dose is greater, and although there is usually an almost immediate sense of comfort from the exhibition of three grains to a woman, or five to a man, I have found it to be with a relaxed feeling as a rule. In the same dose it quiets restlessness and promotes sleep.

In most cases as good an antipyretic effect may be got from sponging with cool water, which is at the same time invigorating and a tonic to the nervous system. As an analgesic I know of nothing which fully takes the place of phenacetine. As an antipyretic my experience leads me to use it with caution, at least after the heart has become weak, to give it in such doses as not to produce a drop of more than a degree or possibly a degree and a half in the temperature, and to substitute for it, as a rule, but not always, cool sponging.

If there is persistent sleeplessness in spite of the measures already mentioned, the stimulating narcotics like paraldehyde, amyl-hydrate or even opium are more indicated than those which are depressing like chloral and the bromides.

The tendency of treatment has been with a view to sustain strength, and thereby prevent heart-failure. It goes without saying that all complicating symptoms are to be met promptly. My experience has been in favor of checking diarrhoea earlier than is recommended in the text-books, and I have thought that by careful watching we might anticipate a threatened intestinal hæmorrhage with the suitable means for its control. Vomiting has been met, beside external irritation, with oxalate of cerium, dilute hydrocyanic acid, creasote, champagne, peptonized food, etc., and by resorting without delay to nutrient enemata and suppositories.

If the heart is still unduly weak, a guarded use of digitalis with nux vomica and iron may be alternated with strychnia and caffeine. But, though the heart must be sustained, there is danger in over-stimulating. Coca in my experience interferes with sleep, camphor I have rarely used. As regards heart-failure, it is a well-known fact that alcoholic neuritis has been shown, *post-mortem*, to affect the pneumogastric nerve so as to produce death, when in other parts of the body the symptoms were not alarming. In diphtheria I suppose that heart-failure is admitted to be often due to the same

cause. I believe that the indications of it in typhoid fever are a rather sudden and otherwise unexplained change in the patient's condition, with increased pulse-rate, accelerated respiration, in some cases elevated, in some lowered temperature, dusky or cyanotic skin, evidences in the brain of disordered circulation and defective blood-aeration, and especially if at about the same time a general peripheral neuritis appeared. Such cases are apt to prove fatal. I have thought that they showed an intolerance of alcohol, and the advantages of freely prescribing opium.

Recrudescences of fever after abatement may constitute a feature of certain epidemics, or may be due to mental agitation, errors in diet, sitting up too early or too long, etc. How far the same statement applies to relapses is to me a question still under judgment. The temperature is alone no certain gauge of condition or guide for treatment. One of my patients whose temperature had been between 100° and 101° for a week, had a clean tongue, cool skin, natural abdomen, spleen returned to normal size, and all the appearance of convalescence. She was allowed to sit up and quickly got well. In another patient, the temperature dropped to 97° and remained below 99° night and morning for a week, being normal three evenings out of the seven, but his tongue was still coated, abdomen distended, tender and tympanitic, his spleen remained much enlarged. Without seeing his temperature chart, one would not have appreciated a material change in his condition.

FOUR CASES OF ANEURISM TREATED BY THE OLD METHOD.¹

BY ABNER POST, M.D.,
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DURING my service at the hospital this last summer there lay, at one time, in one ward, two cases of diffuse aneurism of the femoral, and two cases of true aneurism of the popliteal. These four cases were all operated upon by the old method of incision and ligation of the artery at both ends. All four cases did uninterruptedly well. Such a collection of cases is, it seems to me, worthy of note, and I propose to report them to-night, in the first place because the cases themselves seem to be of interest, and in the second place because they illustrate most markedly some of the changes in surgery in the last hundred years.

The first case entered the hospital on May 14th. Three weeks previous to entrance, in lifting a barrel of coal from a wagon the barrel slipped, striking the inside of the patient's left thigh, just above the knee. On the next day the patient was quite lame, could get about and walk, but noticed a swelling in the thigh, which grew larger and larger. Walking became more difficult, and upon entrance there was a large swelling upon the inner side of the left thigh, with the greatest fullness at the junction of the lower and middle thirds, making the circumference nearly as large again as that of the other. There was no pulsation, no thrill, no bruit; no especial tenderness on pressure. When I first saw the patient the swelling was covered with a poultice. The patient asserted that marked changes took place from time to time in its volume. No pulsation could be obtained in the arteries below it. As he lay in the hospital his temperature was normal, and he

¹ Read before the Suffolk District Medical Society, October 26, 1889.

was practically without pain, but on May 19th, his temperature rose and the leg became exceedingly painful, and on the 20th, the operation was performed.

An incision was made over the most prominent part of the swelling, revealing a cavity filled with clotted and fluid blood. These clots were thoroughly cleaned out with the hand, and at the bottom of the cavity the severed artery was found, into which a probe was introduced; the soft parts were dissected away, the artery exposed as well as possible and tied in the region of Hunter's canal. A similar ligature was put upon the artery below the tumor. The tourniquet was then released, and all communication between the artery and tumor was shown to have been stopped. The cavity was then carefully washed out in the first place with hot water, to check all bleeding, and finally with a solution of bichloride of mercury, 1-2000. The cavity was then closed at both ends, and without the insertion of drainage-tubes was dried as far as possible and a baked dressing applied. The subsequent history of this patient was uninterruptedly good. On the third day the temperature had arisen to 102.4°, and at that time, and because of this rise in temperature, the dressing was taken down and the limb redressed. No pus was found; there was simply a slight oozing and it was re-dressed in the same manner. The normal temperature was reached on the 27th, seven days after the operation, the highest temperature having been 102.6°. The patient was discharged July 11th, practically well.

This first operation was done on May 20th; on May 25th, the second case entered the service and was placed in the bed beside the first patient. This patient, like the first, was a mulatto; the left thigh was also the one affected. The history was quite similar. He attributed his trouble to a strain while lifting a barrel of ashes on May 14th. Three days later he noticed a lump the size of a hen's egg. By the 21st, the lump was large as an orange, and "was beating like his heart." It was then very painful and kept him awake at night. Though the leg was sore he had kept about till the day of entrance. This patient presented a swelling like that of the first, although not so large. Then from the first this tumor pulsed, and there was a bruit above it. There was a systolic murmur over the apex of the heart. No pulsation could be found in the tibials, although it was found on the right side. On the 28th, seven days after, the patient was etherized, an elastic bandage was put on, and the elastic tourniquet applied. An incision was made, the clots turned out and the arteries secured; the tourniquet was removed, and no bleeding followed. It was washed out with hot water, and then with a solution of corrosive sublimate, 1-2000; the wound was made as dry as possible, with baked gauze. The middle of the incision was left open. The dressing was so arranged as to close, as nearly as possible, the wound. A baked dressing was applied and the patient returned to bed. His highest temperature during convalescence was 102.4°, on the second day. It fell to 98.6° on the fifth day. The highest pulse was 106. His recovery was uninterrupted, except for an ulcer which had existed on the same leg before the operation. He had had some sort of a bruise, and the skin had just separated at the time of the operation. That healed entirely, and he was discharged, practically well, on July 16th.

The third case was a popliteal aneurism, as follows.

The man aged forty-one, entered the hospital June 1st. He had had some sensations which drew his attention to the popliteal region in the previous March. He then received a blow in that region from a crowbar. Probably the trouble had existed before the blow. The last part of April he noticed a swelling in the popliteal region, which gradually increased. The pain had been so severe during the last five weeks as to keep him in bed most of the time. Examination showed a pulsating swelling in the left popliteal region. The stethoscope showed a bruit. Pulsation was absent in the arteries below. Three days after entrance an incision was made as in the preceding cases; clots turned out; artery tied. The depth of the wound made the operation difficult. A probe was passed into the artery, which made it more easy. The tourniquet was released, and in this case the blood flowed freely, in spite of the ligature. The tourniquet was re-applied, and a second ligature was tied above the first one. Again the tourniquet was taken off, and again the blood flowed directly from the orifice of the vessel. Another tourniquet was applied, and examination showed that the rupture had taken place at the point where quite a large branch was given off; the bleeding was from this branch. This was tied, and the bleeding ceased. In this case a large portion of the sac was removed before the wound was closed. The wound was thoroughly irrigated with 1-2000 sublimate solution, the upper and lower ends of the wound sutured, leaving an opening of two inches. A baked dressing was used and a ham-splint applied. The patient complained of a feeling of numbness and was sensitive to pressure for several days. The circulation was slow to re-establish itself, but gradually the foot became warm. On the second day after the operation the temperature rose to 104°, but experience had shown that this rise might be disregarded. The temperature fell immediately, and the dressing was not removed until the twentieth day. At the time the dressing was removed all that remained was a slight granulating spot, hardly the size of a half-dollar. This man's highest temperature has already been mentioned. With that exception he went on to entire convalescence without accident or incident of any sort. He was discharged from the hospital July 6th.

On June 15th, while making my visit, I was called to the accident-room to see a case just admitted to my service. A man lay upon the table, evidently in extreme pain. On exposing the leg, of which he complained, it was found to be greatly swollen, mottled, cold, the toes already blue, and apparently upon the point of gangrene. Closer examination disclosed, in the popliteal space, a circumscribed aneurism, which the patient said had existed for the past six months. Its existence had given him very little trouble until the previous day, when his leg had begun to swell, and the pain had been so great as to keep him awake during the previous night. So discolored was the leg that it seemed impossible that anything short of amputation could give him the least chance. He was, however, put to bed, the foot of the bed raised, to favor the return of blood and the subsidence of œdema; opium, was given to quiet his pain, and the event was awaited, the patient being given a most gloomy prognosis, and amputation being held out as affording him the only hope. On the next day the swelling had subsided in great measure, the pain was mostly gone and his leg and the upper part of his thigh had re-

covered its normal color. The improvement continued to go on for several days, until circulation had practically returned through the whole leg except the toes. The toes had become gangrenous, the line of demarcation had formed at their roots, and on June 29th, the same operation was done upon this patient as upon the others, the sac being laid open and the artery tied above and below. It was intended at the time of this operation to remove all the gangrenous toes, but although the operation had progressed without especial hindrance or difficulty, it had endured for more than an hour before I was ready to attack the toes, and it seemed best to send the patient back to bed once more and leave the amputation until a later date. This first operation was done upon June 28th, and the toes were not amputated until July 10th. They were then removed at the metatarso-phalangeal articulation, the flaps being hardly sufficient to cover the joint. This patient, notwithstanding the gloomy prognosis made to him at first, went on to an uninterrupted recovery. His wound in the popliteal region made by the operation for the aneurism was not disturbed until the twentieth day, when that, also, like the preceding case, was found to be perfectly healed except a small granulating point. The wound by which the toes were removed was much longer in healing, as it was obliged to granulate. The patient did well, and went out on August 26th. He has since returned for the removal of the head of one of his metatarsals, that having become necrosed, being imperfectly covered.

Now here are four cases, operated upon by the old method, usually the method of last resort, as it is the severest and bloodiest. It seems to me that one who had deliberately chosen the severe method, without any use of the milder methods, should give good reasons for the proceeding; and in brief I will try to give the reasons that influenced me in making the choice. It was not deliberately done from the beginning, but each case helped to determine the case that succeeded it. The first case was a diffuse aneurism in which the amount of clots poured out was very great indeed. Although the diagnosis of aneurism was made, there was still the possibility of doubt, and such an operation was chosen as would make the diagnosis perfectly certain. The old operation is the one recommended by most authorities for such diffuse aneurisms, where the clots are diffused through the muscles so freely, and it seemed eminently proper in this case because of the slight doubt in the diagnosis. The operation was done, and was successful. It proved so much more readily successful than I had been led to suppose that when the second aneurism presented itself, also traumatic, I was the more ready to adopt the method in that case. In this case, which was a more discouraging one, the man being somewhat older, and his leg being in not especially good condition, having already this injury of the skin, did equally well.

The third case was the first popliteal aneurism. Ordinarily, had that case presented itself first, I doubt not I should have tied the femoral in the triangle, or have resorted to some of the methods of compression. But these two operations of tying the artery at each end of the aneurism having proved so successful, I was led to consider the propriety of its use in this third case. Now, the lower the artery can be tied, of course the greater chance of good result to the leg, and if it is possible to destroy the artery below the point where the number of branches leave the femoral about the

knee-joint, the chances for a favorable condition of the leg after the operation are certainly very much increased. I was therefore led to do the same operation upon the simple popliteal case, and here I met with a result which was even more favorable than that of the other cases, meeting with absolutely no suppuration, the case healing as readily as a simple incision through the skin. The fourth case, on entrance to the hospital was certainly a most discouraging one. Rather unexpectedly, the leg regained its circulation, but still it was not a case in which one could experiment; it was certainly not a case in which one would care to make pressure over any part of the limb, and the operation, which should, once for all, obliterate the artery at the lowest possible point seemed to me to offer that man also the best possible chance for safety, and for that reason the old operation was done upon the fourth man also.

Now, there are various matters in connection with the operation, of which I wish to mention one or two. In the first place, in the first two operations, I was practically obliged to tie the femoral in Hunter's canal, and it is by no means an easy matter to tie the femoral at that spot. I found it absolutely impossible to isolate the artery, and was only able to tie it by passing the aneurism needle forcibly beneath it, including the adjacent tissue in the knot. During this process, the vein is easily wounded. For fear of injuring the vein, I gradually worked the aneurism needle through, between the artery and vein. In doing this the needle tended to turn in the handle, and I spoilt at least two of the needles belonging to the hospital. A similar case is recorded in the practice of a well-known English surgeon, who passed a sharp needle and wounded the vein, which gave him great trouble.

During the course of these operations I introduced the probe into the artery in order that I might more easily isolate it, making it more prominent. I had never seen the introduction of the probe, under such circumstances, recommended, and although it was the most natural thing to do, I imagined for a time that that was a new procedure upon my part; but on turning to an article by Mr. Annandale, written a few years ago, I see he figures it; and to-day, in looking over an old surgery, by Benjamin Bell, to find his directions for doing the old operation before the days of antiseptics and anæsthetics, I find there the direction to introduce a probe into the artery in order that it can be more easily isolated; that was published in 1736.

No drainage-tube was used in any case. The dependent position of the incision made it easy to secure drainage without tubes, and the cavity was as far as possible obliterated by approximating the surfaces.

I have given the preference, in these operations, to silk, over other ligatures, and their action is interesting to note. The silk was a heavy braided silk, which is quite bulky. Some two years previous I tied the femoral at the bottom of a wound in Hunter's canal with the same difficulty mentioned above, and was afterwards obliged to secure the artery in the apex of Scarpa's triangle. In this case I used the same braided silk which had been carefully prepared, and it gave no trouble until some months afterward, when an opening formed and one of the knots appeared. This occurred repeatedly, until all four knots were ejected. This same process has already taken place in two of the cases, the two popliteal ones. Each one of these cases has already extruded a knot.

To me these cases are interesting by comparing with similar cases operated upon years ago. Mr. Erichson, in the eighth edition of his "Surgery," says: "The operation of opening the sac, turning out the contents, and ligaturing the artery supplying it, is in any circumstances a procedure fraught with the greatest danger to the patient and full of difficulty to the surgeon even when he knows in what direction to seek the feeding vessel." The great difference is in the antiseptic method. In the first case the aneurism was diffuse, the clots had dissected up the muscles, and were deposited in great masses in the muscular interspaces. The loss of blood was greatest in this case, as the tourniquet proved not to have been perfectly adjusted, and the patient showed the effects of the operation enough to make us hasten it a little at the close, and the wound was perhaps not washed out with the great care its nature demanded, and a cavity formed, — which was a very natural result of the operation, — but which possibly might have been prevented. In the second and third cases there was no suppuration whatever, a result absolutely unattainable by the older method.

As a contrast to the favorable result of these cases, I wish to give a few lines only from Mr. Percival Pott, who wrote, as nearly as possible a hundred years ago. He asks in the first place in what manner this disease is to be treated, and he answers that, theoretically, it ought to be treated by the old operation, by what he called, at that time, *the operation*. He then goes on to say, "I will not take it upon myself to say, but certain I am that it does not succeed: I have tried it myself more than once or twice; I have seen it tried by others; but the event has always been fatal; excessive pain, a high degree of symptomatic fever, great tension of the whole limb rapidly tending to gangrene, and ending in mortification both upwards and downwards have destroyed all those whom I have seen on whom the operation of tying the artery has been practised. Nor have I ever seen any other operation than that of amputation which has preserved the life of the patient."

I cannot help thinking that Mr. Pott looked at the operation with a little more gloomy aspect than some other surgeons of the same day, but we certainly may believe that the operation at that time was very different in its results from what it is at the present; and in rapidly reporting these cases I do not wish to claim universal applicability for the old operation, nor do I claim that it will always meet with a favorable issue. Undoubtedly misfortunes will occasionally attend any method of treating aneurisms of the thigh; but these cases show that the old operation, under the new conditions, is very different from the operation in the pre-antiseptic days.

TWO CASES OF EXTRACTION FROM THE VITREOUS, OF STEEL WHICH HAD PASSED THROUGH THE LENS.¹

BY O. F. WADSWORTH, M. D.

APRIL 27, 1886, a boy of thirteen, while watching a man at work with hammer and drill, felt something strike his right eye. He was seen not long afterward by the family physician, who discovered no wound. There was moderate pain and photophobia at first, soon relieved; but on the evening of the following day he

complained that he could not see with the injured eye. I saw him on the morning of April 29th, less than forty-eight hours after the injury. There was scarcely any congestion; a linear cicatrix near the centre of the cornea 2 mm. long; a scar in the anterior capsule and sufficient opacity in the lens, chiefly posterior cortical, to hide, with moderately dilated pupil, the parts behind it. A few hours later, when the pupil was fully dilated, careful examination revealed a grayish body behind the lens, nearly in the course of the wound, and slightly movable. He counted fingers at 2'–3'.

The next day the lens was a trifle clearer and through its lower and inner part the body behind it was made out to have a sharp outline. Fingers at 5'.

After another twenty-four hours the lens was still clearer and fingers were counted at 6'–7'. The foreign body could be made out pretty well with a +7. behind the mirror. It had very little motion, only swung gently with movement of the eye, had a defined angular outline, and on one surface presented the appearance of a fresh fracture of steel. Operation for removal was advised and agreed to.

The following day, May 25th, cocaine was applied, the lids washed and the conjunctiva sluiced with solution of bichloride (1–6000). The eye was rolled upward and inward with forceps; a fold of conjunctiva between the external and inferior rectus raised and divided meridianally; a Græfe knife thrust perpendicularly through the coats of the eye about 8 mm. from the cornea and the cut prolonged backward some 5 mm.; the conical point of an electro-magnet was passed in nearly half an inch in the direction of the foreign body and withdrawn once without result, but on the second withdrawal brought with it a thin scale of steel, 1½ mm. x 1 mm. There was apparently no escape of vitreous, though the conjunctiva over the wound puffed a little. The bichloride solution was again applied freely and both eyes bandaged. When the bandage was changed at the end of twenty-four hours the right eyebrow was said to be tender to touch; at no other time was there any pain. The bandage was omitted after five days. There was a little puckering of the conjunctiva around the wound.

May 9th, a week after the operation, no congestion; puckering of the conjunctiva less. Fingers at 8'.

May 12th. Fingers at 14'; lens somewhat clearer; the posterior cortical opacity chiefly central; the disc seen tolerably well through the lower part of the lens.

May 24th. Fingers 14'; conjunctiva at wound quite smooth; atropine which had been used till now omitted.

June 15th. With pupil undilated, fingers at 8'. Under dilatation with cocaine a fair view of the disc is obtained, but there is much irregular astigmatism. Well downward and outward is seen the posterior end of a brilliant white space, as if the sclera were exposed by retraction of the choroid, the lateral edges of the space sharp, at its posterior angle a red spot as of hæmorrhage.

Thirteen months after the injury the cataract had become complete and fingers were counted at 1' imperfectly.

The patient was killed last fall in a railroad accident.

J. L., aged thirty-one, mason, applied to me January 27, 1889. Sixteen days before, while using a hammer and cold chisel, something struck his left eye. He had no pain at the time nor afterward, but since then had seen something floating before the eye.

¹ Read before the American Ophthalmological Society.