ORIGINAL COMMUNICATIONS.

HISTORY OF A FEW CASES ILLUSTRATIVE
OF THE USE OF THE FORCEPS IN
DIFFICULT LABOUR.

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QUESTIONS connected with the use of instruments in difficult labour are so embarrassing, and have given rise to such warm controversies, that any light which may be thrown upon them by individual experience is of value. With this object, I have ventured to bring before the Medical Society a few cases of difficult labour, which required instrumental aid; and which, it appears to me, illustrate some important points connected with this subject. One of these questions concerns the comparative merits of the crotchet and the forceps, as a means of delivery when the head is fixed in the brim of the ovate pelvis. Some practitioners do not hesitate to perforate the head in these cases; they consider that the safety of the patient requires it, and object strongly to the forceps as a dangerous instrument under such circumstances. I believe that these objections have no foundation in fact. On the contrary, I am inclined to the opinion, that not only in these cases may the long forceps be safely used, but that even in some of those where the head has not entered the brim of the pelvis in consequence of disproportion, it may be made to do so by this means, or by the operation of turning the child. These observations apply exclusively to the ovate deformity of the pelvis, where the whole difficulty exists in the diminished conjugate measurement of the brim.

Some years ago, I met with a case which enlightened me very much on this question, and made me hesitate greatly as to the propriety of perforating the head of the child when thus situated. A lady had been in labour of her twelfth child, each labour being more and more difficult. The head was above the brim, and so remained the whole night, apparently prevented from entering the pelvic cavity by want of space in the conjugate axis. I attempted to apply the long forceps; but, after several efforts, failed. No alternative seemed left to me but to perforate. I proceeded with great reluctance to the operation, and very fortunately pushed the head with the perforator from the brim towards the iliac fossa. The arm came down, and I immediately proceeded to turn the child, in which I completely succeeded, and delivered it alive. Having this useful lesson strongly impressed upon my mind, I met soon afterwards with the following instance.

CASE I. PELVIS CONTRACTED IN CONJUGATE AXIS TWO INCHES AND THREE QUARTERS: DELIVERY BY TURNING THE CHILD. On February 25th, 1848, I was sent for to see a hospital patient, living in King William Street, Strand. She had applied several months previously at University College Hospital, for aid in her confinement, and had been twenty-hours in labour before I saw her. The os uteri was nearly dilated, the head resting on the brim of the pelvis. She was a pale delicate looking woman, and very intolerant of her pains, which caused her great agony. The pelvis was contracted in the conjugate axis of the brim, as nearly as I could judge, to two inches and three quarters, certainly not quite three inches; the cavity was wide, and also the outlet, only that the coccyx was bent so much forwards as to become an obstruction. I saw no probability that labour, no matter how long continued, should terminate naturally; and there remained only the choice of allowing labour to continue some hours longer, in the hope that the head might enter within the brim, or to deliver at once. I preferred the latter course, because I did not wish to expose the woman to any great protraction of her intense suffering, and I wished to give the child the best chance for its life.

She was placed under the influence of chloroform, sufficiently to blunt the intensity of her pains; and having allowed labour to continue for a little time under its use, I proceeded to apply the long forceps (that which I used was straight). I found it, however, impossible to act with it; because, when the blades were applied to the head, the shaft and handles pressed strongly against the perineum and coccyx, which was bent so much forwards, that no efforts could prevent the handles taking the same direction, and the blades, of course, the opposite one,—that is, off the head. I threw them aside, and determined to make the attempt to turn the child. The perineum and coccyx opposed greatly the passage of the hand and arm, and there was much difficulty in directing it towards the brim of the pelvis (the axis of the brim and that of the outlet were at an angle of nearly 45°). The hand, however, passed through the brim more easily than I expected, and a limb of the child was brought down, but not without some trouble. Want of space in the passages made it equally difficult to reach and bring down the remaining limbs; however, the body was brought through the pelvis safely, but the head still remained. The finger was placed within the mouth, the back of the neck seized, and the hands made to correspond as nearly as possible with the transverse axis of the pelvis; extraction was then made, but, after several efforts, I could not move the head. The funis still pulsated; and having placed it out of reach of pressure, I allowed the patient a little rest. Efforts were again made to extract, which at length succeeded, but the child was still-born, the bones being very strongly overlapped. I think that its death occurred while the head was passing the brim; because pressure on the funis was unavoidable, and this was too long continued, in consequence of the delay in the transit.

So far as the extraction of the child through the pelvis is concerned, this was by far the most difficult operation of turning I ever had to perform,—not so much from contraction in the brim as from want of space in the outlet, in consequence of the abrupt curve of the coccyx. The woman recovered without a single unfavourable symptom.

The result of this case convinced me of the practicability of turning in this degree of disproportion; and the child was so nearly saved, that it seemed to me to afford a powerful evidence in its favour over perforation. The only doubt I had was, whether I might not have succeeded as well, if not better, had I used a curved in place of a straight forceps in the first instance. I thought that the curve of the forceps, corresponding to the curve of the coccyx, might have enabled me to apply the instrument more easily. This doubt was removed in the following year (1849), when the same woman applied for aid under precisely similar circumstances. She was again pregnant; labour took place in March. She was under the care of a very intelligent pupil; and as soon as the os uteri was fully dilated, I determined on delivering her. I brought for the purpose a forceps strongly curved, but found it just as difficult to apply as the straight one that I had tried before. I therefore had recourse again to turning the child, in which I experienced nearly the same difficulty as on the previous occasion; the child, also, was still-born.

Had this patient come for assistance at the seventh month, when she was desired, I have no doubt that the child could have been saved. She recovered from this labour equally well: and the results of the operation in both instances convinced me that perforation was a most unjustifiable operation to adopt, in cases where the disproportion in the conjugate axis of an ovate pelvis exceeded two inches and a half. This view was confirmed by the following case.

In November 1847, I delivered a woman by perforation, in consequence of a contracted pelvis. As it was the first case in which I had the opportunity of using chloroform, and judging of its effects, I reported it in a tract published in 1848, entitled *Chloroform in the Practice of Midwifery*; and from that publication I shall quote as much as is necessary for the subsequent history.

CASE II. CONTRACTED PELVIS, TWO INCHES AND A HALF FROM PUBIS TO SACRUM: DELIVERY BY PERFORATION, AFTER THIRTY-NINE HOURS' LABOUR. E. G., aged 36, living in Grove Street, Camden Town, of moderate height and delicate appearance, was taken in labour with her seventh child, Nov. 24th, 1847. All her previous labours had been protracted, varying from fifty-six to eighty hours, and all her children (males, with one exception) had been still-born. In her last confinement, after being sixty hours in labour, she was delivered by the forceps of a dead child. Her present labour commenced November 24th, at six o'clock, A.M., and the pains continued without interruption the whole of that day and night. She was seen on the following morning about eleven o'clock. The os uteri was nearly dilated, the vagina moist and cool, the head above the brim of the pelvis, and its conjugate measurement contracted to two inches and a half. It was evident that the head could not descend into the pelvic cavity; but labour was suffered to proceed, in order to ascertain whether it might enter the pelvis sufficiently to be extracted by the long forceps. She was seen again in the evening, at half-past eight o'clock, having been left in charge of the gentleman in attendance during the day. She had now been more than thirty-eight hours in labour, during the whole of which time she had very strong and regular pains, but without any alteration in the position of the head; the writer therefore determined on delivery by perforation.* This woman had been placed under the influence of chloroform, delivered, and made so favourable a recovery, that she was walking about Camden Town three weeks afterwards. She had been very strictly charged to apply at the hospital before the seventh month, if she should ever again become pregnant. She did so in 1849. Premature labour was induced; the child presented the breech, and was delivered still-born.

The same charge was again given to her, but she neglected to attend to it. She became pregnant in 1851, and gave us no notice of it until near the full term. I have reason to know that she was quite determined not to have children: the last child was very nearly saved, and she was not solicitous to go through the same ordeal again to save another. I therefore did not see her until she was in labour. I called in the evening, and found the os tincæ nearly dilated, the head above the brim. I might then have delivered her as before; but the same determination which led her in one direction, led me in another and an opposite one. She cared only about saving herself: I was resolved to use every effort to save the child. I therefore allowed labour to go on for twenty-four hours, in charge of the gentleman in attendance; and, although frequently solicited to deliver her, did not see her until the following evening. I delayed, in the hope that the head might possibly be forced within the brim of the pelvis, so that I might apply the long forceps; and was greatly pleased to find my wishes realised. I found the head fixed there. She was again placed under the influence of chloroform; the long straight forceps were applied, and with extreme difficulty the head was brought through the brim into the cavity, from which it was easily extracted. I could not, however, save the child: its death was caused by the extreme pressure of the brim, which was so great as to produce an indentation in the cranium of two or three lines in depth. As on former occasions, so in this, she recovered perfectly, without any drawback.

The case was a very instructive one, because, when I first saw her in 1847, the pelvis had been very accurately measured, and the conjugate axis did not exceed two and a half inches—a space through which it seemed to me impossible for the unreduced head of the child to pass. Let the vault of the cranium be compressed as it may, still the transverse measurement of the base is two and a half inches; and, therefore, the inference must be that it would not pass: but it did so nevertheless; and I can only attribute it to the expansion of the pelvis—the head, like a powerful wedge, stretching the symphysis pubis and sacro-

iliac articulations to their utmost extent. The conclusion, therefore, at which I arrived, was, that whatever doubt might exist as to the propriety of attempting to deliver with the forceps, or by turning, when the conjugate axis was two and a half inches, there was no question about it when the space exceeded that amount; and that a diminution to three inches, or even to two and three-fourth inches, would not be too great to make it possible to avoid perforation.

CASE III. CHILDREN STILL-BORN IN SEVEN SUCCESSIVE LABOURS: CRANIOTOMY SEVERAL TIMES: DELIVERY BY FORCEPS IN EIGHTH LABOUR: CHILD ALIVE. The above view was supported by a case that I was requested by Mr. Collins, of Camden Town, to see, in July 1851. His patient had been in labour of her eighth child, not one of the previous children being born living, and several of them delivered by craniotomy; so much so that, when I was sent for, she expected that, like preceding consulted accoucheurs, I should proceed at once to deliver by perforating the head. I saw her at midnight, and found the os uteri nearly open, the membranes ruptured, and the head above the brim of the pelvis. I could pass the four fingers of my left hand easily within it, and judged that the degree of disproportion in the conjugate axis was about three inches. I might have then turned the child, but I preferred allowing the labour to proceed, in the hope that the head would get within the brim of the pelvis. Having arranged with Mr. Collins to see her sooner, if he thought necessary, we agreed to meet the following day at twelve o'clock, leaving her to nature for twelve hours more. When I arrived, what I hoped for had taken place: the head of the child had entered and remained fixed in the brim of the pelvis. The long forceps was at once applied; and, after several powerful efforts were made, the head at length moved, and I succeeded in bringing it into the cavity, from whence it was easily extracted. The child was born living, greatly to the astonishment of the mother (a woman in humble circumstances) and her nurse; both of whom imagined that, as on former occasions, it must be destroyed. So little did she expect to hear its cry, that she had no baby-clothes prepared for it, which caused some little confusion. This woman recovered without any unfavourable symptoms.

Taking these cases collectively, they seem to me to determine some of those questions that I would submit:—1st, Whether, in the ovate deformity of the pelvis, we are justified in perforating the head and destroying the child, when the head is fixed in the brim of the pelvis? This, I think, will be answered in the negative. 2ndly, When the head has not entered the brim of the pelvis, what amount of space in the conjugate axis will justify the attempt to save the child, either by the long forceps, or by turning? I think we may do so, if it exceed two and a half inches. The probability of saving it may be slight, but still it is by no means impossible; and, as the necessity for destroying it is not proved in such cases, we are not justified in doing so.

When the head of the child has entered the pelvic cavity, and ceases to advance, the arrest may be caused by a slight deformity of the cordiform character; that is, the planes of the ischia may be pressed inwards sufficiently to prevent the rotation of the head. No further progress is made, and the head is said to be impacted; the ear cannot be touched without great difficulty; and it is impossible to pass the finger laterally between the head and the pelvis. The treatment of such cases as these became a question of great interest to me soon after my arrival in London, because the propriety of using the forceps when the head was "impacted", was very warmly disputed by no mean authorities in obstetrics; and my own experience was decidedly opposed to any such attempt, in the kind of cases that came under my observation when a resident physician in the Dublin Lying-in Hospital. The cases of impaction that there presented themselves, were of quite a different character. The large head of a male child, much advanced in ossification, was wedged in the deeply conical cavity of a perfectly unyielding pelvis. It was very difficult to apply the forceps; and when the attempt was made successfully, the instrument became as impacted as the head; it could

* Chloroform in the practice of Midwifery, p. 6.

not be moved; and great injury was done to the passages. The obvious conclusion was against making such attempts, but rather to perforate the head, and extract with the crotchet as soon as the child ceased to exist. This could always be ascertained by the stethoscope, in sufficient time to operate before any symptoms dangerous to the mother presented themselves.

I was anxious, therefore, to ascertain whether such cases of impaction were frequent here; and whether, in this controversy about the forceps, the term "impaction" had precisely the same meaning as I had given to it. I soon found that this was not the case; that such instances were rare; but that the same degree of disproportion was produced in a manner altogether different. The pelvis was slightly distorted; the cavity presented the characters of the cordiform pelvis, in which the head was wedged, and might be called impacted; the ossification of the bones was not advanced more than usual, sometimes not so much so; the child was frequently a female; and if the constitution of the patient were strong, and the action of the uterus powerful, I have no doubt that the head would be forced through the pelvis by the natural efforts alone. *The case, however, always failed here:* the habit was feeble, the pains weak, or, if vigorous, soon ceased to be so; and, as no advance was made perhaps for several hours, aid was called for. Were we to perforate in these cases of impaction, or to use the forceps? I came to the conclusion of adopting the latter course, and found it successful; so much so, that I think I have not performed the operation of perforation five times since I came to London. Time will not permit me to detail several of these cases, in which I delivered with the forceps. I shall, therefore, only select a few of the most striking.

CASE IV. IMPACTION OF THE FETAL HEAD: FEEBLE UTERINE ACTION: DELIVERY BY PERFORATION IN FIRST LABOUR, AND OF LIVING CHILDREN BY FORCEPS IN TWO SUBSEQUENT ONES. In 1847, I was summoned to a lady, who had been nearly five days in labour of her first child. She had suffered great agony during that time; and when I saw her, the head was fixed in the pelvic cavity, the bones overlapping very much: the vagina was congested and tender, and the discharge from it very offensive. The child was evidently dead; and I agreed with the gentleman who called me in, that perforation alone could be performed. A putrid child, of a very large size, was thus delivered.

This lady became pregnant of her second child; and was attended by a different practitioner. On September 20th, 1849, labour commenced in the morning, with irregular but severe pains, which became more uniform towards night, but were not strong. Labour continued more regularly during the 21st. The pains ceased, however, on the morning of the 22nd; and there was no active labour during that day. Ergot of rye had been given without effect. In the evening, I was sent for. The head was tightly fixed in the cavity of the pelvis near the outlet; the ear could just be touched, but with great difficulty. I applied the forceps, and, in about half an hour, delivered a living girl, to the great joy of the mother, who supposed that, as before, the child must be destroyed.

In 1851, she requested my assistance for the third time, and engaged me especially for this confinement. Labour commenced on August 6th in the evening. She had the usual severe pains during the night, which, however, I controlled by chloroform; and about eight o'clock in the morning the head entered the pelvic cavity, where it remained until one in the afternoon. I waited thus for five hours, and finding no progress made, applied the forceps. The head gradually descended, and in about an hour a very large girl was delivered living.

In this case, the disproportion was in the cavity and outlet. Though slight in degree, it was sufficient to prevent delivery; because the action of the uterus was more powerful, the pains caused agony, and were very inefficient. In her first labour, the patient was four days suffering in this way, by which the progress of the labour was much interrupted; and at length the pains failed altogether, the child died, became putrid, and was so extracted. In

her second labour, she was two days suffering the severest pains, to no purpose; they ceased, and in the evening, I delivered her of a living child with the forceps. She would not then have chloroform; but in her third labour, the apprehension of her former sufferings, and the more favourable accounts that she heard about this anæsthetic, led her to wish for it. I gave it to her sufficiently to relieve the intensity of the pains, but not to remove consciousness. The labour proceeded most favourably. In about ten hours, the head descended into the pelvic cavity, from which it might have been at once removed. I waited, however, for five hours, in order to give the uterus fair play—a delay that I cared less about, because she did not suffer much pain during that labour.

CASE V. IMPACTION OF THE HEAD: DELIVERY BY FORCEPS: CHILD STILL-BORN. A few years ago, I was sent for by Mr. Griffith, of Greville Street, to see a lady, in labour of her first child. She had been in pain about forty-eight hours before I saw her. I found the head in the pelvic cavity, which it filled so completely, that the ear could not be felt. The bladder was fully distended, and the vagina very much congested; it was extremely hot and tender. The pains were active and regular. Finding matters in this condition, I was very unwilling to use the forceps then, and I would not destroy the child. It was agreed, therefore, to give the uterus a further trial, but to use means to prevent the increase of inflammation. The urine was drawn off, a cathartic enema administered, and other means used for this object. We met at night, and arranged to meet again the following morning at nine o'clock.

When I called, I found that no advance had been made. I therefore determined to remove the child, and at least to try the forceps for this purpose. The urine was again drawn off. There was great difficulty in applying the forceps; and, when they were applied, it was equally difficult to act with them. However, the head at length began to advance, to descend slowly on the perinæum, and was brought through. The child (a girl) was still-born; and every effort to establish respiration failed. It was unusually large, and the head was greatly compressed.

This lady recovered most favourably from the effects of this labour. She was soon able to be up and about; but just as the month concluded, I was urgently summoned to her, and found her dying, in consequence, I believe, of some violent and unexpected shock; but the cause of this change was then a mystery. There was no hæmorrhage, or other way of accounting for it; and, unfortunately, no *post mortem* examination was allowed.

This case resembled the most nearly the kind of impaction that I had been accustomed to. It differed, however, altogether in the general character of constitution and temperament. The lady had a fine delicate complexion, with small bones, and was in no way robust. She had much more the appearance which indicates a scrofulous diathesis, than that of rude health. I inferred, therefore, that the difficulty arose from slight disproportion in the pelvic cavity, which was sufficient to prevent the head of so large a child from making any advance, and produced impaction. Had she been delivered the night before, it is probable that the child would have been saved.

CASE VI. IMPACTION OF THE HEAD: DELIVERY BY FORCEPS: CHILD ALIVE. In February 1851, I was requested by Dr. Bowman, of Dalston, and Mr. Gill, of Islington, to see a lady who had been two days in labour of her first child. An obstetric physician had seen her early that morning; he would not then interfere, but gave it as his opinion that labour should be permitted to proceed for six hours longer; and if delivery did not then take place, the child should be removed by the crotchet. Other engagements prevented this gentleman from again seeing her; so I was sent for, and arrived about four o'clock in the afternoon. The case was very like that which I have just detailed. The head was fixed in the pelvic cavity very tightly; the ear could be felt, but not without difficulty; there was no great pressure on the urethra, neither was there any evidence of inflammation in the vagina: so far, therefore, the balance was in

favour of this patient. I stated to the gentlemen who consulted me, that I thought the child might be delivered by the forceps; and, as they agreed, I proceeded to the operation.

There was great difficulty, from want of space, in applying the pubic blade: it was at length placed over the ear of the child. The opposite blade was more easily introduced. When the instrument was fixed, the pains, which had ceased, returned with vigour; and, by acting with them, the child was delivered in half an hour. It did not at first inspire, but the heart was acting: by degrees, respiration was fully established, and the child saved. This lady recovered without any unfavourable symptoms.

These cases, to which I might add others of a similar character, convinced me that in these discussions about the comparative merits of the forceps and crotchet in difficult labours when the head was "impacted", we were not speaking of the same thing. When the head is impacted, because the pelvis is slightly distorted, the forceps may and should be used; but when the impaction is caused by the conical cavity of the masculine pelvis, it should be avoided. The former class of cases prevail here in a much greater degree than the latter; and, consequently, the operation of perforation should be very seldom performed. I have stated how it may be avoided in those cases, where it has been performed in consequence of want of space in the conjugate axis of the pelvis. I trust that I have now shewn that it may also (with these few exceptions) be avoided when the head is fixed in the pelvic cavity. If this be granted, an important corollary follows this conclusion; viz., that delays under such circumstances are always dangerous. If I am obliged to perforate, I delay the operation as long as possible, to avoid destroying the child; but if I think that it can be saved, the sooner the mother is delivered, consistently with her safety, the better. Hence, as soon as the disproportion is ascertained, and three or four hours are allowed, in order to estimate the power of the uterus, the forceps may be used: a longer delay exposes the patient to all the risks of inflammation. In fact, many of the bad effects of forceps operations arise from having recourse to this aid far too late, when the passages are inflamed. The action of the uterus is suspended, because inflammation is commencing in the tissues; the head of the child is allowed to remain in the same position for ten, twelve, even twenty-four hours; at length, the forceps is applied, and produces perhaps a slough, and consequently a fistula; the perineum never escapes. Such unfortunate results might all be avoided by more timely interference.

These facts may also shew the importance of a more careful study of the peculiarities of the pelvis and their diagnostic characters. By this means only can we recognize the true character of the difficulty the moment it presents itself. I know of no other way of discriminating cases, which require aid, from those which may be left to themselves. To decide such a question by time alone, exposes the patient to all the risks to which allusion has been made. A previous knowledge of the cause of arrest is absolutely essential, in order to avoid unnecessary delay.

Henrietta Street, Cavendish Square, February 1853.

ILLUSTRATIONS OF DISEASES OF THE HEART AND AORTA.

By R. HUTCHINSON POWELL, M.D.

(Concluded from p. 206 of last number.)

II. ILLUSTRATIONS OF ANEURISMAL DISEASE.

AN extract taken from some manuscript notes of lectures delivered by Dr. Corrigan, of Dublin, in 1838-9, clearly, though very briefly, sums up the pathology, diagnosis, and principles of treatment of internal aneurismal diseases, as exhibited in the succeeding cases; and will prove interesting, from the close correspondence existing between the lecturer's *dicta* and the results of independent and varied observation. I am individually responsible for the correctness of the report.

"Aneurism of the aorta is divided into true and false. In the first variety, simple dilatation of its coats exists; in the second, ulceration takes place through the inner and middle coats, causing rupture; the latter variety is most frequently met with.

"Its pathology essentially consists of disease set up in the lining membrane, and subsequent deposition of lymph between it and the fibrous coat. The latter ultimately gives way, and the areolar tissue alone then forms the aneurismal sac; the opening from the aorta into the aneurism being mostly small. *True* aneurism is never cured when present at the mouth of the aorta; the blood being always fluid. In *false* aneurism, the process of cure consists in the deposition of lymph at that part of the sac which is most remote from the circulation. The lining membrane, which is ultimately formed by, and constitutes the innermost of the fibrous layers, becomes continuous with that of the aorta, and takes on the characters of serous membrane. No deposition of lymph ensues in true aneurism; hence, no reparation is effected, the blood continually circulating through the dilated aorta.

"As to the diagnostic symptoms of aneurism of the aorta, death may ensue without its detection previously. In ordinary cases, a pulsating tumour is observed to the right of the sternum, between the second and third ribs, on the right side of the aorta. Pulsation cannot be detected, if a quantity of coagulated blood intervenes. The pulsation may be rendered more evident by the aid of a prolonged lever; its movements being thus made more apparent, as from the increased movement of the leg in popliteal aneurism. There usually exist dulness on percussion, and absence of the normal respiratory murmur over the affected part of the chest. *Bruit de souffle* may or may not be present. When organic disease exists in the chest, it is rendered more evident on the patient's "taking cold". The pulse is not to be depended upon. The negative symptoms of the non-existence of other thoracic diseases will much assist in the diagnosis. If the bellows-murmur be heard in aneurism of the aorta, the valves will be invariably found engaged, unless where the murmur arises from depletion. Aneurismal disease is especially indicated by the morbid sound being intense and circumscribed in a place in which it does not naturally exist in the course of the vessel.

"Aneurism of the abdominal aorta is marked by severe pain, intermittent in character: it is usually of the *false* variety. In thoracic aneurism, there is usually but little pain complained of. It is said that aneurism of the aorta produces hypertrophy of the heart; but it never does so, unless when obstruction or diseased valves exist.

"In abdominal aneurism, it is to be observed that the diagnosis is very difficult in the early stage: there are more violent neuralgic pains than in thoracic aneurism. In the erect or sitting posture, no bruit is detected by the stethoscope; but when the shoulders are placed lower than the hip, a loud bellows-murmur is then perceptible. It is a severe disease; and the patient is very liable to sudden death. In chronic enteritis, dyspepsia, and derangement of the nervous system, a bruit is occasionally heard, but along the *entire* abdominal aorta; the aneurismal murmur being circumscribed. Aneurism may be known from a tumour pressing upon the abdominal aorta, by the murmur not becoming inaudible or of less intensity on change of the supine or lateral posture; by the expansive and heaving motion of aneurism; by the constantly recurring and severe pain and bellows-murmur; by the immobility of the tumour; and by the history of the case. Coldness of the extremities is a common symptom, owing to the non-reception of the normal amount of blood, much of which is detained in the aneurismal sac.

"In the treatment of aneurism, the indications are: First, to promote the coagulation of the blood in the aneurismal sac, and thus to diminish the chance of rupture: this may be effected by moderate and repeated venesection, by the use of digitalis, spare diet, and by using but little liquid; the object being to cause the blood to possess a large amount of fibrin, so as to promote its coagulation in the sac.