

prepared for the event, and besides there was just the chance that the problem would be solved by miscarriage. We decided not to terminate the pregnancy.

The after-course of the illness is extremely interesting. Two or three hours after I left her she was seized with labour pains. These came on at 10.45 P.M., and before 11.5 P.M., when Dr. Taylor reached her, the child was born. There is some doubt as to the whether the child was born alive; but it was dead on Dr. Taylor's arrival. There was no trouble with the placenta and the lochia, though scanty, remained healthy throughout. The interesting and fortunate circumstance in regard to the confinement is that while we rather dreaded a miscarriage on account of the compulsory holding of the breath which expulsion pains naturally cause the labour was completed in less than 20 minutes, and it seemed as if the act of parturition disturbed the patient very little. No necropsy was made upon the infant. Once the mother's temperature began to fall to 100° she was overcome by sleep, at times so profound as to overpower her even when engaged in ordinary conversation. It was a deeper somnolence than ordinarily occurs after pneumonia. By Feb. 26th the patient was well again. She had been up for a few days, her pulse and temperature having been normal, but on this date she was again seized with pain in the right chest and on the following day there was distinct dulness with tubular breathing over the upper part of the left mid-lung posteriorly; her pulse rose to 120 and her temperature rose to 102°. The expectoration which had been absent for several days again returned and it was observed to be rusty once more. On the third day after the relapse the pulse fell to 100, the temperature declined to 100.5°, the respirations to 24, and the patient expressed herself as feeling comfortable and free from any pulmonary embarrassment. It was not until March 5th, however, that the lung showed signs of clearing up and the temperature stood at 99° morning and evening. The urine never contained albumin. The first attack of pneumonia lasted 11 days, but the second was of only seven days' duration and was unaccompanied by the extreme prostration and the hurried and anxious breathing noticeable in the original illness. That it was a veritable relapse was shown by a bacteriological examination of the sputum. Some of the expectoration of March 4th was sent to Dr. Hardcastle, demonstrator of bacteriology in the Durham University College of Medicine, and he reported (1) as the result of staining that the sputum contained pneumococci; and (2) that in an agar-agar cultivation the colonies appeared like drops of dew on the agar which when examined microscopically proved to be diplococci. That the micro-organisms were pneumococci is beyond dispute.

When pneumonia attacks a pregnant woman there is naturally a risk to both the mother and the child. Miscarriage takes place in a very large percentage of these cases. The death-rate, too, is high. In Hirst's "American System of Obstetrics" mention is made of 43 cases of pneumonia occurring during pregnancy. In 21 of these there was premature expulsion of the foetus. 28 of the 43 patients had not passed the sixth month of pregnancy, and of these 11 aborted, while of the remaining 15 who had exceeded this period the pregnancy terminated prematurely in 10. From these statistics it would appear as if the tendency to abortion increased with the advance of pregnancy. Of the 15 women seized with pneumonia after the sixth month of pregnancy seven died. It was Tarnier's opinion that "the more advanced the pregnancy the greater the probability of an expulsion of the foetus and the graver the prognosis for mother and child."

My own experience leads me to express the opinion that so far as treatment is concerned it is better not to attempt to end the pregnancy. It was only too apparent in our patient that if the uterus could have been rapidly emptied there would have been a gain of air space to the mother, but those of us who have had to empty a pregnant uterus short of the full term know the difficulties of the process and are aware of the risks to which maternal and foetal life are exposed. Nature will neither be taken unawares nor will she be hurried beyond limits at this particular period. The induction of premature labour, however rapid, is always tedious and a woman may die during the operation. The muscular pains and the sudden expulsion of the foetus act too frequently like surgical shock to the mother. Add to these pneumonia and what can be the effect of strong expulsive pains with suspended respiration but for more blood to be

thrown into already damaged lungs and an extra strain imposed upon the heart? In the treatment of disease we rely upon experience. What, then, is the verdict of experience in regard to the induction of premature labour when severe pneumonia complicates pregnancy? Statistics certainly do not favour obstetrical interference. Of 18 women who were the subjects of pneumonia and in whom the pregnancy was interrupted Matton¹ informs us that nine died, while of 20 women suffering from pneumonia but whose pregnancy was not interfered with only one died. As regards the children born under these circumstances it may be said that most of them are born dead or die very shortly after birth and when a necropsy has been made the lungs have been found affected and the internal organs congested.

Pneumonia itself tends to terminate a pregnancy. Nearly one half of the women who are affected abort. In all these cases fever is an important element; it increases the danger by quickening the respiration and causing cardiac failure. Pneumonia interrupts pregnancy in about one-third of all cases before the sixth month and in two-thirds between the sixth and ninth months. The maternal mortality may reach 50 per cent., while that of the foetus rises higher, being probably nearer 80 than 50 per cent. It is needless to add that when labour occurs in pregnancy complicated by pneumonia it is the duty of the practitioner if the parts are at all dilatable and the head presenting to shorten the process as far as possible by the gentle use of the forceps, keeping an eye on the patient afterwards for cyanosis. Should this develop he should not be in too great a hurry to check any reasonable amount of bleeding that may be present.

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A CASE OF ULCERATIVE ENDOCARDITIS TREATED WITH ANTI-STREPTOCOCCIC SERUM.

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ANTI-STREPTOCOCCIC serum is still on its trial and the following case may be recorded without prejudice and help to define its value as a remedial agent. I say "without prejudice," as a single case, though it may be as complete as the one now described, is of little value, but taken in conjunction with the others already reported and possibly with others still to appear it will be useful. Though recoveries have been recorded the disease is almost universally fatal, so that any serum or other agent which would counteract the toxin would be most acceptable. The chief difficulty lies in the fact that we have to deal with a disease in which the infection may be caused by several distinct micro-organisms, or a group of organisms, while the symptoms appear the same in every case. It is only by a cultivation from the blood in each case that the cause can definitely be ascertained and as yet we have a serum to counteract the toxin of streptococci only, and it is even doubtful whether it will cure every case of streptococcal infection. The present case was so typical clinically of ulcerative endocarditis that it need only be reported in brief.

A boy, aged 10 years, was admitted into the Royal Hospital for Sick Women and Children, Bristol, in October, 1898, with acute rheumatism of the big joints. There was a soft systolic murmur at the apex of the heart. Under treatment the swelling of the joints disappeared, but the temperature continued between 100° and 103° F. The patient then developed pleurisy in the left axillary region and some bronchitis. These in their turn got better, but the spleen became enlarged and tender. The temperature continued high and a double murmur developed at the base of the heart, and a trace of albumin appeared in the urine. Diagnosing the condition to be one of ulcerative endocarditis of the aortic valves I asked Dr. J. O. Symes, the bacteriologist to the infirmary, to examine the blood bacteriologically. He reported as follows, the blood being examined on Nov. 28th, 1898: "Two cubic centimetres of blood were taken from the arm in the following manner. A tape was tied tightly round the upper arm midway between

¹ Journal de Médecine de Bruxelles, 1872, p. 412.

the shoulder and the elbow. The skin over the front of the elbow-joint was disinfected by treating with ether and then with perchloride of mercury. The needle of a sterilised hypodermic syringe was then plunged into one of the distended veins in the disinfected area and the blood drawn off and spread on agar tubes and incubated for 24 hours. It showed a pure cultivation of streptococci. A second specimen, taken on Dec. 2nd, also showed after incubation a pure streptococcic growth. Blood films stained direct showed diplococci, probably streptococci, in one specimen." The case therefore seemed a very suitable one for treatment with anti-streptococcic serum and accordingly on Dec. 11th, 13th, 16th, 18th, and 19th 10 cubic centimetres of serum, which was obtained from the Jenner Institute through a local firm, were injected. The effect was absolutely *nil* as regards improvement. The condition of the heart remained the same, the fever continued as before, and the spleen remained large and tender. Moreover, the injections were extremely painful, the boy screaming with pain on each occasion of their administration. On this account and because they produced no good effect no further injections were given. They did no harm and that is about all that can be said about them. The boy's condition remained as unsatisfactory as before, double murmurs developed at the base of the heart, the spleen became very tender, and at times rheumatic pains returned in various joints. In addition he had a very tender spot in the left popliteal space with œdema of the leg and foot and at another time great swelling of the scrotum. The patient became emaciated to a shadow and died on Jan. 9th, 1899, with indistinct evidence of brain trouble.

The necropsy was performed by myself about 24 hours after death. On opening the abdomen some quantity of clear fluid escaped and the omentum had a dark green appearance due to lines of dark pigmented matter running beside the vessels. This is an appearance I do not recollect having ever seen before. Scattered about the intestines were a few bright red spots due to small infarcts which were evidently of quite recent origin. The spleen was large, weighing 17½ ounces, and was firmly adherent to the diaphragm, the stomach, and the omentum. Though it was with the greatest care that I attempted to remove it a small tear was made from which a large bead of thick yellow pus oozed out. Dr. Symes who was present immediately inoculated a tube with a sterile wire and made a cover-glass preparation. The results will be referred to later. In the spleen there were five infarcts, all but one of which were of the usual yellow colour, and this was of large size and of a deep red colour. The liver was large and like a nutmeg in appearance, such as one would expect to find in a person who had suffered for some time from the condition of the heart which this patient had. The heart was much dilated and hypertrophied. The valves on its right side were healthy, but those on the left were much diseased, the mitral being slightly thickened and the aortic almost entirely covered with immense vegetations. By some fortuitous circumstance in opening the heart the scissors passed between the anterior and right posterior segments so that the valves were not divided and the exact condition of all three was preserved. The anterior valve had no vegetations on it but was much smaller than it should have been and had lost its corpus Arantii in the centre. It was evidently incompetent. The left posterior had two of the longest vegetations which it has been my fortune to see, one in the recent state being nearly half an inch long. The right posterior had also a large vegetation, while above it and also above the left were small growths on the surface of the aorta. A tube was inoculated from the blood of the heart by Dr. Symes before the organ was opened. Both lungs were healthy, both pleural cavities contained a small quantity of clear fluid, and the mediastinal tissue was œdematous. In the left axillary region were some long fibrous adhesions which looked just like the strings of a harp. The kidneys were normal except for slight congestion of the pyramids and contained no infarcts. The brain was normal but in the right anterior cerebral artery a small clot was found which was pale in colour and not adherent to the wall of the vessel. It was evidently a recent embolus. The cultivations which were made at the post-mortem examination showed a mixed growth of streptococcus and staphylococcus aureus and the cover-glass preparations also showed both organisms.

It appears to me that in order to get favourable results from anti-streptococcic serum we must be sure of three

facts: (1) that there is endocarditis, (2) that the endocarditis is infective, and (3) that the infection is due to streptococci. In this case all three facts were certain, although I am quite ready to admit that at the time of death staphylococci were present. How they gained access is another matter. They were not present on the two occasions when the blood was examined during life, so I was quite justified in expecting good results—if good results are to be got—from the serum. I find that several cases have been reported in medical periodicals of similar conditions treated by serum. Dr. Sainsbury¹ has reported the case of a boy, aged 13 years, who was injected with 70 cubic centimetres in six doses. Streptococci were cultivated from the blood and the patient recovered. Dr. Sainsbury mentions another case in which the result was unfavourable, but the patient had extensive kidney disease which may have counteracted or prevented the good effect of the serum. Dr. Fox² reports the case of a man, aged 36 years, who had 20 injections and who died. No micro-organisms were found till the post-mortem examination when streptococci were cultivated. Another case is reported by Dr. Washbourn,³ that of a woman, aged 20 years, who after the injection of 1030 cubic centimetres of serum recovered. The improvement was noticeable very soon but no examination of the blood was made. A successful case is published by Margaret Pearse⁴ in which the patient was a girl aged 16 years and 87½ cubic centimetres were injected in eight doses. No examination of the blood was made till after the treatment was begun, which may account for no micro-organism being found. Ulcerative endocarditis is not always caused by streptococci alone, for there are cases of mixed infection and others in which the cause appears to be due to pneumococci or gonococci or others, and no means exist of knowing to what the infection is due except cultivations of blood drawn direct from a vein. This requires special skill and experience and I am much indebted to Dr. Symes for the trouble he took over this case. How often the infection is due to streptococci is also unknown, but Kanthack⁵ found it present in about a third of the cases he examined.

I cannot help feeling that as yet the good effect of the serum in these cases has to be proved. No doubt to cure ulcerative endocarditis or even relieve it is a severe test to which to put it. I can only hope that others who have had experience, whether favourable or unfavourable to the serum, may be induced to publish their results, so that we may be able to judge as to its real value from a good number of cases.

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ON SYSTEMATIC MUSCULAR DEVELOPMENT AS A RADICAL CURE OF HERNIA.

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THE occurrence of a hernia is due to a lack of balance between the intra-abdominal pressure and the resistance of the parietes. The one or the other element may be the predominant factor—i.e., the muscular and aponeurotic development may be fairly normal and only give way under the stress of a sudden and excessive strain, or they may be poorly developed and what may be termed a normal effort suffices to produce the hernia. Practically all herniæ are situated at those parts of the abdomen where the integrity of the parietes is impaired by the exit or passage of vessels, nerves, or other structures—e.g., the inguinal ring with the spermatic cord, &c., the femoral arch with the femoral vessels, &c., the umbilical ring where were situated the foetal structures, the obturator foramen, &c.

It is unnecessary to go into much anatomical detail for there are perhaps few subjects of surgical importance which have been more discussed, investigated, and written about than that of hernia from every point of view. I may venture, however, to refer to one or two details which though well

¹ THE LANCET, Oct. 17th, 1896, p. 1079.

² THE LANCET, Feb. 20th, 1897, p. 520.

³ THE LANCET, Sept. 18th, 1897, p. 707.

⁴ THE LANCET, July 10th, 1897, p. 92.

⁵ Edinburgh Medical Journal, vol. ii., 1897, p. 13.