for some days. I made frequent and careful examination to find out where the mischief lay. There was absolutely no pain on pressure over the abdomen. The patient's condition was what might have been expected; his tongue was dry and furred; his stomach was intensely irritable, the pulse being weak, though it frequently was 76 when his temperature was from 99.5° to 100° and even 102°; his bowels were fairly regular, and the motions hard and clayey. Shortly before death he had a severe attack of diarrhoea. I endeavoured to transfuse a saline solution, but only injected two and a half ounces, as my needle was too large to allow the blood to pass it on. He died on July 9th, fifty-one days after the operation.

Necropsy, four hours after death.—The peritoneum was found to be smooth and glossy; the intestine was slightly congested. The internal ring on the side operated on was barely discernible and was quite free from any signs of inflammation and from any puckering. The omentum was somewhat congested, but otherwise showed nothing abnormal until I sought for its terminal portion. This had formed adhesions with some pelvic intestine, and on breaking these down a large quantity of oily, odourless, greenish-yellow pus welled up, with a little white gelatinous material. The fimbriated end of the broken-down gelatinous omentum lay bathed in the pus, which was plugged off from the upper abdominal cavity by the adherent omentum. There were no blood-clots and no trace of the ligature could be found.

Remarks.—The amount of omentum ligatured was trifling; had the ligature been septic eleven days would hardly have elapsed without septic mischief appearing; moreover, when septic peritonitis sets in after a hernia operation it spreads, as Mr. Hutchinson says, "with the rapidity of lightning"; finally above the plug of omentum there was no trace of peritonitis. Mr. Southam¹ says that "ligature of the omental pedicle with catgut and excision of the mass beyond is not attended by any danger, though this is quite at variance with the teaching of the older surgeons"; he quotes Lawrence. Speaking of strangulated omentum Mr. Erichsen says that it may be tied with a double ligature of whipcord or silk, but that as "a ligature of this kind might become a source of irritation if it were drawn into the peritoneal cavity it must not be cut short." An ovarian ligature of whipcord, tied as tightly as possible, has three-quarters of an inch of pedicle projecting beyond and cut off from its blood-supply. Why does it not slough? In the case noted above I can only explain the fatal result by supposing that there was not sufficient vitality in the tissues to lead to the organisation (or whatever process occurs) in the very small stump of omentum. The hospital assistant informed me that "the man ate a piece of opium the size of a drachm (*sic*) three times a day."

OTITIS MEDIA PURULENTA; PYÆMIA; RECOVERY.

By JAMES E. BLOMFIELD, M.B., B.S. OXON. &c.

I HAVE thought that it would be of interest to publish the history of a case of purulent middle-ear disease, with pyæmia and possibly phlebitis, which ended in recovery, in view of the extensive operations that are now undertaken for the relief of this condition, and in order to show that nature does certainly in some instances effect a cure.

I first saw the patient, a pale girl aged eleven, in September of last year and found her to be suffering from purulent otitis media of long standing in both ears—ever since infancy, in fact,—with considerable diminution of hearing power, which improved considerably after inflation by Politzer's method. The ears were washed out two or three times a day with boracic acid lotion and dried boracic acid in the form of powder was injected. After about a fortnight's treatment the discharge dried up and she ceased to attend till November, when she came complaining of pain in the left ear and over the temporal region of the same side. In the meatus there was a small quantity of foul-smelling, purulent discharge. The right ear was free from discharge. Thinking that the temporal pain might be neuralgic I gave her small doses of antipyrin, but on the following day I was sent for and found her in bed with a flushed, feverish appearance, the temperature being 98.8° F. She had been

very sick and had had three rigors. I dressed the ear very carefully and blew in iodoform, and left directions for the ear to be syringed, dried and injected with iodoform every four hours as nearly as possible. On the following day (Nov. 9th) she was better, but the pupils were dilated and acted slowly to light. There was no tenderness or redness over the mastoid, and I gave her one grain of quinine every four hours. On Nov. 10th the sickness had stopped, but she had two rigors; there was no odour from the meatus and only red granulation was to be seen. The pupils were still dilated and did not contract to light, and both optic discs were blurred and were with difficulty distinguished from the surrounding red fundus. From this date matters grew worse, the temperature in the morning being generally above 100°. The rigors continued at the rate of three or four in the twenty-four hours and the tongue began to be dry and red, but the pain became less in the head, though there was a constant complaint of pain down the left arm. The pupils improved and became fairly normal, contracting to light, and the optic papilla could be easily seen on each side. The pulse became weaker, being about 100, and necessitating the administration of brandy. This state of things continued until Nov. 21st, when there were some oedema and redness behind the ear, which became more marked during the following days; and on Nov. 25th, with the assistance of my partner, Dr. Alliot, I made an incision behind the ear, coming down on to bare bone and giving exit to a quantity of very fetid pus. After this had been done it was possible to syringe sublimate lotion (1 in 1000) freely from the incision, out through the meatus, so that I thought that with the help of a tube the drainage would be sufficient, but in the evening there was another rigor and on the following day a rigor with a temperature of 105.2°. On this day (Nov. 26th) the ear was dressed and syringed through the wound. I noticed that a swelling which commenced at the angle of the jaw had increased in size and extended downwards towards the clavicle. The rigors continued and the case seemed as if it would soon terminate in death. I consulted Mr. W. W. Wagstaffe, who agreed with me as to the gravity of the case; but before attempting any further operative interference it was necessary to obtain the consent of the parents. This was withheld, so that I was reduced to watching the natural course of the disease, which looked at this time as if it would cause the death of the patient in a day or two at the longest. The rigors continued, the temperature rising to 104°. The swelling continued to extend downwards from the angle of the jaw to the clavicle; it was hard and tender and the skin over it was rather red. On my visit on Dec. 4th I was struck with the alteration of the appearance of the patient; she looked bright and cheerful, and the whole aspect of the case had changed. During the night there had been a copious discharge of foul pus into the dressings over the ear, though whether it came from the incision or the meatus was doubtful. There was another abscess beginning to point above the clavicle, which burst on the following day, and on injecting carbolic lotion into this a considerable quantity went in, though it was not possible to syringe any in so that it would come out at the ear incision. Under general treatment these abscesses healed and left only a thickening of the skin, which gradually disappeared as her health improved.

Such is the clinical history of the case. At the time I was seeing the patient I had not read the interesting papers by Mr. Charles Ballance in THE LANCET of May 17th and 24th, 1891, to which I must refer those readers who wish for a more complete account of the disease and the operations that are undertaken for its relief, but I may recapitulate the signs which he gives as indicating septic thrombosis of the lateral sinus: (1) purulent discharge for a period of more than a year; (2) sudden onset with headache, rigor, vomiting and pain in affected ear; (3) oscillating temperature, reaching from 103° to 105° and then dropping, say, below 100°; (4) vomiting, repeated day by day; (5) a second, third or more rigors; (6) local oedema and tenderness over the mastoid or in the course of the internal jugular vein; (7) tenderness on deep pressure at the posterior border of the mastoid and below the external occipital protuberance; (8) stiffness of the muscles of the back or side of the neck; and (9) optic neuritis. In the case above related most of the signs were present with the exception of Nos. 7 and 8, but no attempt was made to elicit deep-seated tenderness behind the mastoid, so that it might have been present but overlooked. There was certainly no stiffness of the muscles of the side and back of the neck. Comparing the history of the case with those

¹ Medical Chronicle, June 1885.

published and referred to by Mr. Ballance it would seem that it must be placed in the same category as those he discusses, and the favourable termination of the case must be regarded as being unusual and rather to be attributed to good fortune. It may be that the septic process was not so deeply seated as to involve the lateral sinus and internal jugular, which would account for the termination, but if this was the case how is one to distinguish one condition from the other?

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TWO CASES OF DISEASE OF THE HORIZONTAL SEMI- CIRCULAR CANAL.

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CASE 1.—A strong young man of twenty years of age, who had suffered from left otitis media purulenta since an attack of scarlet fever in childhood, complained of pain in the left ear associated with severe attacks of giddiness. On examination inflammation over the apex of the mastoid was present and a polypus was seen lying deep in the meatus, which after removal was found to have sprung from the entrance into the mastoid antrum. One month later he returned complaining of a recurrence of the symptoms, which proved to be due to a polypus arising from the same site as the first one. On touching this growth with a probe severe vertigo was produced, which was described by the patient as being "side to side" in character. At the moment of removing the polypus he almost fell to the opposite side. Nystagmus was not noticed. After the hæmorrhage had entirely ceased I searched with a probe to find whether I was able to reproduce the vertigo by either pressure on the stapes or in the region of the horizontal semicircular canal, which would lie above and behind the fenestra ovalis. Pressure on the stapes gave negative results, but on firm pressure at the spot described above vertigo and the tendency to fall were produced; these symptoms could not be reproduced after cicatrization had once commenced.

CASE 2.—A lad aged thirteen had suffered from left otitis media purulenta for eleven years. In this case I had been obliged to open the mastoid antrum, and when I saw him about twelve weeks after the operation the wound caused by it was still patent. On syringing through this canal, formed by the bone sinus, attic and external auditory meatus, which latter was extremely narrow and contracted, I had to use considerable force and must have raised the pressure of the fluid in the middle ear considerably above what could have been obtained had no contraction of the meatus been present. Suddenly during the syringing the boy complained of vertigo, which was described by him later as being "side to side" in character, and by fixing the eyes I was able to prove the presence of lateral nystagmus. I could not probe this boy's ear to try to find the exposed membranous canal on account of the extreme narrowness of the meatus.

Vertigo of aural origin may be caused by irritation or pressure acting on the auditory nerve in any part of its course from its origin to its termination in the labyrinth, and it has also been proved frequently to be of central origin and at times to be due solely to the retention of effete products in the blood. In mammals a vertigo with nystagmus is produced on section of the membranous semi-circular canals, the nystagmus varying—as well as the vertigo—in direction and the animals falling either one way or the other, but without loss of the power of hearing. On section of the horizontal canal in mammals there occurs a rapid or "side-to-side" pendulous movement of the head,¹ with lateral nystagmus; and if this—the result of experimental research—is compared with the clinical facts related in the first case there will be found a spot in the position where the horizontal canal approaches the surface, the others lying deeper in the petrous bone, which on pressure gives rise to peculiar "side to side" vertigo, almost causing a fall. In the second case, although the exact spot is not localised, lateral vertigo and lateral nystagmus are to be produced by abnormal pressure in an ear for a long period eroded by the action of pus. These symptoms, it will be seen, are exactly similar to those

caused by experimental injury to the horizontal semicircular canal. Vertigo also is a not infrequent symptom following immediately on the removal of aural polypi, but it is seldom excessive and it is probably due to three factors, acting either in concert or one predominating. These factors are: (1) a sudden increase in the blood-supply in the labyrinth due to the damming back of the blood previously going to the growth; (2) a sudden impact of air on to the stapes; and (3) the influence of pain; but in these cases it is giddiness and not true aural vertigo, and it may even follow the removal of a small button of granulative tissue. Again, a genuine vertigo is frequently caused by forcibly syringing out the ear in cases of otorrhœa in which a perforation of the membrana tympani is present, and it is due to the sudden pressure being transferred *viâ* the stapes to the labyrinthine fluid. In middle-ear catarrh, with obstruction of the Eustachian tube, vertigo frequently follows the sudden inflation of the tympanum. This also is due to the sudden increase of labyrinthine pressure in consequence of the stapes being driven into the fenestra ovalis. Müller once obtained vertigo by pressing on the stapes with a probe. Urbantschitsch² has reported a case in which all attempts to remove a polypus were attended by excessive vertigo, necessitating the abandonment of the operation. In both these cases "vertigo" is the term used, but in neither is any description of it given; and in the former case, at all events, it may be assumed that giddiness only was experienced.

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A CASE OF OVARIOTOMY WITH INTERRUPTED PROGRESS; RECOVERY.

By G. W. DAVIS, M.D., B.S. DURH., M.R.C.S., &c.

THE following is a case which appears to me to possess some points of special interest. 1. It emphasised to all those concerned in the diagnosis the great difficulty which often exists in deciding between a large semi-solid ovarian tumour and that tumour which is the outcome of pregnancy. 2. As regards the question of the effect of injury on the growth of ovarian tumours. 3. The operation impressed upon those who were present the difficulties attending the mere delivery of a non-collapsible and large tumour, which cannot be diminished by aspiration or by breaking it up with the fingers. The impossibility of removing such a tumour, once firm adhesions were contracted, was rendered evident and became an argument for early operation in such cases and against aspiration. 4. The after-progress of the case is encouraging—while there is life, there is hope.

A domestic servant aged nineteen, single, short of stature and of dark complexion, with a history of her mother having died of phthisis, came under my care on Feb. 26th for the diagnosis of an abdominal tumour. The tumour she ascribed to two kicks that she had received in the abdomen, the first in the spring of 1892 and the second in the following summer. The tumour had been noticed for five and a half months and had been associated with slight menstrual loss every fourteen days, which contrasted with the previous performance of that function, as from the age of seventeen it had recurred every five or six weeks. The tumour occupied the whole of the abdomen, from the ensiform cartilage almost to the pubes, and bulged out the flanks; three-quarters of its circumference was occupied by a relatively solid and resistant mass, the remainder yielding a most definite sense of fluctuation. It was absolutely symmetrical as to measurement, being seven inches from the umbilicus to the anterior superior spine on each side. As the result of the examination a left ovarian tumour was diagnosed, multilocular and of partly solid consistence. The patient was admitted into the Sidcup, Chislehurst and Cray Valley Hospital on March 1st. From that day to the 13th (when she menstruated for one day), she was on full diet in bed; and from the 13th to the 23rd she was dieted on fish, milk, bread &c. Her urine was measured every twenty-four hours and was found to be normal. On the evening preceding the operation she was given a dose of liquorice powder. On March 24th all the instruments were boiled for fifteen minutes in distilled water. The ligatures were

¹ Urbantschitsch: *Ohrenheilkunde*, p. 409.

² *Ohrenheilkunde*, p. 363.