SUPPURATIVE PERICARDITIS TREATED BY CARTILAGE RESECTION, INCISION, AND DRAINAGE: BRONCHO-PNEUMONIA: DEATH.

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THE cases of suppurative pericarditis treated by incision and drainage are still, according to our medical records, very few and far between. This is no doubt due to the misfortune of only successful cases generally being published, and partly explains the favourable statistics to be drawn from them, as shown in my paper in the Clinical Society's *Transactions*, vol. xxx. The following case, although unsuccessful, is another contribution towards this very limited list:

J. W., aged 4, was admitted into the East London Hospital for Children, Shadwell, on January 13th, 1898, under the care of my colleague, Dr. Coutts.

He had been well up to three weeks before, when he took cold and complained of pain in his chest, particularly on the right side. He had a very bad cough, and there was considerable difficulty in expectorating. One week before admission he became much worse, his breathing being very rapid, with profuse sweating at night.

On admission, he was very anæmic and cyanotic at times; there was no vomiting, but constipation. The cardiac area was a little increased on percussion, and the heart sounds rather feeble. Pulse 124; temperature, 8 P.M., 101.6°. Lungs were normal on percussion anteriorly, but there was some dullness at the right base, over which there was a patch of tubular breathing; over both lungs mucous râles were heard. Respirations 44 per minute. Abdomen normal.

January 14th, 8 A.M.—Pulse 120; respirations 40. Local conditions about the same. 8 P.M.—Temperature 100.6°; pulse 180; respirations 160. Breathing more difficult, and heart sounds not so distinct.

January 15th, 8 A.M.—Temperature, 96.8°; pulse, 120; respirations, 48. Sick once. Heart sounds distant and feebly heard at apex; cardiac dullness increased. There is some extension of dullness at base of right lung, and tubular breathing especially heard about the angle of the right scapula. At 8 P.M. the temperature was 99°; pulse, 120; respirations, 52.

January 16th.—Temperature at midnight 97°, and at 2 A.M. 99.4°; at 8 A.M. 97.4°, with pulse 120, and respirations 48. Vomited once. At 8 P.M. the temperature was 98.8°.

January 17th.—Midnight temperature, 97°; at 2 A.M. 99.6°; at 8 A.M. 97.4°. Vomited twice. At 8 P.M. the temperature was 98°; pulse, 136; and respirations, 56.

January 18th.—Temperature at midnight 97°; at 8 A.M. 97.6°; pulse, 112; respirations, 48. The cardiac dullness is now considerably increased, reaching lower border of first rib above, extending to the right three-quarters of an inch to right edge of sternum and to the left, one inch and a half outside the nipple line; the heart sounds are almost inaudible. Over the bases of both lungs there is dullness, with tubular breathing on the right side in patches, and harsh breathing on the left side.

As the conditions pointed without doubt to a purulent collection in the pericardium, I was requested to see the case, and operation was decided on and performed at 11.30 A.M.

An incision an inch and a half long was made parallel to and over the fifth left costal cartilage. On exposing the cartilage the perichondrium was incised and separated as well as possible. One inch of the freed cartilage was removed with cutting forceps, the outer end being divided first. The edge of the left pleura could be distinctly seen, and an incision through the pericardial sac was made just internal to the pleura. The fluid as it gushed out was almost clear at first, becoming turbid, with flakes of lymph in it, until from the deepest part of the sac and its posterior diverticula typical pus escaped; altogether 10 ounces were evacuated. The pericardial sac was not much thickened, but to the inner surface small fibrinous coagula were adherent. A gauze drain was

inserted and the wound dressed. The cavity was not irrigated.

Just before the pericardium was opened the child stopped breathing. The radial pulse could not be felt; the pupils dilated, and the lips became purple; on the escape of the fluid there were one or two gasps, followed by immediate improvement. Strychnine and brandy were injected subcutaneously, and when the child left the theatre his pulse was better than before the operation.

The temperature, which after the operation was only 94° F., soon improved with hot bottles and brandy and hot water enema, rising within a half hour to 98° F.

In the evening the patient was sleeping calmly; pulse regular, but rapid, 160 per minute; temperature, 98.4° F.; respirations, 48. Food taken well, and no vomiting.

January 19th.—Wound dressed, and dressings soaked with pus. Drainage tube put in instead of gauze drain. Pulse still fairly good, though rapid; temperature, 99.2° F.; respirations, 48; *alae nasi* not working, rather full, but no cyanosis. Wound dressed in evening. Temperature rose to 102.6° F. at 6 P.M., but normal later in evening; pulse 160; respirations, 50 per minute.

January 20th.—Another rise in temperature to 102.2° F. at 10 A.M.; with a very slight fall it further rose at 6 P.M. to 102.8° F. At 9 P.M., pulse very rapid, and also respirations, but no complaint of pain in chest. There was marked vertical nystagmus and internal squint in left eye, and altogether the child's condition was worse. At 10 P.M. there was noticed twitching of the right hand, which was followed about one minute after by a right-sided fit lasting about two minutes. Afterwards he was very collapsed, the pulse being only just felt. With ether and brandy hypodermically, and oxygen to inhale, he improved a little. Later, twitchings of all his limbs and face came on, with lateral and vertical nystagmus. There was now a very feeble, rapid pulse, and cyanosis. This condition lasted through the night, the boy getting gradually more collapsed until his death at 7 A.M. on the 21st.

There was no evidence of and no history to suggest that the whole condition was pyæmic.

Unfortunately no necropsy was permitted, so the pathological condition of the lungs and brain could not be ascertained. There was evidently a patchy broncho-pneumonia, and, from the head symptoms, presumably a rapidly developing meningitis. It would have been a matter of great interest to have corroborated the clinical evidence, for the pus from the pericardium gave, on cultivation, an almost pure growth of Friedländer's pneumococcus.

EXCISION OF LARYNX AND PART OF THE ŒSOPHAGUS.

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L. M., aged 47, and married, was admitted to the Cardiff Infirmary on October 26th, 1897, when she complained of pain in her throat and hoarseness.

Previous History.—Her illness commenced six months before admission with pain in the throat; later hoarseness manifested itself, which increased, and a raw feeling was experienced. About four months later she commenced to cough large quantities of frothy mucus, which was sometimes streaked with blood. For the six weeks before entering the infirmary she had been unable to swallow solid food, and the pain and raw feeling had become much worse. The patient had also been troubled with a "nasty sensation" in her throat, and she had got very much thinner.

Family History.—She had had one living child and ten premature births—three at three months and seven between five and six months. For six weeks before coming into the infirmary the patient had been on specific treatment, but the results were entirely negative.

CONDITION ON ADMISSION.

She was a fairly healthy-looking woman, but complained of severe pain like a knife cutting across the throat. The pain shot up to the left ear, and was much worse when she swallowed. Owing to the pain she could not swallow solid

food, and she was also kept awake at night by it. She complained of difficulty of breathing, profuse expectoration, which was sometimes tinged with blood. She talked in a hoarse whisper.

Externally the larynx was extremely tender, especially on the left side. The pain radiated towards the left ear. The larynx seemed slightly enlarged, but no definite swelling could be made out, and no enlarged glands observable.

Laryngoscopic examination showed a growth on the left vocal cord. On October 30th a consultation was held, and the larynx was again examined, when the growth was seen extending across the arytenoids to the right side.

It was decided to excise the larynx. The patient was told of the extreme gravity of her condition, and of the serious nature of the operation which it was proposed to perform, but she at once decided that she would face any operation rather than go on as she had been.

OPERATION.

On November 1st the operation was performed. The anæsthetic employed was chloroform. When the patient was on the table, a consultation was held as to the advisability of doing the operation in two stages. I finally decided to do the whole operation at once.

Low tracheotomy was first done, and a Trendelenburg tube having been inserted into the trachea, the india-rubber bag blown up, chloroform was administered through the tube. A vertical incision was made in the middle line from the hyoid bone down to the tracheotomy wound. A transverse incision was made at the top of this, and the two flaps so formed were turned downwards and outwards, thus exposing the whole of the larynx. The sterno-hyoids and sterno-thyroids were next divided; the superior thyroid arteries, before being cut, were ligatured, the omo-hyoids and sterno-mastoids drawn out, and the upper end of the trachea thoroughly freed laterally. The thyro-hyoid membrane was next cut through, and the cartilage drawn forward, and its posterior connections separated downwards as much as possible, but it was found that the posterior wall of the larynx and the anterior wall of the œsophagus were both so infiltrated with the growth that it was impossible to separate them. The trachea was then cut through, and the two upper rings, together with the cricoid, were dissected upwards off the œsophagus, and the whole larynx was completely removed. It was then found that the pharynx and the anterior wall of the œsophagus as low as the cricoid cartilage, or rather lower, were infiltrated with disease. These were completely dissected off the front of the spine from immediately behind the hyoid to the cut end of the trachea, leaving the prevertebral muscles quite bare. These were healthy. The growth was completely removed, and no enlarged glands were seen or felt.

The upper end of the trachea was stitched to the skin wound, and so held open. The end of the œsophagus was, at a slightly higher level, similarly treated. The transverse incision was closed with stitches and sealed with collodion. A large gap was left in the middle line, which was plugged with iodoform gauze. The epiglottis was not removed, as it was quite healthy. A rubber tracheotomy tube was fixed in the trachea. The patient stood the operation, which lasted altogether under two hours, very well.

AFTER-TREATMENT.

She was put into a tent with steam kettle, and the temperature was kept at 65°. She was fed every two hours through a tube introduced into the œsophagus with milk, egg, and brandy. She also had nutrient enemata.

November 2nd. The patient was fairly comfortable, and was fed every three hours by œsophagus alone. Her only complaint was a feeling of pain and tightness in her chest. The gauze plug was frequently changed as it became soaked with saliva. The mouth was washed out frequently.

November 3rd. The patient was doing well. She complained of pain in the chest, but slept at intervals for a short time. The end of the œsophagus was a little tender. The temperature and pulse were normal. The tracheotomy tube was kept in, although she could breathe quite as well without it, but it was found that the tube prevented saliva from running into the trachea. On this day she was fed every four hours.

November 4th. She was doing well, and the pain in her chest was less.

November 5th. She had a dose of calomel. The œsophageal opening had been gradually sliding down, and had now got slightly below the tracheal opening. She was propped up on the night of November 5th, and felt more comfortable.

November 6th. A little wheezing was heard in the morning on the right side, and also a slight pleuritic rub. The temperature was normal and the pulse good. The side was poulticed and an expectorant mixture prescribed.

November 8th. She had a fit of coughing, and expectorated a quantity of mucus slightly tinged with blood. This probably came from the granulations about the wound. She had some gruel and meat-juice.

November 9th. The patient felt much better, and was free from pain.

November 14th. The stitches were removed from the transverse wound, which was completely healed.

November 16th. The faucial opening was rapidly contracting.

November 19th. The steam kettle was stopped.

November 27th. The tent around the bed was removed, and the patient got up.

December 1st. A medium-sized Symonds œsophageal tube was passed through the mouth and wound into the œsophagus. The patient drank a glass of milk for the first time, a little escaping into the wound. The tube was left in for two hours, and the amount of saliva flowing into the wound was much less while the tube was in. The patient's condition was now very good, and she was up and going about the ward each day.

December 8th. She passed the tube into the œsophagus herself, and fed herself without any assistance from the nurse.

December 9th. The Symonds tube was again passed.

December 14th. She wore the Symonds tube on this day with comfort, and took her food through the mouth.

December 29th. The patient complained of pain under the angle of the jaw on the right side. At the outer angle of the wound on this side was a small tender hard swelling.

January 4th, 1898. She was chloroformed, and the swelling at the angle of the jaw was cut down on and removed, two glands from the sheath of the vessels being taken away. The glands were adherent to the carotid sheath. The wound was sewn up and sealed.

January 5th. She was quite comfortable and free from pain.

January 12th. For a few days previous to this she had great difficulty in getting the tube passed through the fauces, and she was at this time wearing the smaller Symonds tube permanently.

January 22nd. A larger-sized tube was put in; the sinus between the mouth and the œsophagus was now a deep groove almost covering the tube.

January 30th. She had a fainting attack and some abdominal pain.

February 1st. The temperature ran up to 103°, and she got an attack of erysipelas on the right side of face, which subsequently spread to the left.

February 14th. The erysipelas had entirely disappeared. From this date on there was great difficulty in changing the tracheotomy tube. She could only breathe comfortably when a very long tube was in or the trachea was held open by a dilating forceps.

February 15th. The dilating forceps had to be held in the wound nearly all night because of dyspnoea. In the morning a large Symonds œsophageal tube was passed down the trachea, after which she went to sleep.

March 1st. The large tube was worn out and a smaller one substituted. This was not large enough, and she had oxygen to inhale, as she had on previous occasions well-marked benefit from it.

March 2nd. A large rubber drainage tube was passed.

March 4th. The tube was taken out to be washed when she had a bad attack of dyspnoea. The tube could not be got in again. A No. 14 elastic catheter was passed, through which she breathed comfortably. There appeared to be some swelling on the left side of the neck. There had also been some bleeding from the trachea.

March 8th. After she had had a bad attack of dyspnoea on

this date, a full-sized silver tracheotomy tube was inserted, which allowed her to breathe with comfort. In passing the tube the difficulty consisted in the end of the tube catching on some projection from the left side. She swallowed easily through the tube in the mouth, which she could take out and put in herself.

March 9th. There was a tender red swelling in the scar on the right side of the neck, and on the next day the swelling burst and discharged pus.

March 16th. Pus still came from the abscess on the right side, and there was some swelling on the left side of the neck.

March 22nd. The swelling on the left side was increasing and was becoming painful. On this day a large-sized tracheotomy tube, an inch longer than ordinary, was inserted, and she breathed comfortably through it.

March 25th. The tracheal tube was changed daily without any difficulty, and there were no attacks of dyspnoea for some days. When the tube was out, she used to hold the trachea open with dilating forceps, and was more comfortable with these than with any tube.

March 28th. On the afternoon of this date, at 1 P.M., the tube was taken out to be cleaned, as she had some dyspnoea. The patient held the forceps in the trachea as usual, but suddenly she became cyanosed, and before any tube could be got in she was dead.

POST-MORTEM EXAMINATION.

Immediately behind the upper end of the trachea was a large recurrence of the growth with pouches into which the tubes must have been pushed on many occasions when difficulties had been experienced in passing them. At the upper end of the trachea was a flap of mucous membrane and growth, which probably got against the lower end of the tube and obstructed it. The recurrence had extended back from behind the trachea round both carotid sheaths, and had ulcerated almost through the right carotid artery.

To Mr. Frank S. Cresswell, Resident Medical Officer, as well as to his assistants, Messrs. Woods and Pratt, and to Sister Guthrie, my thanks are due for the able and efficient way in which they ministered to the wants and assisted in alleviating the sufferings of the patient.

CEREBRAL TUMOURS SUCCESSFULLY REMOVED BY OPERATION.

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If there is one department of medicine which has benefited by the application of the knowledge obtained through experimental physiology, it is the diagnosis and treatment of cerebral tumours. Thanks to the labours of Hitzig and Ferrier, and more recently to those of Schäfer, Horsley, and Mott, we are becoming familiar with the function of various portions of the surface of the brain, and are able to delegate to these areas certain duties. Although cerebral physiology is still in its infancy and the newer histology of the brain, as demonstrated by the methods described by Golgi and Ramon y Cajal, has obliged us to modify many of our opinions, it is apparent that if physicians and surgeons would successfully cope with the effects of brain disease they must be conversant with cerebral physiology.

No branch of study is more difficult, and, although mistakes are still frequently made by the diagnostician in the localisation of brain lesions, it is encouraging when we are able to report cases where the seat of a tumour has been accurately defined and successfully removed by surgical operation. But for the assistance given by experimental physiology a fatal issue would in time have taken place in both patients whose notes are subjoined. Instead of this, life has been prolonged, suffering prevented, and, in one of the cases at least, the individual has again become the breadwinner of his family. The patients whose illness supplied the facts recorded below were admitted into the infirmary under the care of Dr. Oliver,

who, diagnosing cerebral tumour, sought the assistance of his surgical colleague, Mr. Williamson.

To the first case, that of a male, attention is directed on the ground that what seemed to many who examined the patient rather misleading evidence as to the seat of the tumour—namely, the coexistence of anæsthesia with muscular spasm and paralysis—was to Dr. Oliver rather helpful than otherwise, and becomes a fact strongly corroborative of the view some time ago put forward by Bastian, and more recently elaborated by Mott—namely, that while the Rolandic area is usually spoken of as motor, it is not simply motor, but sensori-motor, so that when this area is destroyed by disease not only is voluntary motion lost, but sensation may be as well. It was this combination of symptoms that was of considerable help in the diagnosis.

CASE I (male). Morning Headache of Two Years' Duration: Vertigo. History of a Fall followed by Unconsciousness lasting for Three Days: Paralysis of Left Arm and Paresis of Left Leg: Disappearance and Reappearance, with subsequent persistence of the Paralysis: Operation followed by almost Immediate Recovery of the Loss of Power.—R. R., aged 34, a boilermaker, was admitted on April 8th, 1897, complaining of headache of two years' duration, of loss of power in the left hand, and rigidity of the left leg of eleven weeks' duration. Two years ago patient began to suffer from headache, worse especially on getting up in the morning. Since then he has frequently felt giddy. Eleven weeks ago, while coming down a ladder in the shipyard he had a giddy feeling, and fell forwards, striking his head against an angle iron. The scalp was not broken. He got up, and after walking a few yards, became faint and sat down. A little brandy revived him, but on again attempting, with assistance, to walk, the faintness returned; he was laid down, and shortly afterwards became unconscious. He was taken home, where for three days he remained unconscious. On regaining his senses he found that he could not move his left arm and hand, and that the left leg was rather powerless. In a few days the paralysis gradually disappeared, but four weeks after the accident vomiting came on, and with it the paralytic condition of the left arm and leg already referred to.

The patient tells us that for nearer three than two years he has experienced a peculiar prickling, "like pins and needles," in his left hand, which extended up the arm, and that the limb itself has been the seat of a sensation as of hot water running down it, and that it occasionally shook. There is a history of gonorrhoea, but none of syphilis. He is a well-nourished man, pale and of dark complexion, and very intelligent. Double optic neuritis is well marked, but the sight notwithstanding is good. There is decided weakness of the left hand and leg, and just the slightest paralysis in the lower half of the left side of the face. The knee-jerk is exaggerated, and there is well-marked ankle clonus in the left leg. Heart and lungs are healthy, so, too, are the abdominal organs. The urine is normal. On examining the scalp, two or three small superficial scars are seen, but they are the remains of injuries received in childhood. Patient was treated by means of potassium iodide and liq. hydrarg. bichlor., but without any benefit.

On the morning of April 26th he complained of feeling drowsy, and of having had severe pain in his head. Shortly afterwards he vomited. At noon he had a fit. During the convulsion the left arm and leg and the left side of the face were convulsed. He did not lose consciousness during the fit, which lasted about three minutes. Eight days after this it was apparent that the loss of power in the left arm and leg had become greater, and especially so was this the case in regard to the finer movements of the fingers. There was also well-marked analgesia and anæsthesia of the left hand and forearm, with a slight loss of sensation in the leg. The muscles of the left arm and leg now began to show signs of atrophy, and the reflexes became even more exaggerated.

In the course of conversation, Dr. Oliver had directed the patient's attention to the advisability of submitting to surgical treatment. For a time this was resented. Painful cramp-like sensations kept recurring in the left hand and forearm, and while there had been no progressive motor paralysis, there was increasing anæsthesia. At no time, however, was any part of the cranium painful on percussion, although, when the left hand was the seat of painful spasm, patient experienced an uneasy sensation in the head just above the right ear. The patient was transferred to Mr. Williamson, who operated on May 14th.

OPERATION.

A large flap, convex upwards, and consisting of the whole thickness of the scalp, was made on the right side of the head. A small hole was then trephined through the skull over the Rolandic area, and this was rapidly enlarged with a special pair of bone-cutting forceps. When the dura mater was divided a tumour was at once seen on the surface of the brain. It was cut out with the handle of a scalpel, and it was rather bigger than the half of a tangerine orange. The cavity in the brain was lightly filled with gauze, and the scalp sutured without replacing any bone. The anæsthetic used was chloroform, and no morphine was given. The gauze was removed on the second day.

Microscopical Examination.—The tumour turned out to be a small round-celled sarcoma.

AFTER-HISTORY.

When seen on the following day the patient expressed himself as feeling quite well. There had been no chloroform sickness. Shortly after recovering from the effects of the anæsthetic he could move his left arm and leg almost as well as ever he could, but it was not until six days after the operation that the paralysis disappeared from the left side of the face. Patient made an uninterrupted recovery. There has remained, as is usual in many of these cases, considerable bulging over the site trephined, but as the operation was never followed by the slightest rise of temperature, anything like a septic cause for this hernial protrusion can be eliminated, and as the swelling comes and goes to some extent, being frequently perfectly flat (February, 1898), fluid effusion is in all probability present in considerable quantity in the sac. The posterior border of the bone around the hernia is at one place thickened, and just internal to it there is increased