while the heart is in a state of inflammatory softening, and valvular lesions. The pus in pyopericarditis becoming inspissated very gradually, time is thereby given for the heart to recover from any myocarditis which may have been present before adhesion takes place; and, when the pericardium becomes calcareous, the rigid casing by compression of the enclosed organ causes the heart to atrophy. Valvular disease of the heart appears to be a rare exception in calcareous pericardium, and, where present, to be very inextensive, amounting only to a nodule in one cusp of the mitral valve in Laennec's case (*op. cit.*, Case 48), and to a bead in one segment of the aortic valve, not causing insufficiency, in Ziemssen's case (*op. cit.*, *Medical Encyclopædia*); and in both cases the lesion may have been of independent origin.

5. The auricles in calcareous pericardium are dilated and hypertrophied—hypertrophied to compensate for their dilatation from overdistension by accumulation of blood in them, in consequence of impeded circulation through the ventricles.

6. That calcareous pericardium is not of rheumatic origin.

Pyopericarditis, of which comparatively few cases are on record, appears to be of non-rheumatic origin, and uncomplicated by valvular lesions—in these two respects resembling calcareous pericardium. In the *Transactions of the Pathological Society of London*, cases are recorded exhibiting the transitional stages between pyopericarditis and calcareous pericardium. Two cases are reported by Dr. Murchison (*vol. xx*). In one, collections of pus were imprisoned between the two layers of the pericardium, which was extensively adherent. In the other case, the pericardium was adherent; and between its layers in some places were accumulations of pus; in others, calcareous plates. In a case under Dr. Ringer, reported by Mr. A. P. Gould (*vol. xxviii*), between the layers of the adherent pericardium there was found a collection of chalky paste in front of the heart, and a calcareous plate at the back of the heart.

Without any apology, I have given the history of an illness which Martha S. had when she was thirteen years of age, imperfect and traditional as it was. The disease with which she was then affected I believe to have been pyopericarditis. Her symptoms then closely resembled those of a case recorded by Dr. Glover (*Lancet*, 1872), where the patient died, and the only morbid change found was pyopericarditis.

Calcareous pericardium being necessarily of long duration, it must seldom, if ever, happen to a medical practitioner to watch the commencement of it and to see the pathology. The three medical men who attended Martha S. in her first illness are all now dead.

In the diagnosis of such cases, which for the most part must be made on the principle of exclusion, the points to be looked for would seem to be, the history of a previous severe attack of pericarditis of non-rheumatic origin; the signs of obstructed circulation; and cardiac symptoms not to be accounted for by other diseases, such as valvular, pulmonary, or renal disease, which are declared by other signs. The absence of hypertrophy and dilatation of the heart, while it favours calcareous pericardium, almost negatives fibrous adherent pericardium when the latter gives rise to symptoms. In several of the cases on record, as in this case, ascites was a prominent symptom.

The treatment indicated would seem to be, warm clothing; a carefully regulated diet; the avoidance of mental worry, bodily fatigue, and exposure to cold; and, if fluid should accumulate in the serous cavities, its removal by aspiration. Under such a *régime*, it seems probable that life may be prolonged to an advanced age. Compared with the various forms of heart-disease, calcareous pericardium would seem to promise good results from treatment, inasmuch as in it the heart appears capable of maintaining the circulation if this be not unfairly taxed, and the lesion may be said not to be progressive.

ALLEGED CONSPIRACY TO DEFRAUD.—At the Sunderland Police-court an application has been made by Mr. J. L. Walton, barrister, on behalf of the North-Eastern Railway Company, for warrants to be issued for the apprehension of Dr. Abrath, surgeon in Sunderland, and Michael M'Mann, a labourer, a patient of his, who had brought an action against the North-Eastern Railway Company in respect to injuries received in a collision at Ferry Hill Station, on the company's line, on the 10th of September, 1880. A writ had been issued and proceedings were carried on up to the time of trial, the case being set down for hearing at the Newcastle summer assizes in July last. The action was not tried, however, but was settled by the company upon the representation made by M'Mann and Dr. Abrath in respect of the injuries, £725 being paid as damages and £300 as costs. In consequence of alleged discoveries, made after diligent and searching inquiries, the company applied for warrants at the police-court for conspiring to defraud the company. The application was heard *in camera*. After a long statement of the facts by the counsel, the magistrates granted the warrants.

TWO REMARKABLE CASES OF EMPYEMA, AND ONE OF LATENT PLEURAL EFFUSION;

WITH REMARKS ON THE OPERATION OF PARACENTESIS THORACIS.*

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THE treatment of cases of empyema and pleural effusion, especially as regards the advisability, or the contrary, of paracentesis, has always been one of the most debatable questions in medicine. Trousseau seems to have been the first physician of real eminence who largely adopted the treatment of tapping the chest in such cases; and the results he attained seem certainly to justify his praises of the operation.

The last occasion upon which I had the privilege of being present here, a most interesting paper was read on this subject by Dr. Speding. The observations of Dr. M'Keown, when criticising this able treatise, struck me as very pertinent; he requested to be informed, not so much as to the individual experiences of members, but as to the symptoms and conditions which would lead a physician to recommend the operation of paracentesis thoracis. I propose, in this paper—first, to detail two remarkable cases of empyema that have occurred in my practice; secondly, to glance shortly at all the cases of pleural effusion that have presented themselves before me in the Tyrone Infirmary during the past six years; and, lastly, to state, as shortly and concisely as possible, the lessons I have learned from these several cases.

The cases of empyema I intend to refer to specially, because they are unique in this particular, that they represent the largest amount of effusion that, I believe, is on record; at least, I have never heard or read of any so large compatible with life.

CASE 1. On September 25th, 1875, I was sent for to see a young man in the country who had been ailing for some time. I found him sitting up in bed, breathing with the greatest difficulty; an inquiry into his family history, revealed distinct evidence of a phthisical tendency. In appearance, he was tall, strongly put together, and muscular, but, unfortunately, subject to occasional epileptic seizures. About ten days previous to my visit, he had been exposed to a severe wetting, and on the following evening felt chilly and sick, with sharp lancinating pain under the right shoulder-blade.

A physical examination of the chest revealed the usual symptoms of enormous effusion into the right pleural cavity. Respiration was greatly impeded, the face was pale, and the pulse thready and weak. The patient, with some difficulty, was assisted from his bed to a chair; and in this position I performed the operation of paracentesis. As the case—owing principally to the hectic symptoms—was diagnosed as one of empyema, I did not think it necessary to employ the aspirator, but simply used an oval-shaped trocar and cannula suggested by my father. At first, no fluid came away. Thinking that perhaps a piece of lymph either had fallen against the mouth of the cannula or else blocked it up, the instrument was moved gently to and fro, and a feather introduced to clear it; to no purpose, however. An exhausting syringe was also tried; but it, too, proved useless. The cannula was then withdrawn and re-inserted, this time with good effect. Occasionally the fluid stopped; but moving the cannula from side to side got over this difficulty. Altogether 173 ounces of thick, yellow, foul-smelling pus came away, giving, of course, the greatest relief. The patient was then put to bed, a compress applied to the chest, and nourishment ordered *ad libitum*. For a few days, progress was satisfactory. On October 2nd, eight days after the operation, symptoms of hectic again became apparent. The external wound had closed up, and a large abscess was pointing just above the anterior superior spine of the ilium, showing that the pus from the pleura had made its way between the muscles of the back to this situation. Seeing the gravity of the patient's condition, and the impossibility of treating him in a country farmhouse, I strongly urged his removal to the County Infirmary, which was at once acceded to, and the patient accordingly removed to the hospital. The journey was very well borne. On the following morning, an opening was made into the abscess, and exit given to a large quantity of pus. From this date until October 25th, the patient remained free from pain, but evidently losing strength. The fluid in the right pleura had re-accumulated, and the hectic symptoms became much more marked. Diarrhoea set in, the temperature ran up to 103.5°, and night-sweats caused great exhaustion. Paracentesis was

* Read before the North of Ireland Branch of the British Medical Association.

again performed, and exit given to about two quarts of thick creamy pus. Having determined to open freely into the pleural cavity, a blunt-pointed bistoury was inserted through the wound, and an incision about three inches in length made along the top of the seventh rib at its angle. A large plug of lint was inserted into the wound, and a drainage-tube at its lowest end. A piece of wet lint was applied over the cut, and over all plenty of dry tow, and a bandage. The following morning, the plug was removed, and the pleural cavity syringed freely with a 1 in 50 solution of carbolic acid. On the 20th of the same month, I took the following note of this interesting case. "Every morning since the 13th, the cavity of the right pleura has been washed out with a solution of carbolic acid; the result has been most surprising. A week ago, the patient was lying helpless in bed, unable, without considerable difficulty, to sit up and have the wound in his side dressed; yesterday, he was not only able to get out of bed and sit on a chair by the fire most of the day, but he was able to go downstairs and walk about the yard." After a little time, the carbolic acid causing some unpleasant symptoms, it was stopped, and tepid water injected, occasionally adding to it half an ounce of tincture of perchloride of iron to two pints of warm water. Until January, the patient progressed steadily. One morning in this month, I commenced syringing out the pleural cavity as usual. The tube of the syringe was introduced through the wound, about a pint of fluid carefully injected, and the tube withdrawn; almost immediately, the patient uttered a moan, his head fell forwards, the breathing became very hurried and irregular, and the pulse failed at the wrist. The eyes were twisted outwards, and the lips were covered with froth. The patient was placed flat on the floor, and every effort made to restore animation, but without effect. The hands and body were well and briskly rubbed, brandy and ammonia administered, and the galvanic battery applied. I tried artificial respiration, but in vain; and, after a few spasmodic attempts at respiration, life was extinct.

What was the cause of the patient's sudden death is a question that very naturally arises. At first, it was difficult to imagine; but the previous history came to my aid, and determined that it must have been an epileptic seizure. It could have resulted from no other cause. Some authorities tell us that death occasionally occurs, after paracentesis and evacuation of the fluid, from sudden expansion of the lung. In this case, such an occurrence was impossible, as the lung must have been bound down by strong bands of lymph. Neither could any accident have happened from the syringing, for it had been carefully done by myself every morning for months. That death was caused by epilepsy, I think, is clearly shown—firstly, by the previous history; secondly, by the symptoms of the attack; and thirdly, because pain in the head was complained of for some days before death.

Although the case I have just detailed ended fatally, I think it plainly shows that, even in the very worst cases of this disease, a great deal can be done by proper treatment to lengthen life, if not finally to effect a cure.

CASE II.—This case is also one of considerable interest. J. D., aged 25, a sub-constable in the Royal Irish Constabulary, strong and well-built, but very anæmic in appearance, was admitted into the Tyrone Infirmary on December 8th, 1874. Previous to June in the same year, he had always been healthy. When leaving barracks one morning, he was suddenly seized with a severe pain in the left side, accompanied with weakness and vertigo. For some time he remained under treatment in the country; but his condition on admission was such that it was almost impossible to obtain any clear history of the case. He stated, however, that he had been pronounced incurable, and described his supposed disease as thoracic aneurysm. On admission to the infirmary, the left side was enormously distended, and pulsation distinctly visible (it was doubtless this symptom which caused a diagnosis of aneurysm). The intercostal spaces were much widened and bulging. Respiration was entirely absent, and the other usual symptoms of pleural effusion were well marked. The heart was greatly displaced, its apex-beat being about one inch to the right of the right nipple. Diuretic treatment, with counterirritation, was diligently tried, but in vain. The symptoms becoming every hour more urgent, the pleura was explored, and the diagnosis confirmed. A trocar and cannula were then inserted between the sixth and seventh ribs posteriorly, and 108 ounces of semifibrinous fluid withdrawn. It is unnecessary to detail fully the daily condition of this patient; suffice it to say that, from the date of the operation to the 15th of the same month, progress was favourable. On this day, however, a rapid change for the worse took place; the temperature ran up to 103.5°; chilliness was complained of, with slight nausea; the tongue was dry and furred; pulse thready and weak. Respiration in the right lung was strongly purile, with loud sonorous and sibilant *râles*. On the 18th, matters were more serious, and vomiting set in. Under treatment, these symptoms im-

proved, and on the following morning the patient expressed himself as feeling much more comfortable. From this date until January 2nd, the patient remained in a very critical condition. The right lung was affected with a supposed attack of acute bronchitis. Every possible measure was tried to master this complication, but without effect. It, however, struck me as curious that, although the symptoms were decidedly those of acute bronchitis, the loud sonorous and sibilant *râles* never were replaced by moist sounds. This fact, coupled with hyper-resonance over the right lung and the rapid reaccumulation of fluid in the left pleura, led me to believe that the bronchitic symptoms were merely mechanical, and due to pressure. For some days nothing further was attempted. On January 5th, vomiting again set in, and during the night there was a further rapid change for the worse. Dyspnoea gave place to orthopnoea; the pulse failed at the wrist; the countenance grew livid; cold perspirations broke out over the body; and the patient appeared dying. He was, in fact, almost in a comatose condition. The heart still flickered, but no more. No time was, therefore, to be lost. I got a basin, half-filled it with water, to place the end of the tube in; and, with the help of the night-nurse, again tapped the pleura, and removed 168 ounces of purulent fluid, with complete relief to all the distressing symptoms. The right lung was examined as soon as possible after the operation. The bronchitic symptoms had all disappeared, and respiration was perfect. From this date until the patient left the hospital, progress towards recovery was rapid. The fluid did not reaccumulate; the left side contracted somewhat; and respiration returned to a very considerable extent in the injured lung. The patient grew quite fat and healthy-looking, and in the month of March left for his home in the county Cavan, apparently in strong and vigorous health. Two years afterwards, I heard from a neighbouring policeman that he was alive and well.

The last case which I intend to give in any detail has also one or two points of interest.

CASE III.—K., aged 25, a printer, pale and anæmic, with red hair, blue eyes, and delicate complexion, was admitted into hospital with a bad scrofulous ulcer of the left leg. Under treatment, the sore healed rapidly; but his general appearance was so indicative of pulmonary disease that an examination of the chest was casually resorted to, and a considerable effusion into the right pleura discovered. Treatment by medicine failed to have any effect in removing the fluid; and, as the continued irritation of the lung was considered dangerous, it was determined to tap the chest, which was accordingly done, and a portion of the fluid (about 40 ounces) allowed exit. Curious to relate, the ulcer on the leg, which was quite healed, at once broke out as bad or worse than ever. The day following the operation, the patient said he felt better than he had done for years. The urine, which before the operation was scanty, high coloured, and loaded with lithates, became clear and abundant, and diuretic medicines acted satisfactorily. On July 1st, the patient left the hospital quite well. The side had contracted slightly, but respiration was perfect, and all dullness had disappeared. In this case, one tapping was sufficient to effect a cure. The practical point, however, is the uselessness of diuretic medicines until the pleura had been partially emptied of its contents, and the balance of the circulation restored; and then their manifest utility, suggesting that if, in similar cases, medicines proved in the first instance ineffectual, puncturing the pleura and removing a portion of the fluid may facilitate their action.

The three cases I have just detailed seem to possess sufficient interest to justify me in bringing them under your notice; and they each, especially the two first, illustrate several points of great clinical value in treating of the question of paracentesis thoracis. The first case shows the enormous amount of fluid the pleura is capable of containing; the usefulness of paracentesis; the great benefit that results from a large and free opening into the pleura, when hectic follows the first tapping; and the necessity of washing out the pleural cavity with some weak antiseptic solution, in order the better to ensure success. Again: it demonstrates how an empyema may point in almost any direction, and the necessity of making a careful physical examination of the patient's body before pronouncing our opinion. Lastly: it tells us some of the dangers that may unexpectedly carry off our patient, even when hope of a favourable result seems brightest.

Case No. II also possesses some points of great value. It points out the necessity for care in forming our opinion, even of the plainest case; for here, the fact of a well-marked impulse being communicated to the side caused the diagnosis of aneurysm, and the consequent neglect of treatment for months. It also shows the great amount of fluid the right side of the chest can contain, and the enormous displacement to which the heart can be subjected, apparently without causing more discomfort than in a large effusion of the opposite pleura. This is contrary to general experience: for, if we remember the relation of the

inferior vena cava to the heart, and how almost immediately underneath the right auricle we have the fibrous opening in the diaphragm for the passage of this vessel, there seems good reason for the opinion, so generally entertained, of the great danger of a complete dislocation of the heart to the right side; the inferior vena cava must be very seriously interfered with, and hence the dread of sudden death in these cases seems only reasonable. In my opinion, however, the great danger of this condition rests on the rapidity of the dislocation; for, if the effusion only increase very gradually, the heart, like every other organ in the body under like circumstances, has time to adapt itself to the new state of things. D.'s case also proves that it is not impossible for an empyema to become absorbed after one or two tapplings; and that it is not necessary to open freely into the pleura, unless symptoms of hectic are present. It tells us, too, that the presence of an effusion for months does not always cause such a binding down of the lung by constricting bands of lymph, as to prevent all chance of its expansion. If this is possible in such a severe case as D.'s, surely it must be much more likely in cases where the effusion is comparatively recent; and hence answers forcibly the argument of those advocates of paracentesis who would in all cases make use of this expedient, without trying, in the first instance, any other form of medicinal treatment. Case No. III also speaks against those who pin their practice on this argument: for here we have a pleurisy existing for an indefinite period, and still the lung completely recovered. Indeed, in the town of Omagh, I have frequently the opportunity of examining the condition of the lungs of a lad who suffered, some years since, from a very considerable acute pleuritic effusion. His illness lasted close on three months, and yet I would defy the most skillful diagnostician or stethoscopist to detect the minutest trace of this boy's previous illness; and yet he was treated medicinally, and not by paracentesis. Finally: Case No. II teaches us the great usefulness of paracentesis, in suitable cases, and how quickly a state of comparative comfort can be accorded by its means to a patient even in a semi-moribund condition.

Case No. III has not so many points of importance, still it conveys lessons of its own, one of which I have just referred to. Does it not also tell us that a considerable pleural effusion may exist without the knowledge of the patient, and without apparently causing the slightest inconvenience?

Since my appointment to the Tyrone Infirmary, I have met with thirty-two cases of pleural effusion; and, in nine instances, I tapped the pleura—in one instance performing the operation five times, in another three times, in four twice, and in three once—with the following results: three were greatly relieved, four were completely cured, and two died apparently directly from the results of the operation. The remaining twenty-three patients were not operated on, and they all completely recovered under careful mercurial treatment (principally Bailey's pill) and repeated blistering. My experience, therefore, of the operation of paracentesis thoracis has not been very favourable; and I would never now attempt it, except in very pressing cases. But, what are the cases you consider pressing? is a question you may justly ask; and to this question, which is of a twofold nature and of the first importance, I shall now very briefly endeavour to supply an answer.

What cases do require paracentesis of the thorax? All cases where an empyema can be diagnosed; or where, owing to displacement or pressure, the action of the heart or lungs is greatly impeded; or when symptoms of death by apnoea or syncope are present; wherever, in fact, with the physical signs of pleuritic effusion, we have orthopnoea, quick feeble pulse, lividity of the countenance, a tendency to delirium, or great displacement of the heart, with discoloration of the nails, congestion of the face and lips, and the other usual signs of non-aeration of the blood. Again: where patients, suffering from a pleural effusion, are manifestly losing ground, and when there is no other ascertainable cause to account for the progressive sinking. The operation may also be necessary to relieve suffering and prolong life in specific lung affections—such as malignant or tubercular disease, and in some cases of pneumo-thorax, uncomplicated with phthisis or other specific disease.

Such are the cases that, in my opinion, require the operation. In empyema, if the fluid reaccumulate after the first tapping, with signs of wasting and much hectic, the pleural cavity should be opened into freely, a thorough drainage established, and the cavity syringed out daily with some weak antiseptic solution.

The cases that do not require paracentesis are, as a general rule, acute pleuritic effusions, or chronic effusions, unaccompanied by any of the urgent symptoms just referred to. In specific diseases of the lungs, or in cases of effusion resulting from disease of other organs—such as hydro-thorax in Bright's disease—it is generally useless, except of course as a palliative, to attempt paracentesis. Sometimes, I have found a partial tapping (the patient being under the influence of mercury) followed by rapid absorption of the fluid. I attribute the satisfactory

result thus obtained to the restoration of the absorbing powers of the pleura, which, if exposed to considerable pressure from a large effusion, must of course be greatly interfered with.

In performing the operation of paracentesis thoracis, it should never be forgotten to make, in the first instance, an exploratory puncture, either with the small needle of an aspirator, or of a hypodermic syringe. This proceeding does no harm, and it confirms the physician in the correctness of his diagnosis.

In conclusion, gentlemen, it is almost superfluous to remark that I am not a very strong advocate of the operation of paracentesis. I was enamoured at first with a few successful cases; and, having carefully studied Trousseau's writings on this subject, I proceeded to follow out his line of practice indiscriminately. Two deaths, however, in rapid succession and from unaccountable causes, quickly made me pause; and I have now learned that the operation is not only one of the most useful, but also one of the most dangerous in surgery, and that great judgment is necessary in selecting the cases suitable for it. Niemeyer, indeed, goes almost further than Trousseau in his praise of the operation; and even asserts that, without it, it is useless to attempt the cure of pleural effusions. He seems entirely to discard medicinal treatment, which, in my hands, has certainly been attended with the most successful results.

TUMOUR OF BOTH FRONTAL LOBES.

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THE details of the following case are more scanty than its importance merits; they are, however, of a sufficiently distinct and positive nature to justify their being placed on record. They coincide very accurately with the description given by Dr. Ferrier of the result of injury to the antero-frontal lobes, and support the opinion he has expressed as to the probable function of this part of the brain. Indeed, I find that the expressions used by Dr. Harvey and myself in describing the patient's condition were precisely those which Dr. Ferrier had employed in referring to the mental phenomena exhibited by monkeys in which the antero-frontal lobes had been destroyed. The absence of the more ordinary symptoms of cerebral disease, those usually associated with lesion of other parts of the cerebrum, so far as my imperfect examination extended, is equally striking with the positive aspect of the case, and again agrees with general experience in relation to this class of cases. I may call attention to the fact of the disease existing in the corresponding part in each hemisphere.

I only received a single visit from the patient, and on that occasion my examination unfortunately did not extend beyond the prominent symptoms. He was fifty-three years of age, and was sent to me by my friend Dr. Harvey. His wife, who accompanied him, complained that through the winter her husband had been in a kind of lethargy, as she said; he sat and seemed to doze, and was indifferent to things going on about him. He also made mistakes in business, and sometimes passed his urine in bed. She spoke of a tendency to delusion; but this tendency, Dr. Harvey tells me, never exceeded "a wrong notion about the time of the day or the day of the week, and sometimes a wondering whether he were in his own house". When he visited me, there was no appearance of paralysis. Sensation was not tested. He walked into my room, and one would hardly have noticed that there was much amiss besides a considerable amount of indifference and a degree of dulness. He answered my questions rather slowly, but clearly, but did not volunteer any statement; all information had to be obtained by direct questioning. He had some frontal headache; but it was not prominent. One positive symptom there was—greatly obscured vision; and this symptom seemed to have appeared with rapidity. He could just read No. 16 Jäger, and his wife believed he could have read No. 1 six weeks previously. The pupils were large; both discs were swollen, congested, spotted with blood, and the vessels were concealed. The patient died about six weeks after this visit, the lethargy deepening, but no new symptom appearing, except a degree of paralysis of the left third nerve at the last.

On *post mortem* examination, a tumour, no doubt malignant, closely connected with the brain-tissue, and rather under the size of a Tangerine orange, was found in the anterior part of the right frontal lobe. A similar but much smaller tumour existed in the corresponding part of the left hemisphere; and one of the same size with the last mentioned at the extremity of the right occipital lobe. All other parts of the brain were perfectly healthy. The paralysis of the third nerve was not accounted for by any *post mortem* appearance.