A CLINICAL LECTURE ON A CASE OF PNEUMONIA, WITH ABORTIVE CRISIS AND PREMATURE RESOLUTION, FOLLOWED BY SUPPURATION OF BRONCHIAL GLANDS.

Delivered at St. Mary's Hospital,

By SIR WILLIAM BROADBENT, BART., M.D., F.R.S.,
Physician in Ordinary to H.R.H. the Prince of Wales; Consulting
Physician to St. Mary's Hospital.

By the kind indulgence of my colleagues I have once more the privilege of giving a clinical lecture to the students of St. Mary's Hospital. I call it a clinical lecture, although you did not watch the course of the illness and follow the development of the symptoms with me at the bedside, inasmuch as I take a case as a text and comment upon it as I go along. The physical signs are such as you will easily understand from description, and I hope to make clear the inferences and conclusions based upon them.

The patient, a strong, healthy looking boy of 12, was taken ill on the evening of Thursday, December 2nd, 1897, when he was sick, and felt chilly. There was no distinct rigor. On the previous Saturday (five days before) he had played in a football match, and on the Monday had been out in the storm to watch the wrecking of the Broadstairs Pier. He had a slight cold and cough, as also had other boys in the school, but there was nothing suggestive of influenza in the symptoms. The attack speedily assumed the characteristic features of pneumonia, and when I saw him on the 5th, the temperature was 105°, the pulse 120, the respirations 48. There was a harsh cough, without expectoration, and pain in the right side, but in the abdomen rather than in the chest. The physical signs developed slowly, and it was only on the morning of this day that Dr. Raven had recognised indications of commencing consolidation at the right base. These were more distinct at the time of my visit, and distant tubular breathing was also to be heard above the spine of the scapula. We were agreed that the case was one of pneumonia, that the attack was severe, but that there were no special grounds for anxiety. A high temperature in pneumonia is not necessarily a very serious matter, especially at the age of 12. The respiration, it is true, was very rapid, and we should have liked to have had a good crop of herpes on the lips, but we saw no reason to apprehend a fatal issue. We prognosticated a crisis on about the seventh day, and recovery in due course. On Tuesday, Dr. Raven reported that the right lung was consolidated from top to bottom posteriorly, the temperature and symptoms generally remaining much the same. So far there was nothing unusual in the course of the attack.

On Wednesday, however, instead of the crisis we were expecting, with a rapid fall of temperature to normal or sub-normal and a general amelioration in the symptoms, the temperature only fell to 103°, and the boy, instead of being better, was obviously worse in all respects; he became delirious, and the pulse went up to 144 and the respirations to between 50 and 60.

I was therefore asked to see the patient again, and reached his bedside at Broadstairs about 10 A.M. on Thursday, the 9th. The boy was lying on his left side, which was his usual position throughout, and although naturally very alert, he took no notice of what was passing in the room; from time to time he made some rambling remark, but when roused he knew me, and expressed surprise at seeing me. There was a deep crimson circumscribed flush on each cheek, the pulse varied from 130 to 140 and upwards, and he was breathing at the rate of 64 times a minute. The temperature had just been taken, and was found to be 103°.

On proceeding to examine the boy, instead of the dulness on percussion which I expected to find, there was everywhere resonance. At no point was there a trace of the consolidation which less than forty-eight hours before had involved almost the entire lung. On auscultation again air penetrated freely every part of the lung, and neither rhonchus nor sibilus nor redux crepitation could be detected anywhere. The inspiratory murmur was harsh, and the expiratory murmur was distinct. Dr. Raven confirmed these observations, which

contrasted in the strongest manner with what he had found only the day before.

Nothing could be more grave than the state of things thus revealed. We should expect so striking a deviation from the usual course of events in pneumonia to be serious on various *a priori* grounds, and as a matter of experience the patient who is the subject of this lecture is the only one whom I have known to survive. Happily such cases are rare. As you are all well aware, the usual termination of pneumonia is by crisis; the temperature falls, the pulse quiets down, the respiration becomes less frequent, the tongue cleans, and a tranquil sleep brings to an end the delirium or stupor, the muscular tremor or twitching, or other evidence of nervous prostration or disturbance, which may have supervened; but the crisis relates to symptoms only, not at all to physical signs, and while the patient may have all the appearance of convalescence, dulness, tubular breathing, and bronchophony are found to be as distinct as ever, and a week or ten days will be occupied in removing the exudation from the air cells. Now whatever view we may take of the intimate changes which bring about the crisis, whether we attribute it to the death of the pneumococcus or to the formation of some antitoxin, or to the completion of some process of elimination, the crisis with which we are familiar is clearly Nature's method of bringing the disease to an end, and with each day of delay in its appearance anxiety as to the result increases. When it is postponed beyond the ninth day it may usually be concluded that something underlies the pneumonia, such as tubercle or septicæmia; but even more serious than delay of the crisis is an abortive attempt. Nature has made her effort and failed, and nothing more is to be expected of the constitution; but there was another obvious source of danger. Two days previously the air vesicles of a great part of the lung had been choked with exudation which had now entirely disappeared; it had certainly not been expectorated or brought up and swallowed; it could only have been absorbed, and from its character there was every reason to fear that it would play the part of a poison in the blood. The patient indeed was evidently under the influence of a poison.

It is not easy to understand such rapid absorption, and I make no attempt to explain it. I cannot help thinking, however, that the deep and frequent respiration is a factor in the causation. In the only other case of the kind in which I have had the opportunity of minute and continuous observation there was frequent and deep breathing and incessant loud, distinct talking, at first sensible and coherent, gradually becoming incoherent. In this case, which was watched minutely, the clearing up of the consolidation took place from below upwards, redux crepitation and entry of air being first heard at the extreme base, first of one lung, then of the other, the pneumonia having been double. Both lungs were clear in less than thirty-six hours.

The boy then lay in the condition of torpor with muttering delirium, just described, and a point, which at once struck us, and to which I call your attention, was that, while the degree of fever explained the frequency of the pulse, there was nothing whatever in the state of the lung or heart to explain the inordinate frequency of the breathing, which, as I have said, was at the rate of 60 or 64 respirations to the minute. Such a departure from the normal relation between the pulse and respiration added greatly to the gravity of the symptoms. It could only be due to an effect of some poison on the nervous system, or, as was suggested by the sequel and by another case which I have seen, to some irritation at the root of the lung. After the examination, as the temperature seemed to be rising, it was again taken and found to be 103.8°; half an hour later it was 104.8°, upon which the boy was twice freely sponged with cold water, and an ice bag was applied to the head. This had little effect, since in another hour the temperature had further risen to 105.5° or 105.6°. Upon this the patient was enveloped in a dripping sheet, which was so disposed as to favour abstraction of heat from every part of the surface, and the moisture was continually renewed by droppings of ice-cold water from a sponge. The temperature was taken at the mouth every few minutes, and it was fully twenty-five minutes before any impression at all was made on the heat. Of this the first indication was paling of the flush on the

cheeks, and when this became very decided the wet sheet was withdrawn, the boy, still naked, being covered by a single blanket. He enjoyed the cold application very much, and became quite sensible. The temperature fell to about 103° for a time, but the wet sheet was again required three hours later for a period of a quarter of an hour. Five grains of quinine were given after the first wet pack, and again later in the day.

There can be little doubt that the wet sheet saved the boy's life. He was getting visibly worse in every respect from hour to hour, and was apparently drifting rapidly into hyperpyrexia.

From this time the temperature gradually fell for some days, always, however, touching 101° at some period in the twenty-four hours, and there were at times oscillations which demanded a dose of quinine. The pulse remained frequent, and the respirations maintained a great relative rapidity of about 40. The intellect was clear, and the patient took his food well. Cough persisted, and the lungs were frequently examined with a view to the detection of any morbid condition which might have been overlooked, or of any new complication which might arise, or of anything which might explain the rapid breathing and persistent temperature. During the afternoon of the 10th a very scattered, coarse crepitation was heard for a moment over the upper part of the right lung anteriorly, but it was dismissed by an act of coughing, and from time to time afterwards fugitive signs were detected at different points. We had in mind in particular the possibility of an empyema imprisoned between the base of the lung and the diaphragm, or in the fissure between the lobes of the lung, but no evidence of any such complication presented itself.

At the end of a week, during which there had been apparently a distinct though slow progress towards convalescence, the temperature rose slightly to 102° and 102.6° , and the cough became more violent and continuous, but without expectoration, beyond such as was excited by the act of coughing itself, and on December 21st I again saw the patient. By this time the paroxysms of coughing were uncontrollable, and would go on for two or three hours without intermission. No linctus gave relief, and inhalations of pine oil and of hot vapour with benzoin afforded no alleviation whatever. The cough was almost like that of whooping-cough, and from time to time provoked vomiting. An attempt was finally made to quiet it by inhalations of chloroform, but nothing short of complete anaesthesia sufficed to cut short the paroxysms. There was then an interval of quiet sleep, and the cough did not recur for some hours. It was observed that talking, eating, and turning on the right side provoked attacks.

There could be no doubt as to the significance of a cough of such a character; it could only be due to enlarged bronchial glands. Irritation and inflammation of the glands at the root of the lung had obviously been set up by the material absorbed from the air vesicles. The lymphatics had thus been one channel by which the exudation had been removed.

Small doses of iodide of potassium were given, in the hope of reducing the size of the glands, and the cough was quieted as far as possible by an opiate and bromide linctus and by inhalations of vapour with tinct. benzoin and succus conii, or of pine oil, or from time to time of chloroform. On the 23rd a chill, scarcely amounting to a rigor, and a sudden rise of the temperature to 104.2° , announced suppuration. This could scarcely be elsewhere than in one of these enlarged and inflamed bronchial glands, and unmistakable evidence was furnished of pressure upon the root of the lung by imperfect entry of air into the right lung generally, with distant tubular breathing in the first space near the sternum, and slight impairment of resonance in the right interscapular space about the level of the spine of the scapula. On the 24th, when I again saw the patient, it was further found that the heart was considerably displaced to the left. The apex beat was outside the anterior axillary line, and unduly high. Next day it was as far out as the mid-axillary line, and about the level of the nipple, and the upper line of dullness ran along the second space. These physical signs raised the question of acute general dilatation of the heart and of effusion into the pericardium, but the apex beat and right ventricle impulse were too definite and the sounds too distinct and too nearly normal for either of these conditions. There was, moreover,

no dullness to the right of the sternum, and the heart sounds were scarcely audible outside its right border. The heart was evidently carried bodily to the left, and as there was no fluid in the right pleural cavity, either free or encysted between the diaphragm and the base of the lung, the only assignable cause was swelling of the mediastinum, possibly an abscess there. Corroborative evidence of mediastinal implication was present in conduction of the tracheal breath sounds to the manubrium, especially over its right half, but there was no pressure on the vena cava, the veins of the neck not being full.

The outlook at this stage of the case had again become very uncertain. There could now be no doubt that suppuration had taken place in the mediastinum. We could be practically certain that it had started in a bronchial gland at the root of the lung, but there was reason to fear that it might have extended into the connective tissue of the mediastinum. Everything depended on the outlet which the matter might make for itself. We hoped it might be into a bronchial tube, but we could not be sure of this, even if the abscess had formed in a gland. A mediastinal abscess properly speaking could only be expected to open into the pleural cavity, and that after a long and trying period of suppurative fever.

Happily on December 25th a small quantity of pus suddenly appeared in the scanty colourless expectoration, which was all that had hitherto been seen, and soon afterwards a single streak of blood. The amount could not have been anything like a drachm, but its escape was followed by a temporary amelioration of the symptoms; for three days the temperature did not exceed 101.4° , and the cough became much less violent and the respirations less frequent. The temperature, however, again rose to 102.6° , and had a suppurative character, and there were profuse night sweats. The displacement of the heart was unchanged, so that the menace of perforation of a mediastinal abscess into the pleural cavity was not entirely withdrawn. In view of this contingency, the boy's condition now permitting of the journey to London, he was brought up from Broadstairs by Dr. Raven on December 29th. There was now dullness at the right base posteriorly more than half way up to the angle of the scapula and round the lateral aspect of the chest, with absence of breath sounds, impairment of vocal resonance, and extinction of vocal vibration; there was, in fact, for the first time, fluid in the pleural cavity. This seemed like a preparation for rupture of a mediastinal abscess in this direction, and I rather welcomed the appearance of this fluid, first because I had in a previous case of abscess in the mediastinum known serous effusion, seen to be such when withdrawn by aspiration, to precede the penetration of pus into the cavity; secondly, because I thought the fluid might dilute the pus and diminish the irritation of the pleura which it would set up.

The anticipation based on the appearance of pleural effusion was, however, never realised. A second expectoration of a small quantity of pus took place on December 31st, but after this the fever was rather higher, and the oscillations and perspirations more marked, till on January 4th another and more copious expectoration of pus took place. It was not preceded by cough, but came on after a slight effort, and so suddenly that the first outburst could not be collected. From what I saw I estimated the amount to have been 3 or 4 drachms. Considerable coughing followed the appearance of the pus for the rest of the day.

There had been improvement from the time of the first expectoration of pus; it continued steadily and more rapidly after the final discharge. The temperature speedily fell to the normal level or below it, and the perspirations entirely ceased. The boy got up for the first time on January 8th, and left for the country on January 24th, not, of course, very strong, but otherwise apparently well. The heart had not regained its normal position, and the second sound was reduplicated, and there was still a zone of dullness round the base of the lung.

The improvement has continued. Dr. Walter Broadbent reported on January 28th the apex beat to be $\frac{1}{2}$ inch outside the nipple line, and the second sound to be reduplicated at the base. A week later the apex was only $\frac{1}{4}$ inch outside the nipple, and the aortic and pulmonic second sounds were synchronous. On February 15th the heart had practically regained its normal position in the chest; tracheal breathing

was no longer heard over the manubrium, and all that remained at the base of the right lung was a scarcely recognisable impairment of resonance and of respiratory murmur.

As I have discussed each phase of the illness in the order of its occurrence, no formal commentary on the case as a whole is necessary, but I must not conclude without an acknowledgment of the zealous and intelligent co-operation of Dr. Raven.

ABDOMINAL SECTION AS A MEDICAL MEASURE.

Read before the Medical Society of London, February 27th.

By FREDERICK TREVES, F.R.C.S.,

Surgeon in Ordinary to H.R.H. the Duke of York; Surgeon to the London Hospital.

I MIGHT be permitted, at the outset of this paper, to offer some explanation of its title. The President, when he did me the honour of asking me to read this communication, suggested that the subject should be "Abdominal Operations in Medical Cases." I was a little afraid to adopt this reading owing to some uncertainty as to what constituted a medical case. Surgery has of late years rather aggressively extended its boundaries, and the map of the human body, which was at one time precisely divided into medical and surgical territories—to the great advantage of medicine—has recently been much modified by the aggressions of the descendant of the barber. Although the surgeon is still in awe of the stethoscope his profane fingers have invaded the abdomen, the sacred thorax, and the brain. It is a question if even the pineal body, which as the reputed seat of the soul must be a purely medical district, is really immune from what is rather rudely called "surgical interference."

The difficulty of properly defining a medical case has therefore led to the present title. I may add in further explanation that I understand the President's wish to be that I should deal with such surgical measures in abdominal disease as appear to act upon the patient through other than accepted surgical lines; and, further, that attention should be drawn to matters incident to abdominal operations which are likely to be of interest to the physician. That a paper with such an object must be fragmentary and rambling is, I am afraid, inevitable.

The first cases to which I would direct attention are those in which the mere opening of the abdominal cavity appears to effect, in spite of all surgical prejudices, either the cure of a disease or at least its temporary amelioration. Prominent among these conditions stands tuberculous peritonitis. The results of the treatment of this disease by simple incision have been little short of miraculous. The large series of collected cases—that compiled by Aldibert—deals with 308 examples of this form of peritonitis treated by operation, and shows a percentage of cures estimated at 69.8 per cent., of which number 33.4 per cent. may be regarded as complete recoveries. An examination of this record shows that the most favourable results on the whole have been those attending the mere opening of the abdomen. This practically applies to generalised peritonitis without suppuration, and to the non-suppurative encysted forms. In a certain series of instances the diagnosis has been made of an ovarian cyst or of some other such growth. The surgeon has proceeded to open the abdomen, to remove the hypothetical tumour; has discovered simply tuberculous peritonitis, has hastily closed the incision, and has therapeutically fled. In due course he has heard, to his amazement, that the patient has made an excellent recovery. In a certain number of the recorded operations the peritoneal cavity has been washed out or drained, or into the inflamed area has been introduced some such medicament as iodoform. In these instances some better result might be anticipated, inasmuch as the operation has been a little more full of purpose and more in accord with the surgical habit in dealing with inflammatory affections; but, strange as it may appear, these more elaborate measures have, except in suppurative cases, not been attended with such good results as have followed the mere incision made by mistake. Indeed, the incision made by mistake can claim some of the most brilliant achievements of surgery in connection with tuberculous peritonitis.

Some of the more extreme of the cases can excite nothing but amazement. Not long ago I was operating upon a cachectic patient—a young man—who was suffering from chronic perityphlitis. There was a strong suggestion of a tuberculous element in the case. I started with the intention of removing the vermiform appendix, but found that much-sought-after organ imbedded in a mass of adhesions which had implicated other viscera. Its removal would have involved an operation of considerable duration and difficulty. Moreover, the adjacent peritoneum so far as the fingers could reach was covered with advanced tuberculous deposits. It seemed utterly futile, in the face of this grave condition, to persist in the attempt to remove the appendix. The abdomen was therefore closed, and the patient's friends were told that the condition was beyond the reach of a reasonable operation. The man made a perfect recovery; his abdominal symptoms vanished, and when I heard of him some months after, he had returned to his work as a shop assistant. How such operations act it is impossible to say. It is assumed by some that the beneficial effect is due to the admission of light into the abdomen. This is hard to believe, and it is possible that a satisfactory answer to the problem will be furnished when we know more of the degree and effect of intra-abdominal pressure.

As a further illustration of the unknown power of a simple abdominal incision, I might allude to a case of pylephlebitis which I reported some four years ago.¹

The patient was a young girl, aged 15, who was recovering from a sharp attack of perityphlitis, the acute manifestations of which had practically subsided by the seventh day. On the eighth day she had a rigor, and the temperature rose from normal to 103°. From that time the temperature kept high, reaching 104.4°, and almost every day the patient had an exhausting rigor. There was great prostration, vomiting, delirium, enlargement of the liver, and pain over the hepatic region. The symptoms resembled those of abscess of the liver, and as the child was becoming steadily worse, I was asked to make an exploratory incision in search of pus. This I did on the thirty-first day of the disease. The liver was very much enlarged, and was remarkably soft to the touch—as soft almost as the lung. It was dotted all over with minute yellow specks and presented the appearance met with in suppurative pylephlebitis. I considered the case quite hopeless, and closed the wound. The child never had another rigor, and made a rapid and perfect recovery. Yet she was so ill at the time of the operation that it seemed scarcely worth while to make even an exploratory incision. How this strange recovery is to be explained I am at a loss to say.

Another series of cases belonging to the present category is represented by those in which a mere incision into the peritoneal cavity has led to the rapid shrinking of certain malignant growths and to the temporary improvement of the patients. These cases must have come within the experience of all surgeons. In most instances a tumour of doubtful nature has been discovered, the abdomen has been opened, the growth has proved to be sarcoma, and nothing has been done. After the operation the mass has dwindled in size, and, in some recorded instances, seems to have vanished, certainly for a time. I have met with instances of this character in which sarcomatous tumours of the peritoneum or retro-peritoneal sarcomata have undergone most remarkable diminution in size. In one instance, in a young man of 25, a retro-peritoneal sarcoma the size of two fists became so reduced after a mere abdominal incision that it was scarcely to be felt, and some three months elapsed before the growth began to increase again. After this it rapidly led to the patient's death. In another example I some years ago performed laparotomy in a doubtful case of obstruction of the pylorus. A malignant growth of the pylorus was discovered. It was impossible to remove it—the operation of gastro-enterostomy had not then been perfected—and the abdomen was closed, the case being regarded as hopeless. The patient's symptoms vanished, the distension and sickness disappeared, his appetite returned, and he was actually able to return after a short period to his duties as a gate porter. It is needless to say that in due course the symptoms of the disease reasserted themselves and led to the patient's death.

Another series of cases in which relief unexpectedly follows abdominal section, with or without some further operative procedure, is illustrated by the large class of cases somewhat hopelessly styled nervous. These may be divided into two categories: those in which the symptoms of well-recognised diseases are imitated, and those in which the clinical phenomena are simply bizarre and fantastic. Of the former class of cases two examples may be given.