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TREATMENT OF EMPYEMA BY PERMANENT OPENINGS IN THE CHEST.

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[Read before the Boston Society for Medical Observation.]

THE following cases illustrate so forcibly the good results attending permanent openings in the chest, in empyema, that I deem it a duty to report them, trusting that others may be induced to do likewise under similar circumstances.

CASE I.—S. B., aged 15, errand boy, of delicate constitution, though enjoying fair health, took cold four months ago, and in a few days well marked symptoms of pleuro-pneumonia developed, involving almost the entire right lung. He was treated on what is known as the "supporting" plan, stimulants and nutritive drinks being administered in moderate quantities. The case did not improve and, at the end of a month, the boy's condition was worse than at the beginning. To be sure the acute symptoms had subsided, but there remained a chronic debility, with quite frequent cough, and copious expectoration of a purulent character. He began now to lose flesh and have profuse night sweats, and quite marked dyspnoea, with increase of purulent expectoration and more frequent cough, particularly at night. Percussion and auscultation of the chest gave dulness and absence of respiration over the entire right side of the thorax as high as the middle of the scapula. For the next two weeks there was but little change, except that he became gradually weaker and began to have oedema of the face and feet. Examination of his urine showed the presence of a small amount of albumen.

Having exhausted the resources of medical treatment, I requested Dr. Knight to see him, in consultation, to consider the propriety and chances of success of opening the chest. The result of Dr. K.'s examination was that there was air as well as fluid, probably pus, in the cavity of the pleura, and communication between the bronchial tubes and the purulent collection. There could be no reasonable doubt that the pus which the boy was at this time expectorating in large quantities (amounting to a quart in the twenty-four hours, and sometimes, in a single fit of coughing, filling an ordinary spit-cup holding half a pint), came through an opening in the lung from the pleural cavity. Succussion produced the most distinct metallic tink-

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ling that I have ever heard; the splash of the pus against the walls of the chest, and the tinkling resulting from the dropping of the fluid from the walls or the compressed lung, being clearly audible. The boy's condition seemed very unfavorable to Dr. Knight, and while not opposing an operation, he did not favor it.

The following day, feeling that his only chance for life depended on the operation, I opened the chest, with the assistance of Dr. M. F. Gavin, two inches below the inferior angle of the right scapula and a little to the outside. Three pints of pus, slightly fetid, with a peculiar acid odor, came away. A large sized trocar was used, and the opening afterwards enlarged by means of an ordinary scalpel and director, without the aid of anæsthetics. The operation of enlarging occupied but a few seconds, and, considering the boy's enfeebled condition, was borne with great fortitude.

A piece of gum elastic catheter, properly secured, was left in the wound to prevent healing and kept the pleural cavity constantly drained. A stream of warm water was poured into the thorax and repeated until it came away quite clear. The patient had a comfortable night, with the assistance of an opiate. The next morning and evening the warm water washing was repeated. Finding the catheter rather inconvenient, I had a silver canula made, resembling a tracheotomy tube, except that it was straight and fastened with a piece of elastic tape around the body; the free external opening connected with a large sponge to absorb the discharge. This answered well for a time, but as soon as the boy began to move about, the unyielding nature of the material caused pain on inspiration, and after a few days it was removed. The patient's mother soon learned to introduce it, and during the remainder of the treatment, did so twice daily. Meanwhile, whenever he coughed, pus came through the opening, and there was no chance for any considerable amount to accumulate. From the time of the operation, the boy's condition began to improve; the cough and expectoration diminished steadily, the œdema disappeared from the face and feet, the appetite and strength returned, and in six weeks from the date of the operation all discharge had ceased and the opening was allowed to close. At the present time, his condition is better than before his illness, and, his mother tells me, than for many years past. When last examined by me, respiration seemed about equally good on both sides of the chest, and the expansion of the affected side seemed to be complete.

CASE II.—For the following I am indebted to my friend, Dr. Gavin, whom I assisted at the operation.

H. K., aged about 28, always healthy, no hereditary tendency to tuberculosis. Four days previous to my first visit, he was seized with acute pain in the right side, great difficulty of breathing, cough and but little expectoration. When I saw him, the respiration was quick and attended with slight dyspnoea, hot skin, pulse over 100. Examination of the chest revealed pleurisy of the right side with effusion enough

to half fill the right pleural cavity. Morphine to alleviate pain, expectorant mixture for cough, together with digitalis and squills were prescribed; afterwards the right side of the chest was painted with a strong solution of iodine. No relief followed. The patient continued to grow worse, the dyspnoea becoming very severe, obliging him to lie in a semi-recumbent posture. I recommended the operation of paracentesis thoracis, but he declined to have it done, and then (July 1st) changed physicians. I learned that he was afterwards treated with cod liver oil, tonics and stimulants.

Sept. 3d, saw the patient again. He was very much reduced in flesh; had night sweats; frequent cough with purulent expectoration, very profuse and offensive; pulse weak and about 140. Examination of lungs showed absence of respiration on right side, with flatness on percussion over back and front extending to the clavicle. Crackling was distinctly audible under the clavicle. Intercostal spaces filled out. Great dyspnoea on the slightest exertion.

Sept. 11th, having given his consent to an operation, patient was placed in a chair and an incision made two inches long, at a point corresponding to the angle of right scapula, about two inches below and extending obliquely downwards. A large trocar was now plunged into the chest, followed by the discharge of over sixty ounces of very offensive pus. The breathing at once became easy and less frequent. The chest was washed out with warm water, and the canula allowed to remain in. Patient spent a good night; cough not nearly so troublesome, but he complained of soreness from pressure of canula, which was accordingly removed and replaced by a large gum elastic catheter, tied so as not to slip out. This was allowed to remain in three days, when it was withdrawn and not again introduced.

For two weeks the chest was washed out twice a day, by means of a Davidson syringe, with warm water and occasionally a weak solution of chlorinated soda. Tonics and stimulants were freely used.

Improvement followed immediately on the operation and continued steadily until health was completely restored. The chest wound remained open for 35 days. The lung expanded slowly, expectoration ceased, and when last seen, about eight months ago, the man was working at his trade, and, to use his own words, "never felt better." Examination of the chest showed vesicular breathing over the whole of right side, but less pure than over the left.

Dr. Blake assisted at the operation, and can testify to the fetid character of the pus expectorated and its identity with that removed by the operation. The odor was as bad as is found in gangrene of the lung, and indeed suggested that at first; and the quantity precluded the possibility of any other source than the pleural cavity.

CASE III.—Mrs. C., mother of four children, living in a dark and damp court in South Boston, was attacked with symptoms of pleurisy of the right side after exposure to wet and cold. She was treated by four or five physicians successively, without relief. I saw her four

weeks from the commencement of her illness. At my first visit, she was sitting up in bed, breathing quickly, evidently in great distress, with blue lips and anxious expression of countenance. An examination of the chest showed the cicatrices of several large blisters, some of them not yet quite healed. Percussion and auscultation revealed flatness and absence of respiration over entire right side of the thorax front and back. The intercostal spaces were obliterated, and the whole side seemed rounded and fuller than the left. The necessity for surgical interference was obvious and urgent, and the patient at once acceded to my proposal to remove the fluid. Having obtained an aspirator I proceeded, without assistance other than the woman's husband contributed, to operate. The trocar was introduced about two and one-half inches below the inferior angle of the scapula, and my surprise was great to find that, instead of serum, I was removing pus. The short period of the existence of the disease seemed to preclude the possibility of the fluid being of this character. I continued to remove it until the coughing became so annoying that the patient was growing quite distressed. The quantity withdrawn amounted to sixty-eight ounces.

Believing that a permanent opening would be required in order to effect a cure, I admitted her to my ward in the City Hospital, and ten days after the first operation made the necessary opening, in the presence and with the assistance of the hospital house officers, removing at that time a quart of pus. The after treatment consisted in washing out the pleural cavity twice daily for three weeks, once daily during the fourth week, and every second or third day from that time until the discharge ceased, generally using simple warm water, and occasionally a carbolic acid solution of a grain or two to the ounce.

The woman's condition improved steadily from the time of the operation; the cough ceased in a few days, and in a week she was out of bed and could move about the ward. She was discharged from the hospital eight weeks from the day she entered, and is now quite well.

CASE IV.—A. P., shop-girl, aged 23, entered City Hospital March 11, 1873. Parents died of phthisis. She had some dyspeptic ailments for about six years. Two years ago she had "pneumonia," and a few months after, "chills and fever," which lasted most all summer.

Last fall she had an attack of "pleurisy," affecting the left side, which confined her to bed nine weeks, and from this she thought she had never fully recovered, as there had always been more or less pain in the left side and dyspnoea after that time.

About February 1st, she had a chill, followed by an increase of pain in the side and dyspnoea; cough with free, whitish, frothy expectoration and profuse night sweats. On entrance to hospital, six weeks after the attack, she was able to sit up most of the time, and while in bed assumed an inclined position. Symptoms as just described.

Physical examination of chest showed no marked change on the right side. The left side was evidently enlarged and the intercostal spaces obliterated. Percussion and auscultation gave flatness and absence of respiration from base nearly to apex, where bronchial respiration was heard. The heart was displaced to the right. On March 16th, paracentesis thoracis was performed. A trocar was introduced between the eighth and ninth ribs below the angle of the left scapula and eleven pints of pus withdrawn. Immediately after the operation, the opening was enlarged without the aid of an anæsthetic. A gum elastic catheter was introduced and the pleural cavity washed out with warm water. The catheter was retained and the washing repeated twice a day. The patient expressed great relief from the operation, and improvement continued steadily until the morning of March 21st. At my morning visit, I found her in a state of collapse, from which she was with great difficulty partially roused. She sank away again and died in two days. The causes, we afterwards ascertained, were entirely disconnected with the operation or the disease.

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In the discussion which followed the reading of this paper, Dr. J. J. Putnam said that Prof. Traube (Berlin) considered that one fifth of all cases of empyema recovered by the pus being evacuated through the lungs.

Dr. H. I. Bowditch highly approved of Dr. Blake's fearless method of operating in these cases. He thought it was wrong to allow a patient to cough up a secretion which could be allowed to escape so easily. Those cases where the matter is allowed to be expectorated are, as a rule, long and tedious. The operation, on the other hand, tends greatly to hasten convalescence, and, though his experience of incision has been small, Dr. Bowditch believed that it could be done with less danger to the patient than to allow him to continue coughing without making an opening. Dr. Bowditch would urge an incision just as we would open an abscess in the thigh. After using the aspirator on one or perhaps two occasions, in order to make sure of the existence of pus and of its tendency to re-accumulate, a free opening should be made, and no half way measures in regard to the establishment of such openings should be adopted. In one case which he had seen, the very happiest results had followed a three inch incision.

In cases of pleurisy, there are occasional attacks of orthopnœa or dyspnœa, lasting perhaps fifteen minutes, which are followed by an interval of perfect relief. The dulness is found to extend only half way up the chest, and the examiner thinks there is less fluid than really exists. In these cases, sudden death from orthopnœa may at any moment occur, and therefore in all such cases an operation should be immediately performed by aspirator or incision.

Dr. Knight said that Traube operated as soon as the inflammation

subsided, which was indicated by the want of tenderness on pressure in the intercostal spaces. Oppolzer lays it down as an imperative rule to operate immediately; if one has to deal with a case of pneumo-hydrothorax. Thrombosis seems a more reasonable explanation of the sudden death which sometimes occurs in these cases than to ascribe it to a sudden increase in the amount of the fluid.

## Clinical Lecture.

### COLLES'S FRACTURE.

A Clinical Lecture, delivered at the Massachusetts General Hospital, by  
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FRACTURE of the lower extremity of the radius, commonly known as "Colles's Fracture," is of frequent occurrence; were it not so, such a number of patients could hardly have been gathered to illustrate a single lecture. It is caused, almost invariably, by a fall on the palm of the hand, the weight of the body being thrown upon the radius, which breaks at its weakest part, viz., where the compact shaft of the bone ends in the cancellated extremity, and at a point never more than an inch from its articulation with the carpus. The displacement of the portion broken follows the direction of the resistance, the lower fragment of the radius and the carpus which is carried with it causing a manifest deformity on the back of the wrist. As the lower fragment rarely, either wholly or in part, rides past the upper, but is rather bent or crushed backwards, the solid, tubular shaft is driven into the cancellated tissue, and an impacted fracture is produced. On the palmar aspect a prominence is developed just above the wrist by the angular flexion of the bone just alluded to. These changes of contour give to the hand and arm a shape, when viewed in profile, which, from a fancied similitude, is frequently spoken of as the "silver fork deformity."

In addition to this posterior displacement, the carpal fragment is usually carried toward the radial border of the arm, the hand, of course, following it; and this more readily happens if the line of fracture is oblique, instead of being transverse, as is usually the case. The styloid process of the ulna is thus made to project in a way which might, erroneously, suggest its dislocation. The styloid process of the radius is naturally longer than that of the ulna, but by this change of position they are brought nearly or quite on a line with each other, and the altered relation of these two processes becomes a point of diagnostic interest. The ulna is not often involved in the fracture, but the ligament which unites it to the radius is sometimes torn from its attachments, giving rise to pain at the radio-ulnar articulation, which is almost characteristic of the injury.

The position of the limb at the moment of the accident, the muscular contraction by which it is accompanied, and the individual peculiarities of the bone involved, modify the severity of the injury; but the cause, the locality, the direction of the fracture, the deformity, and the impaction, are in all cases wonderfully uniform, varying in degree only, and chiefly as regards impaction. The cases here present verify this statement.