do extremely well. As a general rule, however, the early cases do better than the late in every particular.

The results of vaccination with dead bacteria for the purpose of raising the opsonic power of the blood have recently been favorably reported on by those versed in this method of treatment in these cases. I hope that this method will be a valuable aid, but feel that the drainage of pus will still remain of primary importance.

In empyema, as a general rule, pure pneumococcus cases do well, mixed infections worse, and tuberculous cases — also invariably mixed infections — worst of all, which means as badly as possible. They are operated upon, not with a view to cure, but for the temporary relief of the lung from pressure and the system from septic absorption. They rarely heal.

Infections of the right pleura, secondary to infections in the abdominal cavity, such as appendicitis, followed by retroperitoneal infection, subpleuritic infection and abscess of the pleura either due to bursting through the diaphragm or extension through the lymphatics, are of the most serious character and are frequently fatal. Such an infection following a successful operation for acute appendicitis, and erroneously considered an acute tuberculosis of the lung, presumably on account of the fact that bronchial respiration was heard over the flat area, has been already referred to above. The lateness of the operation and reduced condition of the patient under these circumstances rendered the case most serious, but drainage of the chest by a quick operation and the devoted care and nursing of the boy's father, a brother practitioner of medicine, brought the boy through the shock and collapse which followed the operation, and he is now well.

Nursing does much for or against these very sick patients, as all well recognize. They should sit up in bed from the first, both because respiration is easier thus and drainage better. They should be carried out in the fresh air and sunlight as soon as possible, even in the New England winter.

The writer is aware that in this brief discussion he has contributed nothing new to the subject, but he feels that a review of the methods which experience and trial in the treatment of this disease have proved to his satisfaction the best, may be not without interest to his fellow practitioners. He has not attempted to deal with the statistics as to age, sex, relative proportion of infection, or had time even to look up the number of cases on which this paper is based. Statistical articles may be found in the appended bibliography. A considerable number of cases, however, come under observation in a hospital where we have so large a medical service as the City Hospital in Boston, and one has a chance to try his hand in a good many, first and last, so that he ought to get a good general idea of what procedures give him the best results.

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EMPYEMA FROM THE PHYSICIAN'S STANDPOINT.*

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ALTHOUGH the treatment of empyema is now universally acknowledged to be exclusively surgical, if we except the possible value of opsonic treatment of the sinus, yet sufferers from this condition are at first almost always under medical care and their welfare depends upon the vigilance and skill of the physician. Early diagnosis means a timely operation and speedy recovery; delayed recognition may mean not only prolonged suffering, but permanent damage or even death.

With regard to etiology, pneumonia is the most frequent antecedent; others are bronchopneumonia, sero-fibrinous pleurisy (perhaps in some cases from imperfect asepsis during tapping), pulmonary tuberculosis, typhoid, scarlet fever, septicemia, ulceration of the esophagus, subdiaphragmatic abscess or a wound. Children are often affected. Bilateral empyema¹ is rare, occurring almost always in children under ten years, and is preceded by bilateral pneumonia, the interval being usually only a few days, but exceptionally two months. I saw a case in 1905 with Dr. Cassidy of Norwich, Conn., in which empyema following pneumonia occurred first on one side and then on the other, with a favorable termination.

Heberden Beall² reports a case of empyema

* Read before the Boston Society for Medical Improvement, Jan. 21, 1907.

¹ Hellin: *Berl. klin. Wochenschr.*, Nov. 6, 1905.

² *Jour. Am. Med. Asso.*, 1906, May 12.

due to the influenza bacillus, and refers to another published by Boggs. Others have been observed.

The ordinary story of an empyema is that the patient has had pneumonia and then got better, but not entirely well, and has since been growing pale and weak, or the symptoms of pneumonia may have largely disappeared for a time and then more or less reappeared. Sometimes the empyema is apparently primary, with symptoms like pneumonia. In looking up the cases I have had at the Massachusetts General Hospital in the ten years from 1896 to 1905 inclusive, in all 21, I find that the interval between the first thoracic symptoms and the discovery of pus was less than twenty days in but 3 cases, averaging 49; while the stay in the hospital before pus was found averaged only four days. For 17 cases the average time after entrance when pus was found was one and one-half days. Of course, cases which are actually proved to be empyema before entrance are put at once under surgical care. The above figures tend to confirm what my experience has led me to believe, that there is often deplorable and unnecessary delay in recognizing this disease. A natural inquiry would be, How soon after the onset of a pneumonia which is followed by empyema is it possible to detect this complication? I do not feel able to answer this question, but whatever it may be at the present time, it is to be hoped that eventually the diagnosis will be still more speedy. As Musser recently said in an inspiring paper on Acute Infections of the Thoracic Cavity,³ "It is no credit to the profession at the present time to send to the surgeon a patient with the chest half filled with pus or even with half a pint or a pint of such accumulation." In three cases, however, I had opportunity to watch the whole process.

One was a negro male, aged twenty-five, who entered the hospital on the sixth day of a pneumonia. On the twenty-eighth day of his illness he was tapped with a negative result. One week later he was tapped twice, the second time successfully; but the amount of pus was shamefully large, about three pints in all, including what the surgeon, Dr. Conant, got the same day.

A woman, aged twenty-six, entered on the sixth day of what seemed like a bronchopneumonia, complicated by pleurisy. On the next day, twelve or fourteen ounces of a rather turbid but sterile fluid were removed; two days later, there was a dry tap, but the needle passed through thick material before entering the pleural cavity. On the twenty-first day of her illness pus containing pneumococci was obtained, and the surgeon, Dr. Balch, immediately furnished exit to one and one-half pints.

A boy of five years entered on the sixth day of a pneumonia, had a rapid lysis on the eleventh and twelfth days, fever again on the thirteenth and pus on the twentieth, Dr. A. N. Broughton giving vent to twelve to fifteen ounces the same day.

These few experiences would suggest the necessity for great vigilance in regard to suppuration in acute thoracic cases lasting over two weeks.

With regard to diagnosis, this is not the place

to enter on an indiscriminate enumeration of textbook facts. The disease may be insidious and hence escape detection, unless the physician is faithful in physical examination. Marked pallor, vomiting, sweating, a frequent dry choking cough are common symptoms. Pain may not be present. An infant, says Parrish, may be pretty comfortable in bed, without pain, cough, dyspnea or fever and yet have empyema. The white count is important, being usually high. In 7 of my cases over fifteen years old it averaged 14,590; and in 6, aged from two to twelve years, 36,100.

One boy, five years old, on the sixth day of pneumonia, had a leucocytosis of 20,800, got better, then had fever again and on the second day of this relapse had a white count of 36,400, six days before pus was found.

The only two exceptions to this rule of leucocytosis were both interesting cases.

Mrs. C. B., an Italian, aged twenty-six, for ten days before entrance had some pain in the back on taking a deep breath, but no dyspnea nor cough. When first seen, her only complaint was slight abdominal pain, perhaps accounted for by retroversion and a prolapsed ovary. White count, 8,400. Three days later pus containing staphylococci was found in the right chest. She was operated on by Dr. Brewster, and fit to be sent to the Convalescent Home thirty-two days after her first symptoms.

Mr. T. V., aged twenty-nine, was perfectly well till two weeks before entrance, when he had chilliness, perspiration, dyspnea and a catch in the right chest. He vomited once. The heart was displaced to the left, the liver dullness was increased downwards, the white count was 7,600. There was distinct whispering pectoriloquy over the fluid in the right chest. Tapping removed thick pus, but surgical treatment (Dr. A. T. Cabot) evacuated both pus and echinococcus cysts.

Localized tenderness and localized edema are important guides to a correct diagnosis. Some authors, including Musser, speak of friction as an important early sign, to be sought particularly along the margin of the lobes. In regard to this I confess inexperience. According to Holt, loud pleuritic friction may also be heard over abscess of the lung. *Fremitus* and *râles*⁴ may persist in spite of empyema. Vesicular breathing is almost always abolished. There is often a distant, ghost-like, bronchial respiration and voice. Whispering is seldom conveyed distinctly through pus, yet I have heard it more than once, as, *e. g.*, in the hydatid case above related.⁵

As Musser points out, if we are to detect intrathoracic infections early, we must go over the chest in a painstaking and minute way.

The x-ray is worth employing in a doubtful case. Recently it gave me distinct help. Thickening of the pleura may give a shadow simulating or obscuring a collection of pus, but yet this method should not be discarded.

Exploratory puncture remains as the nearly decisive test of the condition under discussion. Certain practical suggestions may be worth while

³ Trans. of the Section on Practice of Med., Am. Med. Assn., 1906.

⁴ Dr. J. W. Parrish: Brooklyn Med. Jour., Feb., 1905.

⁵ Also in two cases seen since this paper was read.

in this connection. It should be absolutely certain that the apparatus used is in perfect working order. I once saw a case of pleurisy with effusion which had been twice tapped, at intervals, first by the attendant physician and then by a consultant, both using an impervious instrument. If the apparatus is capable of compressing air as well as rarefying it, we should make sure that the valves are properly arranged. I nearly lost a patient once because an assistant forced air into his chest. An arrangement with trocar and canula, yet with aspiration unimpeded, seems to me the best. In case of doubt we can make sure that the canula is not plugged. The canula should be of large caliber. A negative tap with a small needle is inconclusive. In case fluid does not at once appear, it is well to wait a little while, maintaining a good vacuum meanwhile. We may thus obtain at last a little viscid pus.

In December, 1905, I saw Mrs. A. in Wolfboro, N. H., with Drs. Gutchell, Scott and Cotton. Eight weeks before she had bronchitis which lasted three weeks, then for two weeks she was pretty well, when three weeks before I saw her she grew worse and now for three days had been very ill. The day before my visit she had been tapped three times with a negative result. We all agreed that the story and the signs pointed to empyema, so that it seemed proper to explore once more, using the largest aspirating trocar. At first no pus appeared, but after a minute or two a very small quantity was obtained. Upon surgical operation, no real collection of pus was discovered, but an infected area with thick masses of fibrin. Drainage was instituted, and the patient recovered.

In serious cases showing strong signs of intrathoracic suppuration and yet yielding nothing upon aspiration, after careful deliberation, it may be justifiable to invoke surgical exploration just as we do when we suspect a deep cervical abscess. Dr. G. M. Garland of this city reported to me verbally years ago a case in which he urged this procedure, with a happy result.

As to the exact place in which to tap, if one has the choice it is best to go in where the surgeon would naturally institute drainage, *e. g.*, the seventh or eighth space in the posterior axillary line. It has seemed to me that doctors are more apt to put in their needle too low than too high. When pus is found, unless there is a very large amount, it is probably more convenient for the surgeon if we do not draw off more than is needed for diagnosis. Operation should follow a successful aspiration, if possible, the same day, because of the chance of infection along the track of the physician's instrument as it is withdrawn. This suggestion is fully warranted by actual observation.

Employing aspiration in the manner indicated, and of course with due aseptic precautions, I have never yet had reason to regret its use.

With regard to results in my 21 cases, 17 did well, including 1 case of pulsating empyema necessitatis, who was tapped and also operated upon two months after his illness began, and in less than two months later had the sinus healed and good respiration; 2, aged two and eight years

respectively, were taken home against advice shortly after operation "not relieved"; 1, aged sixteen, did well, but ten months later had symptoms of a pulmonary abscess, although he looked well, and the wound was firm; and a fourth, aged seventy-one, who had an old neglected affair, when last seen was failing, with unexpanded lung, although his life has been preserved for six years by an excision of portions of nine ribs, (Dr. E. A. Codman).

CASES OF EMPYEMA RECORDED ON THE SURGICAL SIDE OF THE MASSACHUSETTS GENERAL HOSPITAL FOR THE TEN YEARS, 1896-1905, INCLUSIVE.

Males,	193
Females,	60
Total,	253
Not treated,	1
Discharged well,	14
Discharged relieved,	209
Discharged not relieved,	5
Died,	24

PERIDUCTAL MYXOMA OF THE BREAST.

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The tumor described in the following case is reported on account of the somewhat unusual pathological condition found and on account of the extraordinary size to which it was allowed to grow before surgical intervention.

Mrs. M., thirty-eight years old, entered the Free Hospital for Women Jan. 24, 1907. Three years before entry she had noticed a small lump in her right breast, and was advised by her physician, Dr. Hubert T. Holland, to have it surgically removed immediately. Fearing to undergo an operation, she then consulted a cancer healer, who treated the tumor with pastes and other methods commonly employed by such practitioners. The tumor continued to grow slowly and steadily until the fall of 1906, when it began to increase in size with great rapidity. So rapid and marked was the enlargement of the breast that the patient finally began to distrust the assurance of her adviser that the medical treatment which he was applying was drawing the poison from her system, and that the tumor would soon burst and dry up, and in real alarm again consulted Dr. Holland, who at once sent her to the hospital. The patient, on examination, appeared to have suffered some, but no great, loss of weight. The right breast was occupied by an enormous tumor somewhat nodular in contour, and rather soft, but not cystic in consistency. The tumor was so large and cumbersome that the patient when sitting down was obliged to rest it on a table or on the arm of a chair. It was not apparently attached to the pectoral muscles, and there was no glandular involvement of the axilla. The left breast was entirely negative, being somewhat emaciated. The tumor seemed vascular and transmitted a well-marked pulse throughout its substance. The patient's temperature was about 102°, the pulse 120, and there was a systolic murmur at the apex of the heart. Menstruation had ceased two months before entering the hospital, but there was no sign of pregnancy.

The operation performed on Jan. 29, 1907, was a comparatively simple one, consisting merely in amputation of the enlarged breast. The tumor was entirely discrete, and was readily peeled away from the fascia covering the pectoralis muscle.