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A CASE  
OF  
EMPYEMA CAUSING SECONDARY ABSCESS IN  
THE PELVIS AND TERMINATING IN  
SPONTANEOUS DISCHARGE  
AT THE UMBILICUS.

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[Read May 4, 1887.]

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THE case of empyema, the history of which I shall relate, has seemed to me to be worthy of being recorded, as it terminated in a manner which I believe to be unique.

Bridget —, <sup>1</sup> an Irish woman, thirty years of age, and a widow, was admitted to the Pennsylvania Hospital April 27, 1885. She had had three children, and there could be no history obtained of any hereditary disease in her family. There was reason to think that she had been somewhat addicted to drink, but she worked hard as a laundress. She was perfectly well until December, 1881, when she said she contracted a severe cold, but took no care of herself and continued to work for three weeks, at the end of which time she was seized with such violent pain in the left side that she was obliged to

<sup>1</sup> The history is from notes taken by Charles Baum, M.D.





go to bed. She had fever and dyspnoea with cough and some expectoration, and was admitted to the hospital January 24, 1882, when a diagnosis of pleurisy was made, and the following note taken: "Left chest, dulness on percussion both anteriorly and posteriorly, which is not altered by change of position. Vocal fremitus absent. Respiratory sounds blowing and distant. In right, sibilant râles. Heart's impulse is about one and a half inches to the right of the sternum and in the fourth interspace." January 25th twenty-eight ounces of serous fluid were removed from the left pleural cavity with the aspirator. January 26th twenty-four ounces of serum removed. February 21st there was œdema of the left side of the chest, of the abdominal walls, and of the feet. March 16th forty ounces of pus were removed by the aspirator, and on March 25th an opening was made into the left pleural cavity and a drainage-tube introduced. During all this time the patient was under the care of Dr. Hutchinson. A large amount of pus came from the opening and the woman improved, and July 3, 1882, she was discharged from the hospital cured.

Within ten days after leaving the hospital she was able to resume her work, and continued well until April 14, 1885, when she was seized with cramp in the abdomen, which became slightly swollen, and she had dyspnoea. The symptoms at this time seem to have been referred mainly to the abdomen; but as at the end of two weeks the dyspnoea continued to increase she came to the hospital, and was admitted April 27, 1885. When admitted, she did not complain of pain, but was very weak and the abdomen was a good deal swollen. The notes of the condition at this time are not very satisfactory, but it is said that there were present the signs of fluid in the right pleural cavity, and that after a few days a swelling appeared at the umbilicus, which ruptured and a large quantity of pus escaped. After this the dulness on percussion over the lower half of the right side of the chest disappeared, and the respiratory sounds could be heard over the formerly dull area.

August 6th I made the following note, having taken charge of the ward August 1st: Chest posteriorly, the left side is much smaller than the right, and the interspaces cannot be distinguished, the ribs being pressed closely together. Anteriorly, the left side is quite as

wide as the right, but is flattened antero-posteriorly and the lower ribs are pressed closely together, although the upper ones are not at all so. Percussion posteriorly: at the left apex the resonance is slightly tympanic; at the middle portion it is hyper-resonant, and at the base somewhat impaired. On the right side there is increasing dulness from apex to base, where there is flatness. Auscultation at the apices posteriorly shows the respiratory sounds to be fairly good, although somewhat disposed to be harsh on the right; at the middle portions the sounds are good on left and feeble on right side; at the bases there is entire absence of respiratory sounds. Vocal fremitus and resonance are absent at both bases, weak at middle portion on left, and equally good on both sides at the apices. Anteriorly the percussion note is clear, and the respiratory sounds are nearly natural at the left and very harsh at the right apex. The cardiac sounds are natural, being merely loud—this probably due to the extreme thinness of the chest walls. The apex of the heart is pushed somewhat upward and outward.

The patient is very anæmic and much emaciated, and has had irregular fever since she has been in the hospital, which continues now. There is quite a large amount of offensive sanious pus escaping from a small opening at the umbilicus. She is able to sit up in a chair during part of each day, but complains much of pain in the right loin. Her treatment has consisted principally of tonics—iron, quinine, etc.

Up to this time no doubt had ever been suggested with regard to the diagnosis, the case being considered as one of right-sided empyema which had dissected downward and discharged itself at the umbilicus. It struck me that the condition was a very unusual one, and that whatever might be the case, one thing was positive, the pus had not a sufficiently free outlet. I therefore asked Dr. J. M. Fox, who was at the time in charge of the surgical ward, to examine the patient with me to decide whether any surgical measure could be instituted for her relief. On August 11th an examination was made, and it was found that a probe entered at the opening at the umbilicus could only be made to pass downward toward the pubes, to which it nearly reached without any pressure being made. It was impossible to



make the probe pass toward the chest or either side, the only opening being the one which went directly downward.

Vaginal examination revealed that the uterus was somewhat prolapsed the os being only about two inches within the vulva. The body of the uterus was held firmly in one position by adhesions, the cervix alone being movable, and there was great induration of the tissues above Douglas's cul-de-sac.

As the patient was evidently sinking fast and had not many days to live, unless something was done for her relief, and as Dr. Fox was in favor of some operative measure being attempted to give the pus a free outlet; and as it was suggested that the origin of all the disease, which so evidently existed in the lower part of the abdomen and in the pelvis, might be an abscess which had had its starting-point in the cellular tissue around the uterus, in which case certainly an operation was urgently called for, we decided to make an exploratory incision above the pubes, and then, if it seemed expedient, to introduce a drainage-tube and bring it out through the vagina, thus giving a free outlet to the pus.

August 13th a director was introduced at the umbilical opening, and passed down toward the pubes, and its lower end was then cut down upon. A large cavity containing pus being found somewhat to the left of the median line, the incision was carefully continued until the upper end of the vagina was reached, and a drainage tube was passed in at the abdominal opening, and brought out through the vagina. The tissue between the cavity found to the left of the median line in the lower part of the abdomen, and in the pelvis and the vagina, was thin, and there was very little cutting necessary. The patient never reacted after the operation, but died August 15th. On the day of her death an examination of the urine showed that it contained a large amount of albumen, pus corpuscles, and granular and hyaline tube casts.

Post-mortem examination showed the following conditions: Heart healthy in all respects, except that there were some very minute vegetations upon the auricular aspect of the mitral valve. Lungs: the left was somewhat larger than the right, and was adherent throughout, the adhesions being old and very firm, and the left thoracic cavity was much contracted. The right lung also was

firmly adherent throughout, and its surface was clean, and everywhere free from pus, there being none between it and the chest walls or at its base. The tissue of both lungs seemed natural, except that they had both been much compressed. The upper half of the right pleural cavity was much reduced in size, partly owing to the general contraction of the chest, but still more to the fact that the liver, which was much enlarged, was situated unusually high within the cage of the chest, and was held immovable by adhesions between its surface and the contiguous inner walls of the thorax. Between the posterior and lateral surface of the liver and the thoracic walls, there was a cavity containing about half a pint of thick creamy pus. This cavity had been connected with a flattened canal, whose calibre was probably equal to a circle three-quarters of an inch in diameter, which began at the posterior portion of the liver, and had channelled its way down in the abdominal walls, but always outside the peritoneal cavity, until finally it terminated at a point opposite the left obturator foramen. Its course was from the back, where it had its origin, first toward the right, so that when it reached a point about on a level with the umbilicus it was in the right flank, thence it passed forward, being within the anterior wall of the abdomen and crossed just above the pubes, terminating, as already stated, in the cavity opposite the left obturator foramen. From this sac the pus had found its way, previous to the operative interference, upward in the anterior wall of the abdomen, and had discharged itself at the opening at the umbilicus. At the time the post-mortem examination was made the upper cavity was shut off just at the lower border of the liver, from the pus channel through which it had evidently formerly discharged itself. The pus within this cavity was thick and creamy, and quite different from the offensive sanious liquid found everywhere. It had penetrated below, so it seemed likely the original abscess had been, for some days at least before death, shut off, so that no discharge from it had taken place. The relations of the diaphragm to this upper pus chamber could not be satisfactorily made out at the post-mortem examination; a large section therefore of a portion of the upper surface of the liver that was within the cavity, and a portion of the thoracic wall containing pieces of three ribs which was directly opposite the piece taken from



the liver, were removed for more careful dissection and microscopic examination, to determine whether the diaphragm was adherent to the upper surface of the liver or to the thoracic wall, and thus decide whether the abscess was properly within the thoracic or abdominal cavity, which fact the primary dissection did not satisfactorily determine.

The drainage tube, of course, was seen to lie partially in the peritoneal cavity, the posterior wall (which was very thin) of the abscess occupying the lower part of the abdomen and upper part of the pelvic cavity, having been broken through in the course of the operation. The portion of the tube, therefore, between this posterior wall of the abscess cavity, and the place where it passed into the vagina, was within the peritoneal sac.

There were extensive peritoneal adhesions, both old and fresh, and a good deal of fresh plastic lymph scattered here and there, upon the peritoneal surface. The uterus and ovaries were bound down by numerous firm adhesions.

A portion of kidney was reserved for microscopic examination, but its condition was not satisfactorily determined macroscopically.

Dr. de Schweinitz, to whom I sent the specimens already mentioned as reserved for more minute examination, made the following report:

1. Piece of liver, on the surface of which was a grayish-white membrane, three-sixteenths of an inch thick. Transverse sections, including this membrane, were cut, stained, and examined: The most external portion of the membrane is composed of rows of deeply stained, young cells (leucocytes); beneath this is a stratum of spindle and young connective-tissue cells; and, finally, there is a layer of well formed, fibrous connective tissue. The structure presents the characteristics of a pyogenic membrane. Beneath it the liver cells are swollen, granular, and the nuclei in active proliferation. Still deeper the same granular appearance is noted, also more or less pigmentation and separation of the liver cells by young, round cells, and in the intralobular veins and lobular capillaries plugs of micrococci. The process is a parenchymatous inflammation, probably septic in origin.

2. Portion of three ribs, to the inner surface of which was attached



a dense, corrugated membrane, and to its upper end some pieces of lung tissue were intimately adherent. Sections from various portions of this membrane exhibit a variety of tissues. The free surface is often covered with a layer of granulation-like cells; beneath this, spindle cells and young connective tissue, and still deeper, denser fibrous tissue. Numerous bloodvessels permeate the sections; their walls are often thickened, and in many instances the lumen entirely blocked up by an overgrowth, apparently of the middle and inner tunics. There are areas of distended lymph spaces, the endothelial lining of which shows active proliferation. The lung tissue, which is adherent to the upper portion, shows in the alveolar walls a young cell activity; the alveolar spaces are for the most part empty, but are here and there partially filled with proliferated cells. This portion of the membrane presents the characteristics of thickened pleura or pleuritic adhesions. The lower portion of the membrane is much thicker, and while it shows much the same structure, is chiefly composed of a dense, well felted connective tissue.

3. A small piece of kidney. Sections including the cortical and medullary portions were made. The epithelia of the convoluted tubules is in all stages of fatty degeneration, from a mere cloudy swelling of the cells, their nuclei being still distinguishable, to a complete fatty degeneration, and the production of a granular detritus. Passing to the descending branches of the tubules, fewer changes in the cells are noted, but the tubes are partially filled with a desquamative catarrh. The renal glomeruli also show swelling, and proliferative activity in their lining cells. The process is a parenchymatous inflammation.

This examination has failed to demonstrate the presence of muscular tissue on either the membrane, upon the liver surface, or in the one lining the inner surface of the ribs, and hence has not positively revealed the situation of the diaphragm. It seems, however, to have definitely shown that the membrane upon the liver neither is, nor has been, diaphragm; and hence makes it probable that the thickened portion of the tissue covering the inner surface of the ribs may have belonged to this structure, although there is no muscular tissue present to prove this.

From every point of view this case was one of unusual interest. The history of the first attack of empyema and its cure under the judicious management of Dr. Hutchinson, is complete. With regard to the second and fatal attack, the history is sufficiently clear to allow of the sequence of events being satisfactorily followed.

When I took charge of the case upon August 1st, the complication of symptoms was very great—there was the history of the first attack of empyema, and its cure by operative procedure, then the history, equally clear, apparently, of the second attack, and last, the fact that a large amount of pus was being constantly discharged from the opening at the umbilicus. The fact that in the history it was distinctly stated that a diminution of the dulness upon percussion over the lower posterior part of the right lung occurred coincidentally with the discharge at the umbilicus, and that the respiratory sounds which had been distinctly impaired over the same region improved in quality, amounted to convincing evidence that there had been an empyema, and that some of the pus, at least, had escaped. Some of those who saw the patient at this time, thought the diagnosis of a second empyema was a mistake, and that the case was one simply of pelvic abscess. My opinion, however, was always fixed that there had been a second attack of empyema, and that however difficult it might be to reconcile the then existing symptoms with this hypothesis, it must be the correct one, for how otherwise could the physical evidences that there was fluid in the plural sac have changed so soon as the discharge at the umbilicus took place, and such was plainly and distinctly stated to have been the fact in the notes taken at the time.



Dr. Fox was asked to see the patient because I had decided in my own mind that the pus had not a free outlet; when, therefore, his examination demonstrated that there must be a collection of pus in the lower part of the abdomen, or in the pelvis, it was easy for us to come to the conclusion that the woman's only chance of life lay in some operative procedure. To decide, however, exactly what should be done, raised the question of the origin of the condition, and our conclusion was, that it would be best to etherize the patient, cut down upon the collection of pus, and then be guided by what was found, whether to stop at that point or to go on and pass a drainage tube through to the vagina. The mistake we made in opening the abdominal cavity was a natural one, and made no difference in the ultimate result, for the woman was sinking fast before the operation was attempted, and it was only done because it was thought right to give the patient what appeared to be the only possible chance of life. It would have been better to stop as soon as the pelvic collection of pus was reached, and we should have contented ourselves with letting it discharge anteriorly, but the relation of parts was so altered by the disease, and the posterior wall of the abscess was so thin, as was subsequently seen at the post-mortem examination, and the tissues around the uterus were so indurated, that Dr. Fox was deceived into thinking that the collection had certainly had its origin in some inflammation in the cellular tissue around the uterus, in which case the only plan which would offer the woman any chance, lay in free drainage through the vagina. Meantime, the whole region was bathed in such quantities of pus, that the operation had to be carried on



depending almost entirely upon the sense of touch, and it was only at the post-mortem examination that it was discovered what had actually been done. It is not surprising that the mistake was made, as the complication of conditions was so great that even at the post-mortem examination it was only with the greatest difficulty that the true state of affairs was plainly made out.

The case is complete in every respect, except that the post-mortem examination did not establish absolutely whether the abscess had its origin above the diaphragm, and was, therefore, an empyema, or below, in which case it must have been due to some perihepatic inflammation. I regret extremely that at the time the examination was made I was obliged to go away before it was completed, for certainly a more careful dissection would have shown accurately the position of the diaphragm. Although the position of the diaphragm was not with absolute certainty determined, it seems fair to assume, that the disease originated as a pleurisy and empyema, for all the indications, both from the history of the case and the post-mortem results, point toward that having been the mode of origin. The probability is, that the pieces taken from the wall of the thorax and upper surface of the liver for microscopic examination, and to the surface of one of which the diaphragm or its remains must have adhered, included a part of its tendinous centre, and for that reason the microscopic examination failed to show the presence of any muscular tissue.

The manner in which the pus dissected in this case, and the direction it took, were those which, from an anatomical standpoint, would have been said to be almost impossible. The result simply shows that pus may find its way anywhere, and that in its course it is

governed by no laws. It is simply inexplicable why it should have travelled in the abdominal wall all the way from the back upon the right around at the side across the front, and finally produced a secondary large cavity in the lower part of the abdomen and pelvis on the left, and then have risen upward to discharge itself at the umbilicus, when at no time was there anything but a very thin layer of tissue between it and the peritoneal cavity, and but little between it and its discharging externally. The channel down which the pus passed from the empyema to the secondary cavity below was as distinct and outlined in the abdominal wall as if a tube had been passed from the one cavity to the other.

An examination of such literature as has come within my reach has failed to lead me to any account of a case similar to the one I have narrated. Jaccoud (*Pathologie Interne*, 1873, tome second, page 142) mentions that an empyema has been known to discharge itself like a psoas abscess, below the "crural arch." Fraenzel (Ziemssen's *Cyclopædia*, American edition, vol. iv. page 620) says an empyema may discharge "in the region of the navel," and again, that if "the pus once reaches the peritoneal sac, or gets behind it, we can scarcely exhaust all the possible channels it may subsequently take." Fuller (*On Diseases of the Lungs and Air-Passages*, Phila., 1867, page 179) says :

"Adhesions give rise to another difficulty in the diagnosis of the disease. When the two surfaces of the pleura have become adherent at various parts by means of adventitious membrane, the effused fluid may be circumscribed, or, in other words, may not be contained in the general cavity of the pleura, but in a sac or sacs formed by the adventitious membrane."



In connection with the subject of pleural inflammations in general, it will perhaps not be out of place for me to describe several matters of fact which have come under my notice in the course of various cases that have been in my charge, especially as they have an important bearing upon questions of diagnosis and treatment.

In the first place, it has happened more than once that the only pain complained of, in cases of pleurisy I have attended, has been in the abdomen. Only last summer a woman was under my charge in the Pennsylvania Hospital, who was brought in by a physician because he thought she had obstruction of the bowel, and wished to give her the opportunity of having surgical treatment, of which he thought her in urgent need. When I examined her I found the abdomen exceedingly tender to the touch, and she complained of great pain in one lumbar region. At the same time the abdomen was not materially swollen, nor was there any of the doughy induration which is so characteristic of peritoneal inflammation, and so apt to exist if there is any intestinal obstruction, but upon the same side with the lumbar pain it was found that there was slight but distinct dulness upon percussion over the lower part of the lung posteriorly, and decided feebleness of the respiratory murmur. By the next day, or next day but one, the pain had all disappeared, and the case proved to be one of pleurisy with moderate effusion; the patient soon made a good recovery. The reason why, in cases of pleurisy, occasionally the only pain felt should be situated in the abdomen, I have never been able to comprehend, unless the explanation is to be found in a statement made by Goodhart ("Cases of Peritonitis,"



*Lancet*, March 5, 1887), in discussing peritonitis. He says :

“One other word about these cases, which always seems worth while to insist upon, viz., the frequency with which pleurisy spreads from peritonitis and peritonitis from pleurisy. . . . I do not think the freedom of communication between the serous sacs of the peritoneum and pleura is sufficiently well recognized.”

Unless, then, the abdominal pain is due to an irritation or even a slight degree of inflammation of the peritoneum, I am unable to offer any explanation for what is certainly a not very rare clinical phenomenon. The knowledge that such a train of symptoms may arise and the explanation be that the patient has an attack of pleurisy, has rendered me careful in all cases of severe abdominal pain, when I can find no other cause adequate for its production, to search carefully for any sign of pleuritic inflammation.

Second, I learned, from what happened in a case of which I had charge some years ago, the inexpediency of making the opening in cases of empyema that have to be operated upon too low down. When I took charge of the wards of the Pennsylvania Hospital one season, several years ago, I found a man suffering with empyema into whose chest a drainage tube had been introduced. The tube was at the side in the region beneath the axilla, and was passed in, I think, between the seventh and eighth ribs and brought out between the ninth and tenth, this made it, of course, very near the inferior margin of the chest. I found that the drainage through and at the side of the tube was not free, and at the same time the results of physical examination seemed to show that there was a good deal of fluid in the thorax. At

no time did the discharge stop, but it did not seem to come away as freely as it should have done, and the thorax never seemed empty of fluid. The case progressed from bad to worse, and some of those who saw the patient urged me strongly to make another opening lower down so as to give the pus a more free outlet. This I could never make up my mind to be advisable, feeling that the opening was already low enough, and having an instinctive feeling that that was not what was needed. At last the man died, and the post-mortem examination showed clearly enough what had been the matter. At the time of death and at the autopsy, no part of the drainage tube was inside the sac of the empyema, but that part of it which was under the two ribs, around which it had been passed, lay in a sinus. When first introduced it had been within the pleural sac and had freely drained the pus, but as the amount of matter became less, nature, in the endeavor to reduce the size of the pus-forming cavity, had approached the two walls of the thoracic cavity at the bottom, where it is wedge-shaped, with the sharp edge downward, toward each other, and had, beginning at the bottom, gradually glued them to each other, thus lessening the size of the cavity from below upward, until finally, as already said, the drainage-tube lay in a sinus entirely below the sac, and no longer allowed of the escape of any pus. This state of affairs could have existed for only a short time before death, for until the last few days there was always more pus discharged than could have been formed by the small sinus in which the tube was found lying after death. The closure, therefore, by agglutination of the pleural surfaces of the inner wall of the thorax and that covering the diaphragm, must have been a very gradual



one, for, as is evident, two forces were at work, the one, the effort of nature to reduce the size of the pus-forming sac from the bottom, and the other the tendency of the constant pressure of the increasing amount of pus as its outlet became less free to stretch this open. The final result made an indelible impression upon me in that it taught me that if we wish for success in our operations for the relief of empyema, we must imitate the practice of Nature, who, when she makes an opening into an empyema, is careful not to make it too low down. The next time I have occasion to perform an operation for its relief, I shall pursue the plan which has been followed with such excellent results by Dr. Nancrede at the Episcopal Hospital in this city, of having a large piece of one, or, if necessary, two ribs resected with a trephine.

Third and last, I learned that in dealing with empyema, if there should be an accumulation of fluid in the other pleural cavity, it is much best let alone. I had charge, some years ago of a negro, into whose chest I introduced a drainage-tube for the relief of empyema from which he was suffering. After a little time it became evident that liquid was accumulating in the other pleural sac, and as his symptoms became rapidly more urgent, I determined to attempt to relieve him by drawing some fluid from the sac with the aspirator. This was done, but instead of affording any relief the lung seemed entirely incapable of being expanded, and from the moment the operation was done the dyspnoea increased until death, in a very few days, terminated his sufferings.



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