WHITE (J.B.)

PNEUMOTOMY TWICE IN THE SAME PATIENT FOR THE RELIEF OF TUBERCULOUS ABSCESS AND GANGRENE OF THE LUNG; RECOVERY.

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PNEUMOTOMY TWICE IN THE SAME PATIENT FOR THE RELIEF OF TUBERCULOUS ABSCESS AND GANGRENE OF THE LUNG; RECOVERY.[1]

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UP to a period not quite twenty years ago the annals of surgery had been silent respecting operative procedures on the lungs. Dr. Rickman J. Godlee, a well-known authority on this subject, regards surgical treatment of pulmonary cavities as still in its infancy, but believes that in a certain class of cases the measure will advance in efficiency as it will assuredly in frequency. It is quite true, nevertheless, that the great Father of Medicine two thousand years ago referred to abscesses located within and without the lung-structure, and even defined the point of selection for operating and draining them; but we owe to Estlander the credit of first originating and establishing, in our day, surgical treatment for defined diseases of the lungs.

In this class of cases prompt and correct diagnosis is a condition essential to cure. As soon as the character of the case is determined, operative procedure should be instituted without delay—as, while

[1] Read at the meeting of the New York State Medical Association, held in New York, November 15, 16, 17, 1892.

it is quite true that ordinary abscess of the lung may terminate in recovery, no case of gangrene of the lung has been known to recover without surgical interference.

Before describing a remarkable case of recovery from gangrene of the lung, through surgical resort, in my own experience, I deem it appropriate to briefly allude to a few selected experiences related by other surgeons in the same direction ; and I purposely exclude all empyemas, confining my remarks exclusively to strictly pulmonary abscesses.

Morton, of Philadelphia, in his work on *Consumption*, in 1837, has related a very interesting case of tuberculous abscess of the lung, communicating by a fistulous canal with an abscess on the back, resulting in death, which, if treated with our present knowledge and boldness in managing such cases, would in all probabilty have terminated in recovery.

The patient was admitted to the hospital February 1, 1833. During the previous year he had had a slight cough, and severe pain between the shoulders, especially on the right side, accompanied by hemoptysis. The pain continued, and after a time a swelling appeared on the right side of the chest posteriorly between the base of the scapula and the spine, and this continued to increase in size.

After two months the symptoms became aggravated, active hectic set in, and the expectoration was profuse and purulent, with occasional hemoptysis. Anorexia, emaciation, and great debility supervened. The tumor was elastic, evidently containing air, and was tympanitic on percussion. Treatment by internal medication for six weeks resulted in no improvement, till the apex of the tumor ruptured

spontaneously, discharging a large amount of fetid pus of the same character as that expectorated. The opening was then enlarged and a pint of pus escaped; the patient obtained great relief, but the case being left to Nature entirely for so long a time, the benefit was but temporary; the patient in four days became delirious and died, no doubt from septicemia. At the autopsy a fistulous opening was found extending directly from the pulmonary cavity to the dorsal abscess.

Dr. Samuels[1] has related the history of a patient at the London Chest Hospital, who came complaining of cough, pain, and dypsnea. On examination he found absence of chest movement of the left side, with anterior and posterior dulness, tubular respiration, and increased vocal fremitus. The temperature rose in a few days to 103.8° and soon fell again. Night-sweats and free fetid expectoration very soon set in. Upon inserting an aspirating needle between the fifth and sixth ribs two ounces of fetid pus were withdrawn. At the point of puncture tumefaction followed, so that a free incision was subsequently made, liberating about three ounces of pus. The cavity was washed out and drained. Subsequently a portion of the seventh rib was resected and a cavity the size of an orange was discovered in the lung. The patient suddenly died on the fourteenth day in an attack similar to an epileptiform seizure, followed by paralysis of the right arm.

Dr. A. V. Meigs[2] has reported the case of a boy, eight years old, who had been ill for three years, commencing with an acute attack in which an abscess of the lung developed. Examination of the right lung revealed dulness in the region of the

[1] Medical Press and Circular, 1887.

[2] Archives of Pediatrics, 1887.

third rib, with a cracked-pot sound, extending down to the liver. The respiratory sounds were harsh; expiration was prolonged at the base of the lung posteriorly, where the respiration was feeble and harsh, with dulness over this area also. Large quantities of pus were expectorated after violent paroxysms of coughing. Dr. Meigs believed from the symptoms and the distinctly clubbed fingers that there was a cavity in the chest containing pus. An incision was made, free drainage established, and the patient recovered.

The following case of gangrene of the lung cured by a surgical operation has been reported by Drs. Paul and Perier:[1]

A man, aged fifty-eight years, was attacked in June, 1891, by a severe bronchitis, soon resulting in fetid expectoration. The presence of a focus of disease was revealed on auscultation, situated over the middle of the left lung, and characterized by a large zone of very fine râles. Antiseptic inhalations were resorted to, without preventing the progress of the disease, which evinced all the symptoms of gangrene. By December, symptoms of septicemia became alarming. Cavernous sounds were most intense over the second intercostal space. Dr. Perier made an incision through the intercostal space and pleura, seized the lung with a pair of fine forceps and kept it in contact with the parietal pleura. An incision was then made into the lung, which showed healthy tissue; a Lister forceps was thrust into it in the direction of the abscess and withdrawn with the blades expanded so as to leave a free exit to the pus. On introducing the finger a round opening was felt. This cavity was dressed,

[1] Bulletin de l' Académie de Médecine.

after cleansing with a cotton tampon soaked in a solution of one per cent. of chloral, and afterward touched with camphorated naphthol. Two drainage-tubes were inserted side by side and the wound closed. Air circulated through these tubes freely at each inspiration and expiration. The fits of coughing ceased at once, the odor disappeared from the sputa, and fever subsided. Improvement progressed steadily. Two weeks after the operation the drainage-tubes were replaced by a piece of salol-gauze, and at the end of seven weeks the wound had healed and the patient was completely restored to health.

Dr. Runeberg,[1] of Sweden, has described a case of successful pneumotomy for pulmonary abscess following pneumonia, and he has collected the reports of eleven cases similar in character. Discarding three of the eleven cases on account of uncertainty of diagnosis, five of the remaining eight recovered, three resulted fatally, though not as a result of the operation. He believes pneumotomy indicated when the diagnosis is clear and the abscess is accessible; but he deprecates the use of antiseptic irrigations, and thinks thorough drainage sufficient. Among other authorities may be mentioned Dr. Arthur Neve,[2] who has reported a case of abscess affecting the upper and anterior part of the right lung successfully operated upon. Drs. Bearman and Pengrueber[3] have reported a case operated upon for the relief of an abscess located in the middle portion of the right lung. Thiriar[4] has operated upon a case

[1] London Medical Record. [2] London Lancet.
[3] New Orleans Med. and Surg. Journal.
[4] La Semaine Médicale.

successfully for the relief of an empyema communicating with an abscess-cavity in the right lung. Dr. Pasteur[1] records a very interesting case of gangrene of the lung in a boy seven years old, which was subjected to operation. The amount of repair which took place under unfavorable circumstances was most encouraging, though the case proved fatal. He expresses the opinion that an operation performed earlier might have saved the patient's life.

A very interesting case of pleuro-pneumonia, followed by gangrene of the lung and abscess, upon which he operated with success has been reported by Okell.[2]

The following case of abscess of the lung, reported by Dr. Francis Huber,[3] terminating in recovery after operation, is also of interest:

A boy, four years of age, had been ill for nearly a month. When first seen, October, 1888, he had fever, irregular chills, and distressing cough. Physical examination proved negative, except as to the presence of an area of flatness, with distinct bronchial breathing, in the right infra-clavicular and mammary regions. Pus was obtained by an exploratory puncture. When an incision was made, pleural adhesions were found, and pus was discovered in the substance of the lung. The cavity, having been drained, subsequently contracted, a small fistula remaining for about ten months. Some difficulty was experienced in locating the

[1] London Lancet, Oct. 20, 1889.

[2] London Lancet, 1888.

[3] Archives of Pediatrics; THE MEDICAL NEWS, October 17, 1891.

cavity after the thorax was opened. No bad results followed irrigations of the cavity; forcible injections, however, occasioned paroxysmal coughing, which ceased when the injected fluid was expectorated—indicating its admission into a bronchial tube.

The 8th of April, 1890, Miss A., aged thirteen years, having a tuberculous family history, was attacked with croupous pneumonia, involving especially the right lung. During this illness she was under the care of Dr. T. A. Pease, of Norwood, N. Y. At a critical juncture she was seen in consultation by Dr. J. Reynolds, of Potsdam. The case ran a favorable course, and, as Dr. Pease reported, reached a crisis on the morning of the ninth day after the attack, when resolution set in, and the patient rapidly recovered. The temperature, circulation, and respiration became normal within three weeks. After recovery there remained no cough and no expectoration, except that resulting from chronic catarrh of the air-passages, to which she had been subject since she was three years of age.

At the end of the second week of convalescence the pyrexia returned, the temperature rising to 102° F.; the respiration became more labored, the cough spasmodic, the expectoration difficult and scanty, and the pain and tenderness about the side affected more pronounced. Dulness upon percussion now extended from the angle of the scapula upward until it involved the entire lower half of the lung, both anteriorly and posteriorly.

The case was now believed to be one of interstitial pneumonia, with fibroid degeneration and infiltration. This condition, with temporary improvement and relapses, and with marked disturbance of

the digestive functions, continued until the case passed out of the hands of Dr. Pease.

The care of the patient next devolved upon Dr. Reynolds, of Potsdam, who continued attendance until January 1, 1890, when the patient was taken to the Adirondacks for several weeks, whence she was brought to New York. Soon after her arrival in New York I was summoned to see her, and upon examination I found her suffering from an acute broncho-pleuro-pneumonia, engrafted upon an old unresolved pneumonia, which had degenerated into a fibrosis of the right lower lobe, involving part of the middle lobe. She was under my care about two weeks. After she had recovered sufficiently from the attack, she was carried to Thomasville, Georgia, where, under the care of Dr. Cortelyon, she remained until the end of the following spring, when she returned to Norwood. Soon after her return home she was again placed under the care of Dr. Pease, from whom I received the following account of her condition:

"Miss A. coughs less than before her trip South, and her respiration is improved, though marked dulness is present over the central portion of the right lung, with loud, moist râles heard on auscultation. Last evening she was brought into my office retching, vomiting, coughing, and expectorating an intolerably fetid, greenish matter. She continued to expectorate a large amount of this offensive sputa, and was frequently harassed by violent paroxysms of coughing, accompanied by violent irritation of the fauces, with frequent emesis."

All internal remedies, judiciously and skilfully employed by Dr. Pease, having proved unavailing, and the case intensifying in gravity, a consultation was determined upon, and I was called to Norwood. On my arrival, July 26th, 1890, I proceeded to

examine the patient, and Dr. Pease and I came to the conclusion that a large area of the right lung had become gangrenous, that an abscess had resulted, communicating with a bronchus. An exploratory puncture was made, which resulted in fortifying the conclusion we had arrived at. The patient presented a pinched and extremely cachetic appearance—indeed, her condition seemed in every respect so critical that we thought no time should be lost, and decided to operate at an early hour on the following day.

Assisted by Drs. Pease and Larkin, the patient being put under the influence of chloroform, I proceeded to make an incision in the sixth intercostal space, about one inch anteriorly to the axillary line. The different layers of tissue, including the pleura, were in turn divided, and a careful examination of the seat of lesion was made. The finger was pushed through the intercostal space, and came in contact with the smooth outer surface of the condensed lung. A fluctuating point was discovered, into which the knife was directed. This liberated about two ounces of very fetid pus, having the same odor as that which had been expectorated. The wound was next irrigated with an antiseptic solution, a drainage-tube was inserted, and antiseptic dressings were applied.

The patient slowly rallied, with the aid of hypodermatics of brandy and digitalis. There was immediate relief of all distressing symptoms, and after a few days of depression she began to improve, and continued to gain strength until the discharge ceased.

The cavity continued to drain until, at the expiration of two months, the discharge was so much reduced that it was judged expedient to remove the tube. A month after the removal of the tube urgent symptoms set in. Distressing paroxysmal cough,

fever, and greenish fetid expectoration, so offensive in character that it often excited nausea and vomiting, again imperilled the patient's life.

Dr. Pease discovered an area of dulness on the posterior aspect of the lower lobe of the right lung, and again summoned me to visit the patient, which I did on the 22d of September, 1890. Upon examination, I found quite a favorable condition about the seat of the previous operation, but discovered a region of decided dulness in the posterior part of the lower lobe, extending under the angle of the scapula upward. An operation similar to the first appeared necessary. With the assistance of Dr. J. Reynolds, of Potsdam, and Drs. Pease and Larkin, of Norwood, I reopened the thorax an inch posteriorly to the axillary line, meeting with the same condition of the lung as at the first operation. On opening the cavity, several ounces of very fetid pus escaped, with fragments of necrotic tissue, and a piece of gangrenous lung-tissue, having the appearance of the remains of a well-defined ruptured bronchus. A good-sized soft-rubber tube was inserted, and after thoroughly washing the wound with an antiseptic lotion, appropriate dressings were applied. For three weeks the pus, which drained freely, was very fetid, but the patient was immediately relieved of cough, expectoration, and septicemic symptoms.

Air circulated freely through the drainage-tube, upon both inspiration and expiration, and often during the process of irrigating the cavity the antiseptic solution would be coughed up.

The drainage was kept up for a period of eight months before the tube was removed. The patient is now restored to a condition of health superior to that enjoyed in early childhood—two years having elapsed since the last surgical procedure. Dr. Pease wrote me that menstruation, which had been

arrested during her illness, became reëstablished the November following the last operation, and was accompanied by a marked disturbance of the whole system. The clubbed finger-nails which had so disfigured her hands had disappeared. She is able to take a full amount of exercise, and her present physical condition is one of perfect health. In this case regular irrigations of a mild solution of hydrogen dioxide were practised with much benefit.

There is every reason for the exercise of great care and caution in the irrigation of pulmonary cavities. The danger of the frequent and indiscriminate irrigations of pus-cavities in the lungs is strikingly shown in the case reported by W. Pasteur,[1] of London, in which the patient was signally relieved by the operation, but sank rapidly on the tenth day.

Bowditch, of Boston, condemns too diligent washing out of pus-cavities, pulmonary and pleural, an opinion which meets with my support; and he further ventures the statement that the proportion of cases in which irrigation might be required is possibly one in four hundred. I am, however, of the opinion that in gangrenous cavities, such as the one under consideration, irrigation is safer than in cavities emitting more laudable pus. I have in consultation seen an instance of metastasis to the shoulder joint promptly follow irrigation of a pleural pus-sac, which occasioned a most serious involvement of the joint, requiring an operation for its relief. The patient, however, ultimately made a good recovery, without any impairment of the use of the joint.

[1] British Medical Journal, October 20, 1888.

In the performance of all operations on the lungs the strictest and most diligent observance of antisepsis should be unfailingly carried out.

Cases of gangrene of the lung are never too far advanced for surgical interference, even though presenting evidences of profound septic contamination.

Spillman and Haushalter consider it necessary to excite adhesion of the pleura before operating, but I do not consider this an essential procedure; and though it may be a more favorable condition under which to operate, delay for pleural adhesion to occur might prove, in some instances, decidedly unsafe. Resection of a rib is seldom required in the very young, except to facilitate the discovery of abscess in doubtful cases.

A corrugated white-rubber tube, to the value of which my attention was called by Dr. E. H. Grandin, better meets the requirements in these cases than the ordinary soft-rubber drainage-tubes commonly made use of. The former do not so readily yield to the pressure of granulation-tissue, and, therefore, maintain drainage more satisfactorily and for a longer time.

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