DERMOID CYST OF THE RIGHT SIDE OF THE CHEST

COMMUNICATING WITH A BRONCHUS.

BY

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Mrs. C—, æt. 29, had not suffered from any symptoms referable to the chest during her childhood, and there was nothing in her personal or family history which could affect the diagnosis, beyond a strong rheumatic tendency in her mother. Except that she had been a little short of breath previously, the onset of her illness was sudden, and consisted in an acute pain in the right side of the chest whilst she was travelling by railway on the Continent, in May, 1879, which was rapidly followed by the development of acute right pleurisy with effusion. After a time it became clear that the pleurisy had become converted into an empyæma, and tapping was recommended by Dr. Douglas Powell in 1881. But this was for various reasons postponed, and later, some years before I saw her, the diagnosis was so far confirmed by the rupture of the empyæma into a bronchus. After various fluctuations in her condition the cough and expectoration very much diminished, though

they never quite disappeared, and the patient became pretty comfortable, being able to take active exercise and to mix in society without any great inconvenience. She could regulate her cough, emptying the cavity at recognised intervals, and between them was but little troubled with it. At the same time her general health, previously much reduced, decidedly improved, and though signs of some impairment of the constitution were evident in a slight but obvious clubbing of the fingers, and the appearance of a trace of albumen in the urine, she seemed fairly robust when she first consulted me in June, 1887.

I was asked to see her by Dr. Lauder Brunton, whom she had often seen before, and whose advice she now sought because of a slight swelling in the right axilla, the centre of which was a little tender, and which was supposed to be increasing in size. A certain amount of pain was also often felt shooting up to the right infraclavicular region. There was dulness at the base, the outline of which was somewhat peculiar; it was most marked in the axilla, but extended towards the middle line in front, and in this situation reached the level of the third rib, but behind it was abruptly limited by a line passing in a curved direction downwards and inwards, and then vertically downwards below the angle of the scapula. Inside the dull area behind there was good resonance and good breathing, and above the level of dulness in front there was fair breathing but some crepitation. Over the dull area little or nothing was to be heard.

On June 15th (Drs. Brunton and Powell being present and the patient being anæsthetized) numerous punctures were made into the dull area with an exploring trochar, and at last pus was hit at the spot indicated as tender by the patient, not quite at the centre of the prominence, just outside the mamma in about the sixth interspace. The cannula was retained as a guide, as the pus lay at a depth of three inches, and after removing a portion of rib and incising the very dense pleura, a small cavity was reached, from which, perhaps, an ounce of matter escaped.

A curious sensation was then felt by the finger, for a firm rounded mass was observed at the back of the pleura, which, as we did not know what it was, we concluded to be a piece of the lung adherent to the thoracic walls. It seemed easy also to enlarge the cavity to any extent with the finger, though no more pus escaped.

The progress of events showed that the source of the expectoration had been reached, for this at once stopped. The temperature after the first three days remained absolutely normal, and we hoped that the case was about to behave like a typical aseptic empyema, although it was disheartening to note that the discharge remained copious and consisted of a small amount of thick purulent material and a large quantity of thin serum.

After awhile the tube appeared to be too short to work effectually, and the expectoration began again. The tube was lengthened, and for a time worked well, but the difficulty of maintaining effectual drainage increased, and it became evident that, if we were to succeed, something more must be done.

The patient now told me that she had coughed up two hairs since the operation, and her brother (a medical man) who had been carrying out the dressing, had noticed one or two on the tube. They were so much like the hairs of the axilla that he had thought it possible that they might have found their way from this source into the chest, and had accordingly shaved these hairs away. She also said that, long previously, she had on two occasions coughed up a hair, which she concluded must have come from a shawl or some article of clothing and been inspired. This of course suggested the true nature of the case, though, as I was unaware of any recorded examples of intra-thoracic dermoids, I hardly thought seriously of the matter. She said herself that she had hinted to her husband the possibility of hairs growing inside one, but that the idea had been greeted with derision and abandoned.

On August 9th, 1887, the patient was again anæsthetized, and I enlarged the opening and felt the curious,

firm, rounded mass as before. The cavity again was very indefinite and perplexing, and we began to fear that no great light would be thrown upon the case by this second investigation. At last, however, I noticed a hair in the wound, and on introducing a small piece of sponge with a pair of dressing forceps and twisting it round, I extracted quite a number of them adherent to it. I then found that the mass we had taken for a lobe of the lung was simply a tightly felted accumulation of hairs and fatty material, and also that other large quantities occupied the rest of the perplexingly indefinite cavity. As much hair and fatty stuff were extracted as would fill the palms of the two hands, and then strange, white, finger-like processes were observed, one of which was drawn out into the wound; they afterwards proved to be thick masses of fibro-cellular tissue covered with white skin, from which hairs were growing. It did not seem right to go further without stating the case fully to the patient, so at this stage a very large and stiff tube was introduced, and the operation was stopped. Afterwards the discharge assumed a distinctly, though slightly, offensive smell, and the cavity was accordingly washed out daily with a solution of neutral acetate of alumina. The patient then went into the country to recruit, after having given her consent to an attempt being made to remove the cyst if it should turn out to be within the reach of surgery.

Accordingly, on September 20th, 1887, I took out more of the two ribs, parts of which had been previously removed, making about three inches altogether, and also about three inches of the rib above, so that a good view and room for manipulation might be obtained. In order to do this a free triradiate incision had to be made, and, as often happens when chronic inflammation has been present inside the chest, the bleeding from the external parts was very free and difficult to arrest. The thick pleura was then divided, and ultimately a considerable portion of it was removed. I then grasped the largest of the finger-like processes and cut it off close to its base by means of

Paquelin's cautery. Two similar but smaller masses were then removed with scissors after transfixing their pedicles and tying them tightly with silk. The cavity was thus quite freely opened up, and it was found to extend right up to the apex of the thorax, and that the skin-lined wall of the cyst was most intimately connected with the surfaces of the lung and diaphragm. It was concluded that it would be useless and highly dangerous to attempt its removal, and therefore, after all other parts from which hairs were seen to be growing had been freely treated with the actual cautery, the flaps of skin were turned in and, as far as possible, attached by sutures to the skin lining the cyst, after which the cavity was loosely plugged with strips of boracic lint.

When she had recovered from the effects of the anæsthetic, which each time made her exceedingly unwell for a few days, the improvement was rapid, and she was soon able to get about again. The discharge was still copious and rather sour smelling, so that at first irrigation with the acetate of alumina and afterwards insufflation of a powder consisting of bismuth, boracic acid, quinine, and iodoform was resorted to. The plugging of the wound was continued in order to encourage the formation of a permanent skin-lined communication between the cyst and the exterior. It was intended that this opening should be a very large one, but contraction took place to such an extent that at last it was apparently possible only to insert a small drainage-tube. It was, however, fortunately found by the medical man under whose care she came to be when abroad during last winter, that by the judicious employment of a series of tubes gradually increasing in size, and by stretching the wound at each changing of the dressing with dressing-forceps, the opening could be enlarged again till it was capable easily of admitting the index finger or even the thumb. When this point was reached and the skin had fairly lined the whole of the passage, the patient became moderately comfortable, but before that time she was troubled with expectoration, varying in

Shows the position of the opening and the scars of the operation below it.

Size of the drainage-tube now worn.

amount, and coming no doubt partly from the cyst and partly from the bronchial tube, for it seems clear that she had at least one intercurrent attack of bronchitis. Still her condition never became, and indeed it is not now, a very enviable one ; for, though the expectoration and cough have stopped, the discharge from the side is very considerable, and it is very difficult, if not impossible, to keep it always free from a sourish smell, in spite of a great variety of antiseptic solutions and desiccative powders which have been from time to time employed. The dressing has to be changed at least once a day, sometimes oftener, and nevertheless the clothes became sometimes soiled. The changing of the dressing is not an absolutely simple process, and the irrigation is hardly to be managed by the patient herself, so that she feels herself debarred from paying visits to her friends, and grudges the amount of time she has to bestow upon her toilet. In addition to this, strange whistling sounds are at odd times made in the tube ; as she quaintly expresses it, it is as though she were incorporated with a distinct individuality, which when anything very amusing is to the fore, insists upon chiming in with the laughter. One difficulty from which she suffered during the last winter has been overcome by means of another operation in the spring of 1888 : the stump of one of the fleshy bodies protruded into the opening, and so interfered with the easy introduction of the tube and with the escape of the discharge through it. This I accordingly removed, and in doing so was able to render the lower part of the cavity more even, and to do away with some of the nooks and corners in which the sticky part of the discharge could accumulate and decompose. This operation was not at all easy, and, as on the previous occasion, gave rise to a good deal of hæmorrhage from the thoracic wall : one large artery at the upper part, presumably an intercostal, giving special trouble. Whilst it was being performed I again made a thorough exploration of the cavity, which now, as before, extends right up to the apex of the pleura, and ascertained that

there are still a considerable number of stumps of the fleshy processes left upon the inner wall. How near this inner wall may be to the pericardium I am quite unable to say, and therefore, even if it had been easy—which it was not—I should not have attempted their removal.

Obviously therefore the cyst is not likely to diminish in size and shrivel up after the manner of certain abdominal dermoids. Clearly also the discharge is not lessening much in amount, and it is also plain that the communication with the bronchus is very free, for if during the irrigation the tube be passed very far up, a fit of coughing may occasionally be produced of an alarmingly suffocating character, and accompanied by a very severe pain about the back of the sternum and the epigastrium. I suppose that the discharge, which is mostly watery but mixed with flakes of fatty material, comes partly from the skin surface but chiefly from some part of the pleura, which no doubt forms a portion of the wall of the sac, for example, no doubt the outer wall. It is almost certain also that it is in part a secretion from the bronchi, for an attack of bronchitis increases the discharge from the wound. On the whole, therefore, it can hardly be doubted that the patient's state, if in some respects less comfortable than before the side was incised, is decidedly a safer one; at all events in one respect, for the constant daily expectoration of the secretion of the cavity must have been a source of danger, not only to the right but also to the left lung, and, indeed, there was, when I first saw her, a certain amount of clubbing of the fingers and a slight degree of albuminuria. On the other hand, for some unexplained cause, the secretion is on the whole greater than it was, and, curiously enough, the clubbing of the fingers notably and rapidly increased after the last operation. Latterly the clubbing has again very much diminished.

I should add that she now wears a very large tube made of vulcanite or celluloid (see Woodcut), of oval bore, and just long enough fairly to enter the cavity.

It is curious to observe, on looking into the opening, not

only the forcible cardiac pulsations transmitted to the mediastinum, but also the protrusion of the inner wall of the cyst during coughing and expectoration. This is especially interesting in connection with the numerous observations of older writers on what has been described as *the expansion of the lung* when the chest has been opened in a living animal. This phenomenon I have had occasion to comment upon elsewhere ('Practitioner,' 1889, vol. xlii, No. 2, pp. 86 to 93), and have stated my belief that it depends almost entirely upon expansion of the opposite lung, partly perhaps upon the fact that when the glottis is closed, and forcible expiratory efforts are made, a certain amount of air may be driven from the sound lung into the tubes of that which has been rendered more or less *hors de combat* by the opening into its pleura. I do not mean to say that in a case such as this the lung upon the injured side is doing nothing at all, for as it is in parts adherent to the chest walls the inspiratory efforts no doubt cause it to expand to a certain extent; but I do maintain that if the pleura be freely opened and there be no pleural adhesions, the lung is absolutely undilatable by any inspiratory effort of the patient or animal.¹

In Alber's 'Atlas of Pathological Anatomy,' Bonn, 1833, 46, Theilung iii, Tab. xxxiv, figs. 1 and 2, are beautiful illustrations of a very similar case. An account of the same and numerous references to the literature of dermoid cysts will be found in the letterpress, 'Erläuterung zu dem Atlasse der pathologischen Anatomie für Praktische Aerzte,' Abth. iii, S. 342, § 101. The patient was a woman aged twenty-eight, who had as a child been delicate, but was well developed. From her earliest childhood she had been liable to catarrhal affections, and

¹ The hole through which air can be expired has lately been noticed near the costal part of the opening containing the tube, and I have unsuccessfully (August 12th, 1889) endeavoured to close this by rawing the edges and the application of sutures. There has lately been some slight and unexplained elevation of temperature which appears to be subsiding. There is now no albuminuria.

when she was fifteen or sixteen she first noticed that she often brought up hairs on forcible coughing. After her twentieth year her cough, which had principally troubled her during the winter time, degenerated into a phthisis, for which she at various times was under treatment in the Julius-Spital at Würzburg, and to which she at last succumbed in March, 1839. During all this time she expectorated a large quantity of foul-smelling, puriform mucus, containing sometimes single hairs, sometimes conglomerated masses of them. At the end of her life she had general œdema, colliquative diarrhœa, and hectic fever.

At the section advanced tubercular changes were found in the right lung.

The *left*, besides similar tubercular degenerations, presented in its interior a large cavity containing hairs and the other contents of a dermoid cyst.

Appended are references to the other accounts of more or less similar cases which Dr. Lauder Brunton and I have been able to meet with in literature, but that of Albers tallies most closely with mine.

LEBERT.—Mém. sur les Kystes dermoïdes et sur l'hétérotopie plastique. *Gaz. Méd.*, Nos. 46, 51, 52.

CORDES.—Dermoid Cyste im Mediast. *Virchow's Archiv*, xvi, p. 290, 1859. He observed a dermoid cyst as large as a fist situated in the anterior mediastinum, from the walls of which grew fibrous tubercles, which were covered with cutiform membrane, and which contained hair and fatty follicles; the cyst was filled with fatty masses, had perforated at a small spot into the pericardium, which was enlarged and contained serous matter, besides masses of the contents of the cyst.

CLOETTA.—Ueber d. Vorkommen einer Dermoid Cyste in d. Lunge. *Virch. Archiv*, xx, 102.

CALLENBERG.—Zur Entwicklung der Dermoid Cystome. *Inaug. Diss.* Breslau, 1869.

NOBILING.—Dermoid Cyste der Lunge. Nach Buhl's Vortrag. *Bayer. ärztl. Intbl.*, No. 1. The patient had coughed up hairs during life.

PÖHN.—Beschreibung eines Falles v. Dermoid Cyste des Mediastinum Anticum. Inaug. Diss. Berlin, 1871.

FISCHER and WALDEYER.—Klinische u. anatomische Beiträge zur Geschwulstlehre. Archiv v. klin. Chir., xii, 3, 1871. Dermoid cyst of the front of the mediastinum. The tumour developed higher in the neck, in the classical region for dermoid cysts. This case throws light on the occurrence of dermoid cysts of the thorax.

MARCHAND.—Beitrage zur Kenntniss d. Dermoid Geschwulste. Ber. d. Oberh. Ges. für Natur. u. Heilkunde, xxii, 1884.

GORDON.—Case of Tumour in the Anterior Mediastinum containing Bones and Teeth. Med.-Chir. Trans., 1825, xiii, 12, 16.

THOMAS.—The Treatment of Pulmonary Cysts by the Establishment of Large Openings into the Sac and subsequent free Drainage. Brit. Med. Journ., 1885, ii, 692.

SMYTHE.—Dermoid Cyst of the Lung. Amer. Pract. Louisville, 1879, xix, 313, 316.

MARRONI.—Sur une Observation de Tumeur du Mediastin. Marseille Méd., 1880, xvii, 526, 532.

BERTRAND.—Contribution à l'étude des Tumeurs solides du Mediastin et de leurs Complications. Paris, 1884, Davy.

WILSON.—On the Diagnosis of Tumours of the Anterior Mediastinum. Journ. Amer. Med. Ass., Chicago, 1884, iii, 113, 116.

(For report of the discussion on this paper, see 'Proceedings of the Royal Medical and Chirurgical Society,' Third Series, vol. i, p. 113.)

DESCRIPTION OF PLATE VII.

Dermoid Cyst of the right side of the Chest communicating with a Bronchus (RICKMAN J. GODLEE, M.S.).

The drawings represent three of the fleshy bodies removed from the cyst. The letters *a*, *b*, and *c* are placed opposite the cut surfaces, and indicate the points of attachment to the cyst wall.