

A PECULIAR CYST ACCIDENTALLY FOUND AFTER DEATH ON THE ANTERIOR THORACIC WALL.

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THE above abnormal condition occurred in a woman 81 years old, who died on May 31, 1899, in the psychiatric clinic of Professor A. Pick, with the following clinical diagnosis: "Dementia senilis, three months' duration; Cataracta senilis; Marasmus senilis; Dysenteria, three days' duration."

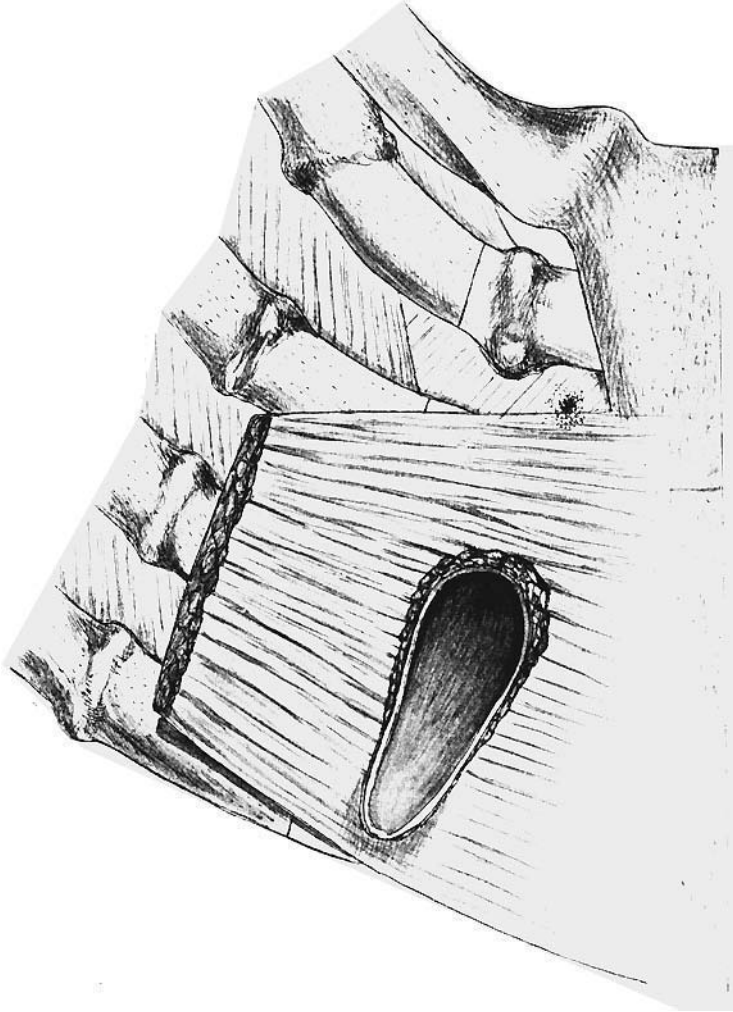
The post-mortem examination was made in the Pathological Institute. The following appearances were presented:—The body was that of an extremely emaciated old woman, 139 cms. long. The crystalline lens of the right eye was completely opaque. The mouth was edentulous, the jaws atrophic. Upon the inner surface of the dura mater could be seen the remains of a pachymeningitis chronica hæmorrhagica. The cerebral arteries were sclerosed. The entire brain, upon palpation, was found to be more compact than normal. The left cerebral hemisphere measured, from side to side, a little less than the right, and weighed 478 grms.; while the right weighed 495 grms. In the right hemisphere, corresponding to about the middle of the cuneus, was an old focus of softening, beginning in the cortex, and extending into the white matter, as far as the posterior horn of the lateral ventricle. The brain everywhere presented the picture of atrophy.

In the preparation of the thoracic wall, for the opening of the thorax, there was observed an egg-shaped cystic tumour, situated partly within and partly upon the musculus pectoralis major dexter, and diagonally in front of the costal cartilages of the third and fourth ribs of the right side. The distance from the lateral border of the sternum to the upper portion of the cyst was 1.5 cm., and the distance to the lower part was 2.5 cms. The lower two-thirds of the cyst rested upon the muscle, and the fibres were not disturbed by it; while the upper one-third rested upon the third costal cartilage, and in this location only a few of the muscle fibres were visible, the remainder having been destroyed or displaced by the tumour.

The cyst measured 4 cms. long, 1.2 cm. wide at the upper end, and 0.7 cm. at the lower end, and was filled with a thick, whitish, cholesterin-containing pulpy mass. The wall of the cyst measured about 1.5 mm. in thickness, and was composed of an inner thin, whitish membranous layer; a middle layer of very black pigmented tissue; and an outer, thin, whitish layer resembling the inner. The pectoral fascia seemed to be continuous with the outer layer, and bound it down to the pectoral muscle. Corresponding to the upper extremity of the cyst was seen a spot of black pigmented tissue, the size of a millet seed. This spot was directly continuous with the middle wall of the cyst on the one side, and on the other side, extending from it,

was a prolongation which penetrated the intercostal muscles and disappeared within the thorax. In the first right intercostal space, bordering on the sternum, was a small streak of black pigmented tissue in the musculus pectoralis major, which could also be traced into the thoracic cavity.

Upon removal of the sternum it was noticed that exactly in the locality of the sternal end of the first and second right intercostal spaces the right



The figure shows the cyst opened from the anterior surface and its relation to the musculus pectoralis major dexter, sternum and ribs. The ribs show the callus formation. (Nat. size.)

lung was firmly adherent, and corresponding to the third right costal cartilage, the costal pleura was replaced by pigmented cicatricial tissue, which was continuous with the prolongation above described as extending from the pigmented middle layer of the cyst.

Near the right internal mammary artery, in the first intercostal space, was a markedly pigmented mass, continuous with the pigmented streak described above in the pectoral muscle. The seven upper ribs, right as well as left,

from one to two finger-breadths outwards, from the junction of the ribs with the cartilages, showed the piling up of bone tissue, evidently the result of an old fracture. The sternal half of the costal cartilage of the first rib of the right side also showed an irregular exuberance of callus, which almost obliterated the inner half of the first intercostal space. This costal cartilage was no doubt fractured at the time the ribs were injured. (Owing to the demented condition of the woman on admission to the hospital, a history of an injury could not be ascertained.)

The *lungs* were œdematous and markedly anthracotic. The apices were thickened by old scars. The peribronchial lymph nodes were cicatricial, anthracotic, and partly calcified; from these nodes a streak of scar tissue was observed to extend into the hilus of both lungs; but especially into that of the right lung, and even into the walls of the large bronchi. In the œsophagus, opposite to the bifurcatio tracheæ, were several traction diverticula. The left ventricle of the *heart* was found slightly hypertrophied, the valvula bicuspidalis somewhat thickened, and upon the valvulæ aortæ were soft endocarditic excrescences. The intima aortæ was in places thickened, and the media calcified.

The *liver and spleen* were small. The *kidneys* were shrunken, and their capsules were adherent. The *genital organs* were atrophic. In the *small intestine* were mucoid masses; in the *large intestine*, bloody mucus. The mucosa of the lower ileum and large intestine was decidedly reddened, swollen, and softened; and in many places there was superficial necrosis.

The autopsy gave the following anatomical diagnosis:—"Dysentery, Morbus Brighti chronicus; Endarteritis chronica deformans; Endocarditis recentior ad valvulas aortæ; Hypertrophia cordis ventriculi sinistri gradus levioris; Tuberculosis obsoleta apicum pulmonum et glandularum lymphaticarum peribronchialium; Diverticula tractionis œsophagi; Fracturæ costarum; Cataracta dextra; Atrophia cerebri; Encephalomalacia cunei dextri; Pachymeningitis interna chronica hemorrhagica." The immediate cause of death was the dysentery.

This specimen, No. 5158, is preserved in the museum of the Pathological Institute of the German University in Prague, and was given to me for study by Professor Chiari.

A small piece was cut from the upper median portion of the cyst wall, and one from the lower lateral part. They were both stained with alum-cochineal, and cut in serial sections, according to the Bumpus method, the first transversely to, the second longitudinally with, the long axis of the cyst. The cyst wall was between 1.5 and 2 mm. in thickness, and was composed of three portions. The inner layer measured from 0.1 to 0.2 mm., and was made up entirely of round cells, closely packed together, a number of thin-walled blood vessels, and here and there throughout this portion were small canals and canal-like spaces, within which were masses of colourless substance and lymphoid cells; and along the borders of these canals and spaces were rows of nucleated cells. Towards the periphery of this inner layer the cells approached a short spindle or oval shape. Several giant cells, containing from three to six nuclei, were also seen in this part. In sections stained by Weigert's special method, elastic fibres were found in moderate quantity.

The middle layer of the cyst wall began abruptly from the inner,

and was composed of dense wavy fibrils of connective tissue, which had become so thickened as to appear almost sclerotic. A medium number of blood vessels could be seen with their walls somewhat thickened. The cells in this layer were not so numerous as in the first layer; but the canals and canal-like spaces, only somewhat larger, and resembling very much lymph channels, such as we have described in the inner part, were here also apparent. These spaces were filled with leucocytes, and bordering them were heavy deposits of black pigment.

This pigment had the appearance of being anthracotic. The Prussian blue reaction for hæmosiderin gave negative results. Sections were subjected to the action of sulphuric acid, but the pigment remained unchanged. Some of the pigmented tissue was dissolved in a warm alkaline solution and tested for hæmatoidin but with negative results.

The outer or third portion of the cyst wall was very similar in structure to the middle layer, with these exceptions: that it was not so dense, its blood vessels were more numerous, the connective tissue spaces fewer in number, and along their borders were deposited brownish-yellow granules of pigment, there being no black pigment visible in this portion. Between the fibrils of this part were interlaced, here and there, fibres of striated muscle tissue. This area was about 0.4 mm. in thickness, and faded almost imperceptibly into the middle layer.

Sections were further made from a piece of parietal pleura taken from the second intercostal space, and showed microscopically that over a part of this area of the pleura the lung was adherent. At the point where the lung and costal pleura were adherent, the tissue of the pleura was very rich in cells, among which leucocytes were seen; there were also thin-walled blood vessels, giving this part the appearance of a chronic inflammatory area. Beneath was seen a quantity of anthracotic pigment. In the place where the lung was not adherent, the pleura showed no round cell areas and no pigmentation. Directly beneath this latter portion was observed a part of an anthracotic lymph node, in which was a miliary tuberculous focus.

In the study of this cyst we must take into consideration its location and the tissues of which it was composed. Normally, there are no structures in this locality from which a cyst could develop, such as a pre-existing cavity or canal, excepting the bursa serosa, which has been described by Chassaignac, as being sometimes found between the mammary gland and the pectoralis major muscle, and which has been known to form a definite hygroma or bursal cyst. But the fact that this cyst developed between the fibres of the pectoral muscle, and that some of its fibres have been destroyed thereby, its connection with the thoracic wall, the anthracotic pigmented cyst wall, and the previous fracture of the ribs and costal cartilage, dispel the possibility of its being a bursal cyst. For the

same reasons, together with the absence of the characteristic structure and contents, a dermoid may be excluded.

The disturbed condition of the pectoral muscle, the thickening and continuity of the pectoral fascia with the outer cyst wall, the fact that the pigmented wall of the cyst could be traced into the thoracic cavity, the substitution of cicatricial tissue for parietal pleura in the second right intercostal space, and the connection of this area to the cyst wall by the slender prolongation of which we have spoken, and the remains of the old fractures of the ribs and the first right costal cartilage, all tend to prove that the cyst was formed from a tissue which was thrust through the thoracic wall and pectoral muscle at the time of the injury.

What was this tissue? Was it a hernia of the lung or of the parietal pleura alone, or a displaced subpleural lymph gland?

The absence of cartilage, epithelial cells, and other characteristics of lung tissue, which we should expect to find were it lung, excludes the likelihood of its being a pulmonary hernia. There now remains, taking into consideration the microscopical examination of the cyst wall, but a displaced subpleural lymph node and a hernia of the parietal pleura alone from which to differentiate this tissue. In cystic degeneration of a lymph gland there is an inner thin cellular layer, surrounded by a thick fibrous tissue area. While this inner portion is usually very much altered, there always remain traces of its lymphoid structure, and it shows frequently along its inner edge a layer which has undergone hyaline degeneration. In the microscopical picture of the cyst wall under consideration, the inner layer, upon a superficial examination, resembled the inner part of a degenerated lymph gland; but, upon closer investigation, we could find neither hyaline degeneration nor lymphoid cells, but instead we had an area of chronic inflammation or an old granulation tissue, showing in parts of the specimen round cells which were beginning to take on the spindle form, thus approaching the connective tissue type.

The presence of pigment in such quantities, the appearance of elastic fibres, the microscopical comparison of the cyst wall with the chronic inflammatory part of the parietal pleura, and the cholesterol-containing contents of the cyst, such as one gets in chronic pleurisy, and the fact that the growth could be directly traced into the thoracic cavity, prove that the cyst was not a cystic degeneration of a subpleural lymph node, but verifies our conclusion, that in the beginning the present cyst was probably a portion of parietal pleura, which at the time of the injury to the chest wall was cut off from its neighbouring tissue and displaced from its natural position; the result being, that instead of a cystic degeneration of a subpleural lymph gland we had a cyst formed from parietal pleura, with the characteristic signs of a chronic inflammation accompanying the cyst formation, such as increased activity and thickening of the fibrous elements, the absorp-

tive power increased so that the pigment from surrounding glands was taken up and deposited within the cyst wall and the cyst contents, the consequence of an exudative inflammation and partial destruction of the inner layer.

After a thorough search through the literature upon the subject of thoracic tumours, I have been unable to find the report of a similar case; and while the cyst has no especial pathological significance, it is interesting on account of its rarity and the fact that it was a consequence of an injury to the chest wall.