Memoirs chiefly anatomical and physiological, read at various times to the Royal Society in Edinburgh, the Medico-Chirurgical, and other societies / by Robert Knox.

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ANATOMICAL AND PHYSIOLOGICAL,

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ROYAL SOCIETY IN EDINBURGH, THE
MEDICO-CHIRURGICAL, AND OTHER SOCIETIES.

BY

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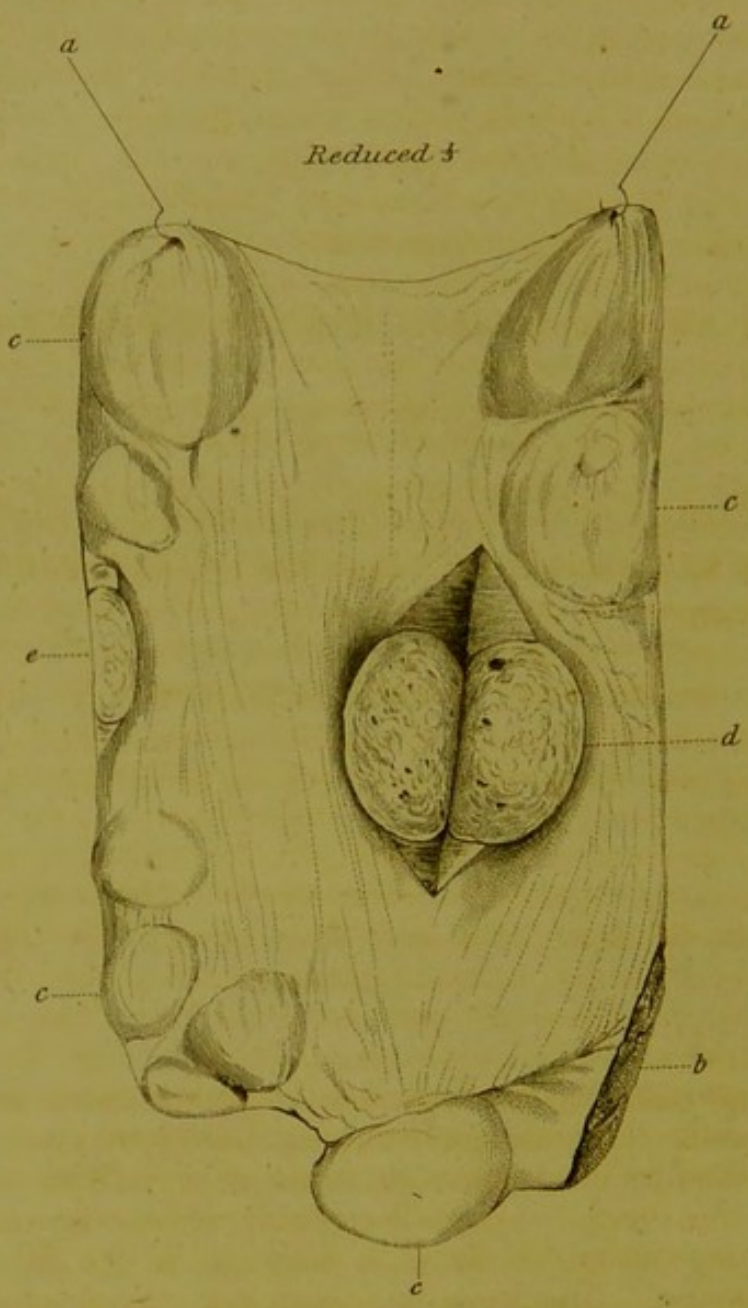

R. Mitchell, Sc.

ON THE

HEMORRHAGIC HEPATIZATION OF THE LUNGS,

OCCASIONALLY MISTAKEN FOR PULMONARY APOPLEXY, AND ON THE ORIGIN OF THE "SOFT PULPY TUBERCLE" OF BAILIE.

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(From the Edin. Med. and Surg. Journ. No. 129.)

The first pathological dissection I ever witnessed was a case of that peculiar form of organic disease discovered by Dr Bailie, and described by him under the name of "the soft pulpy tubercle of the lungs." This happened twenty-six years ago; and the preparation, so far as I know, is in the Museum of the University. The case, my notes say, was treated by an active practitioner in medicine as a case of ordinary *phthisis pulmonalis*, and proving fatal at the age of about 26 the thorax was after death opened and carefully examined. All that was noted at the time, or at least all that I find in my notes, was, considerable emaciation of the body generally, and in respect to the lungs themselves, about a dozen dark-coloured masses scattered through them, some near the surface, others more deeply. The intermediate portions of lung seemed quite sound. The tubercles, as they were then named, were of different sizes, but some per-

haps exceeding a walnut, and were perfectly defined. I cannot find it stated that there was hæmoptysis during life; but this must, I think, have been the case. The patient himself was well-formed; the Father rickety and diseased.

From that time to the present day I have seen but two cases of this singular morbid appearance, and under circumstances in which we could obtain no information. The one was in a private hospital in Brussels, in 1815, and the other merely a preparation now existing in the Bell collection of the Museum of the College. To this preparation, probably, the very one described by Dr Bailie, my brother had called my attention, and had asserted frequently, that what pathologists called the soft pulpy tubercle was merely masses of coagulated blood, the result, he presumed, of previous effusions of blood into the cellular tissue. * The remark fixed my attention forcibly, as including a number of deeper considerations, but no opportunity presented itself of renewing the inquiry until a few days ago when a portion of diseased lung was shown me by Dr Beilby Junior, removed by him from the chest of a person who had long laboured under and at last died of hæmoptysis. This lung, a portion of which was very kindly put at my disposal by Dr Beilby, had evidently suffered deeply from hemorrhagic effusions; but before I describe these it will be proper to sketch the case itself. I shall take the liberty of using Dr Beilby's own words. "This boy, about 14 years old, had been ailing from his tenderest years. The symptoms were not so well-marked as I believe generally occur in this affection. † There was no copious haemoptysis or expectoration of blood, which I believe generally attends pulmonary apoplexy. About three or four weeks before death the patient first complained of spitting blood in small quantity, and about the same time his cough, dyspnœa, and œdema of limbs became aggravated. These symptoms continued much the same until the time of his death, there not being any increase of the bloody expectoration. The portion of lung affected was chiefly the upper lobe of the right lung, and

* The following is Dr Bailie's history of this organic change. "I have seen another sort of tubercle in the lungs, which I believe to be very rare. It consists of a soft tumour formed of a light-brown, smooth substance. This is not contained in any proper capsule, but adhering immediately to the common structure of the lungs. In cutting through several of these tumours I did not find any of them in a state of suppuration. They were commonly as large as a gooseberry, and were chiefly placed upon the surface of the lungs. Some, however, were scattered through their substance of a smaller size. These are very different in their appearance from the common tubercle last described." Dr Bailie adds in his section on symptoms, that "the symptoms attending the large brown tubercle are unknown to me."

† Dr Beilby considered this case as one of true apoplexy, and it was taken for such by all who saw it. I shall afterwards endeavour to show that, strictly speaking, it was not so, unless we adopt the rather vague definition of Laennec, and include under the head of "pulmonary apoplexy" all cases of mere hæmorrhagic hepatization.

a part of the middle lobe of the same was also in a state of apoplexy. The pulmonary apoplexy was of course a secondary affection, depending on the previous disease of the right side of the heart." In addition to the morbid appearances alluded to briefly in Dr Beilby's note, the following were also observed.

Heart.—The mitral valve was thickened and altered in texture, and presented that diminution in the aperture of communication betwixt the auricle and ventricle which some have called the co-arctation. This morbid structure has been supposed the cause of all the other diseased appearances: viz. 1*st*, The formation of a large clot of blood encroaching so much on the calibre of the right branches of the pulmonary artery, as to allow merely a common surgical probe to pass, and of a firmness readily suggesting the idea that the clot was of long standing. To the soundness of this opinion there are serious objections. 2*d*, A well-marked appearance of pulmonary apoplexy involving a large portion of the right lung. 3*d*, The *vena cava superior* was obliterated (a change I have now seen thrice) by fibrinous coagula. These were evidently of long standing. The right ventricle much dilated, but not much thickened, formed the apex of the heart, reversing thus the usual appearance of the organ. The tricuspid valve was thickened, and even showed some excrescences upon it. The pulmonary veins were healthy. The left auricle was dilated and thickened.

Such was my own belief as to the real nature of the morbid parenchyma, until a favourable opportunity occurred of examining the diseased lung more carefully and leisurely, with good glasses, and sufficient light, when the following changes were recognized.

Lungs.—The lung being cut across, simply showed large portions of a deep red or even purplish colour, resembling masses of venous blood, and generally circumscribed. Nothwithstanding the extreme resemblance these altered parts of the lung bore to apoplectic effusions, careful examination with a good glass totally disproved the fact of any extravasation. The tissues were hepatized, but unbroken, and much gorged with blood. From these vessels, when squeezed, fluid blood was forced out, even after the lapse of several days, and the whole appearance strikingly resembled, at first view, the *corpus cavernosum* of the *penis*. In other words, the real texture of the lung was unbroken, so that this morbid alteration did not consist in an effusion of blood into the cellular or any other texture, and could not, therefore, be likened to cerebral apoplexy. The smaller divisions of the bronchial tubes were filled with a gelatinous rose-coloured effusion, and this was present to whatever extent these tubes could be traced, with a tolerably powerful magnifying glass; but this effusion was not present in the larger divisions of the *bronchi*. The minute

subdivisions of the pulmonary artery were completely filled with a very dense coagulum, as far as it was possible to trace them, and their tunics showed numerous ossified specks. The pulmonary veins were empty and quite sound.

On carefully re-examining the section of the lung when put in clear spirit, I felt inclined to conjecture that Laennec had never seen a case of real pulmonary apoplexy, and that the pathological change which he had so designated was merely a hepatization caused by the gorging of the minute branches of the pulmonary artery with blood. A suspicion arose in my mind, that Laennec had trusted to notes taken long previously, for he speaks of the pulmonary veins being sometimes engorged with blood. *

On next referring to my notes, I felt assured, on the other hand, that the disease termed by Dr Baillie, "*the soft pulpy tubercle of the lungs*," an organic change, not noticed, so far as I can observe, in the works of Laennec, Bayle, or Andral, is really the result of a pulmonary apoplexy, followed by recovery, and of which Dr Bailie had not the slightest suspicion, because in the few examples seen by him,—one or two at most,—the patients had evidently recovered from the apoplectic attack, and previous to the pathological examination, the effused blood had assumed a character, so as totally to deceive him; in other words, he had not met with a recent case which had proved speedily fatal.

This, then, is the real pulmonary apoplexy, which, I imagine, has been seen by very few persons. It consists in the effusion of blood into the common cellular tissue of the lungs, and is not merely the engorging of blood-vessels, or of the bronchial tubes. From this dangerous state, I feel assured a person may ultimately recover. This fact is perhaps new in pathology.

But I am also disposed to believe such cases to be very rare, and, moreover, that they must in general be speedily fatal. One such case is recorded by M. Cruveilhier in his splendid work on pathology, and to that I beg leave to refer the reader. Several cases are mentioned in the Cyclopædia of Practical Medicine, under the head "Pulmonary Apoplexy."

M. Bouillaud, a most distinguished pathologist, did, I find, in 1826, complain of the want of details in M. Laennec's history of this affection, and of a certain obscurity, which in consequence pervades that part of the admirable work on "Auscultation." The great reputation of Laennec will not suffer in any way by an attempt to supply these little deficiencies. It was he who gave the disease a name. If no clear case ever

* This appearance, so far as I know, has not been observed by any other pathologist. In general, the pathological descriptions of that admirable writer (Laennec) are unexceptionable. The slight seeming confusion I advert in respect to his descriptions of the state of the lungs in pulmonary apoplexy, and the evident scarcity of details has, I find, been observed by others.

presented itself to him, as is my opinion, he yet perfectly comprehended the possible occurrence of such. To M. Bouillaud's memoir in the Archives de Medecine, for October 1826, I take the liberty to refer the reader.

My principal aim in this hurried notice is to induce pathologists to re-examine the subject with more attention, and more in detail than they have hitherto done. The condition of the bronchial arteries, for example, has not yet been ascertained; neither have we any precise data for determining the effects likely to be produced by a sudden or gradual obliteration of either branch of the pulmonary artery. A distinguished pathologist, (Cruveilhier) has conjectured that the obliteration of the right or left branch of the pulmonary artery would necessarily produce gangrene of the corresponding lung; but this conjecture is at variance with the symptoms and appearances of the above case, and is, moreover, somewhat opposed to the ordinarily received physiological notions, in respect of nutrition of the pulmonary parenchyma. Physicians also would do well to study more carefully the symptoms indicating these changes in the condition of the lungs.

I have shown that a person may completely recover, at least for a while, from an attack of real pulmonary apoplexy; but as yet auscultation does not enable us to detect the effusion of blood, whether into the textures by extravasation, or when merely productive of a loading of the air-vessels and subdivisions of the pulmonary artery.

Explanation of the Engraving, Plate V.

A view of the section of the lung referred to in the preceding memoir. It exists in that part of Sir Charles Bell's museum which was purchased from him by the College of Surgeons in Edinburgh. The manuscript Catalogue contains no information further than that it is a specimen of the "soft pulpy tubercle of the lungs." I have shown these not to be tubercles, but simply extravasated blood, from which attack the patient had recovered, and lived for a considerable time afterwards.

a. a. a. Pins employed to fix the preparation, and show the sound part of the lung with the pleura entire.

b. Section of the substance of the lung. The texture seems quite healthy.

c. c. c. Masses of coagulated blood seen through the pleura. They vary in size.

d. One of these masses cut across. It lay immediately beneath the pleura, which has also been divided by the section.

e. A smaller mass divided in a similar manner.

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