ON THE EFFECTS PRODUCED
BY THE
RETENTION OF FOREIGN BODIES FOR
LENGTHENED PERIODS
IN THE
BRONCHIAL TUBES

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I HAVE selected the following cases as illustrating most of the characteristic features of this extremely troublesome affection ; and, although I cannot pretend that the paper contains much that is new, I trust that the interest of the cases as well as their comparative rarity will make it not unworthy of the attention of the Fellows, especially as two of the patients have been under observation for a long time after the expulsion of the foreign body.

CASE 1.—H. C—, a boy now 16 years of age, was admitted under the care of Dr. Ringer into University College Hospital on January 5th, 1893, supposed to be suffering from chronic empyema. There was a large amount of extremely offensive expectoration, and pus was

obtained with an exploring needle. The physical signs, however, pointed to the existence of bronchiectasis on the left side, while the right side was but little if at all affected. I ventured to suggest the possibility of the trouble having arisen from the inspiration of a foreign body, and on questioning the boy—but not before—he told us that seven and a half years previously he had “swallowed” the peg of a peg-top. We discovered afterwards that obvious symptoms made their appearance eighteen months later, and that two years after the accident the expectoration became offensive.

Under the circumstances I thought it wisest, after removing a piece of the ninth rib opposite the place at which pus was obtained, to stitch the lung to the pleura, and leave the incision of the lung to a subsequent occasion. On the first attempt under chloroform I was not successful, but a few days later, when the boy was sitting up, and with his cavity full, I opened, without difficulty, a bronchiectatic cavity, but found no foreign body. The expectoration was reduced but not stopped by this procedure, and the boy was made more comfortable. Subsequently the following methods were attempted for reaching the foreign body :

1. Probing through the wound.
2. Tracheotomy. Searching the bronchus with probangs and wires. Inversion of the patient on several occasions.
3. A second incision was made nearer the spine, by which the healthy pleura was opened, and the lung explored with the finger both behind and on the under surface.

All these attempts were fruitless. I need not detail the symptoms which he manifested during his stay in the hospital; they were of the usual description—rises and falls of temperature, increase and diminution of expectoration, occasional and sometimes severe hæmoptysis.

Ultimately the boy was sent home, and many were sceptical about the correctness of the diagnosis.

In October, 1894, however, during a fit of coughing, the rusty peg of the peg-top came out through the wound, in which he still retained a drainage-tube, and which indeed he found a great comfort, and called his safety-valve.

For some time we heard discouraging accounts of the boy's progress. The removal of the cause of offence did not appear to make much difference to his symptoms. It is, therefore, gratifying as well as surprising to hear from Mr. T. Hopkin Davies, of Port Talbot, under whose care the patient now is, that his general health is excellent. The tube has been removed, there is no expectoration, and there has not been any hæmoptysis recently. The clubbing is less, and there is no enlargement of the liver and no albuminuria. The breathing is said to be clear over the front of the left side of the chest, but a few moist râles are to be heard in the left scapular region. The right side of the chest appears to be quite healthy.

From the point of view of self-congratulation the present is the time for publishing this case. More than a year has passed since the expulsion of the foreign body,—a very reasonable time, it may be said, in which to form an opinion as to the prospects of a cure. Attention to the two following cases, however, will show that it would be very rash to draw any general conclusion from this apparently very favorable result; rash, indeed, to conclude that even he is completely out of the wood.

CASE 2.—E. S. W— (patient of Dr. Anderson, of Mirfield), in February, 1891, being then six and a half years old, inspired a small ivory knob into his left bronchus. It remained there till March 31st, 1891 (*i. e.* for eight weeks), and set up bronchiectasis in the left lung, with typical symptoms; but no indication was given by the physical signs of the situation of any one large cavity when I first saw him in March, 1894. The left side was then retracted, and there was deficiency

of resonance behind and at the side. The physical signs were most abnormal just below the angle of the left scapula. I did not advise surgical interference.

Since his return home intra-tracheal inhalations have been tried, but not very energetically. The expectoration is very foetid, and amounts to about four ounces a day. He empties himself systematically three times a day. Clubbing of the fingers is well marked, but there is no albuminuria. There is still marked dulness on the contracted left side, most marked below the angle of the scapula, and shading off gradually. There are copious moist râles, and whispering pectoriloquy over the dull area. The right lung remains apparently unaffected.

CASE 3.—In June, 1888, I saw, with Dr. Symes Thompson, Dr. Powell, and Dr. F. Hawkins, the son of Dr. Adams of Greenwich, who was then four years of age. He had a foetid expectoration, the source of which was doubtful, from which he had suffered for about seven months. He had been seen by other physicians, and it was supposed that his trouble had originated with whooping-cough, and there was said to have been at one time consolidation of the base of the right lung. At the time there was deficient movement of the right side, and dulness from the seventh rib to the eleventh behind, extending laterally from the posterior axillary line to one inch from the spine. Vocal fremitus over this area was absent. Breath-sounds were sometimes almost absent, sometimes loud and of a tubular character, and there were numerous coarse râles. A few râles were heard upon the left side.

I thought it was a case of bronchiectasis, and asked about the possibility of the presence of a foreign body in a bronchus, but was unable to hear of any likelihood of such an occurrence having happened.

A puncture with an exploring trocar one inch below the upper limit of the dulness revealed nothing. Another, slightly higher, drew off a drop or two of offensive pus. It was so superficial, however, that I altered my diagnosis,

and after removing a piece of the ninth or tenth rib I incised the pleura before stitching up the lung to the chest walls, and found it, to my chagrin, free from adhesions. This necessitated a laborious stitching up of the lung, and probably the losing of the exact place at which the pus had been found. However, the stitching was ultimately accomplished.

Three days later three quarters of a pint of odourless clear fluid, which had accumulated since the first operation, were drawn out of the right pleura, and an opening was made into the lung; but though foetid pus in small quantity escaped, no genuine cavity was opened. A similar deeper puncture into the lung three weeks later was not more successful, though a free communication with a bronchus was established. A certain amount of foetid discharge escaped through the opening, but the expectoration soon became as profuse as before. The child was then taken away into the country, and before long the wound healed. Nothing of importance happened until April, 1889, ten months after my operation, when during a fit of coughing he brought up a portion of the vertebra of a rabbit. I should say that before he went away his father recalled most distinctly that he himself had been feeding his son with some mulligatawny soup on December 10th, 1887, that is seven months before I saw him. He recollected the choking fit, and his wife running in to see what was the matter, but curiously enough he had never associated it with the attack of supposed whooping-cough which began about this time, and was supposed to have been the cause of all the trouble. Some days after the expulsion of the bone the child was still coughing very much, and bringing up four ounces of very foetid expectoration in the day.

The return to health was very gradual, and is even now not complete. In March of this year I heard from his father that the boy was the picture of health, but had not quite lost his cough.

In September he caught a cold, and has been more or

less of an invalid ever since. There was increased expectoration, and on a few occasions some slight hæmoptysis. I saw him on December 19th, 1895, and found him a well-grown lad, bright and intelligent; he is fat—rather too fat, indeed, and there is some clubbing of the fingers. The right side is retracted, and moves less than the other. The physical signs, as shown on the

* Tympanitic percussion note, bronchial breathing, moist râles, and whispering pectoriloquy.

accompanying diagram, point pretty clearly to the existence of a small bronchiectatic cavity at the situation of the

original operation. He brings up now about an ounce of almost inodorous pus, perhaps more, mixed with saliva, in the day, emptying himself two or three times. There is at present no fever, and I am assured there is no albuminuria. It is a question not very easy to answer whether it is wisest to leave him alone, or to endeavour, by incision and drainage, to secure the contraction of the cavity we think we know of. I believe the latter would be the best course to pursue, though the possibility of the existence of other cavities which could not be drained by the incision must not be forgotten.

CASE 4.—W. H—, æt. 17, was admitted to the Brompton Hospital in May, 1885, under Dr. Powell; he said he had swallowed a straw some time before, which was followed by the spitting of a little blood. His illness began five months before admission with a hard dry cough, which soon disabled him. On admission he had a good deal of pain and some contraction of the right side of the chest, which was dull below the angle of the scapula behind, and the fifth rib in front, with absence of vocal fremitus and resonance, and weak breathing. The rest of the chest, except for a few scattered râles, was normal. There were from 14 to 16 oz. of frothy, stinking, mucopurulent expectoration, sometimes tinged with blood. The temperature varied from normal to 103°.

An incision in the fifth interspace evacuated a quantity of offensive pus. The finger passed into an irregular cavity with loose friable walls, which felt like broken-down lung tissue. The operation relieved him for a time, but the expectoration, though diminished, did not cease. Some burrowing of pus occurred, and rather more than a month after the operation he died of an abscess in the right occipital lobe of the brain. The right ear was healthy.

The lower part of the left lung, which was adherent to the chest walls, contained an irregular cavity, which passed downwards between the diaphragm and the ribs, and had actually perforated the diaphragm. In the

bronchus of the lower lobe there was part of an ear of corn with the stalk upwards, lying loose in the cavity of the tube, which at this point showed no change except a dark reddening of the lining membrane. A short distance below, however, there was a spot of ulceration at a point where the foreign body had originally lain. The bronchi in the lower lobe were all much dilated, the intervening lung tissue being collapsed, airless, and somewhat indurated. In the middle lobe was a thin-walled cavity as large as a pullet's egg, containing some pus (which did not contain tubercle bacilli). The bronchus leading to this cavity was only slightly dilated. The rest of the right lung and the left lung were healthy.

Another case is fully reported in the 'Lancet,' 1887, vol. i, p. 714. It was that of a man who had a tooth impacted in a branch of the right bronchus. He developed bronchiectasis, and was submitted to several operations by the late Mr. Marshall and myself. We did not discover the foreign body, and more than three years after the accident he died with tuberculosis engrafted on his previously diseased lung.

The points I am anxious to bring out in recording these cases are the following :

1. *Pathology*.—It appears that, when a foreign body becomes impacted in a bronchus and remains there, sooner or later the lung below the point of impaction will pass into a state of bronchiectasis. This will occur more rapidly if the foreign body is sharp and irritating, such as a piece of grass or an ear of wheat; more slowly if it be smooth, such as a tooth. In the latter case the lung itself will be firm and fibrous; in the former case a gangrenous and burrowing cavity is more likely to result. The process appears to result from the accumulation of septic discharges in the bronchi, the pneumonic changes being secondary, and it corresponds to that which occurs after the obstruction of a bronchus from the external pressure of an aneurism or other tumour, or the bursting

into a bronchus of any cavity containing septic material, such as a cancer of the cesophagus. I think that whenever a case of unilateral bronchiectasis presents itself, if none of the other recognised causes of the disorder appears to have been present, we should always suspect the presence of a foreign body. Of course it does not follow that the mischief may not ultimately extend to the opposite lung, but this appears only to take place after a very long time. I would also add that we should not reject, as probably apocryphal, an account of the inhalation of a foreign body given spontaneously by the patient; and also that, if such an account be not at first forthcoming, we should not give up the idea without a very searching cross-examination. For, while in some cases the accident leaves a most indelible impression on the mind, in others it seems to have caused an almost inappreciable amount of inconvenience at the time, and to have quickly faded from the memory.

2. *Prognosis*.—It appears that if the foreign body is rapidly expelled or extracted, or if it makes its way, as sometimes happens with sharp objects, to the surface, pretty considerable bronchiectasis may be recovered from, or at all events may cease to give rise to further trouble. But it must by no means be assumed that such a favorable result will occur. A comparatively short residence of a foreign body in a bronchus may set up so much mischief that the condition may be as unamenable to treatment as is a bronchiectasis arising from a pleurisy or any other cause; and it is easy to understand that this may be the case, seeing that the cavities are probably produced chiefly by the contraction of the surrounding lung tissue, and that the removal of the foreign body is only likely to affect favorably the mucous membrane lining them. The prognosis in these cases is therefore always doubtful and usually bad, and the possibility of the engrafting of tubercle on to bronchiectasis must not be forgotten.

3. *Treatment*.—The most important rule is that, if there

be anything like reasonable grounds for supposing that a foreign body has passed into a bronchus, no time should be lost in endeavouring to remove it. The inconvenience of an early tracheotomy and the resort to the usual methods of search (which I need not here dwell upon) are not for a moment to be weighed against the possibly irremediable damage that may be done by even a few weeks' residence of a foreign body in a bronchus. But if the mischief have arisen, an attempt should be made to reach the foreign body, even though the search may not improbably prove unsuccessful, and the probability of complete cure is small.

An attempt must be made to ascertain the position of the largest cavity by means of auscultation, and then it should, if possible, be opened and explored. Most likely adhesions will not be met with; it is therefore advisable to stitch the lung to the costal pleura before opening it, after the removal of a portion of rib, which in such a case is essential. It must, however, be remembered that the foreign body will most likely be impacted above the level of any cavity sufficiently large to give rise to any characteristic physical signs. A knowledge of the size of the foreign body may possibly enable the surgeon to guess whether it is likely to have stuck in the course of the main bronchus, or whether it may have passed into any other part of the lung.

A drainage-tube ought certainly to be placed in the wound, not only for the sake of enabling the cavity to contract, but also because the foreign body, if not discovered at the operation, may make its way out some time after the opening of the abscess. If it be not expelled, tracheotomy should be done, and the bronchi should be searched in the usual way, not omitting the plan of inverting and shaking the patient, and in suitable cases an incision should be made into some other part of the pleura than that through which the cavity was opened, and the surface of the lung should be explored with the finger.

In short, the condition being one which, if unrelieved, is almost certain to prove fatal in time, no method should be left untried which appears to offer the slightest rational prospect of success.

(For report of the discussion on this paper, see 'Proceedings of the Royal Medical and Chirurgical Society,' New Series, vol. viii, p. 167.)