An account of a case in which a foreign body was lodged in the right bronchus / by Sir Benjamin C. Brodie.

Contributors

Brodie, Benjamin, Sir, 1783-1862.
Royal College of Surgeons of England

Publication/Creation

London : Printed by Richard Kinder, 1843.

Persistent URL

https://wellcomecollection.org/works/d3v5yafy

Provider

Royal College of Surgeons

License and attribution

This material has been provided by This material has been provided by The Royal College of Surgeons of England. The original may be consulted at The Royal College of Surgeons of England. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.

wellcome collection

Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org

'An account of a case in which a foreign body was lodged in the right bronchus.' 1843.

The patient was Isambard Kingdom Brunel, the engineer, who had swallowed a half-sovereign.

276
10 AN

919

ACCOUNT OF A CASE

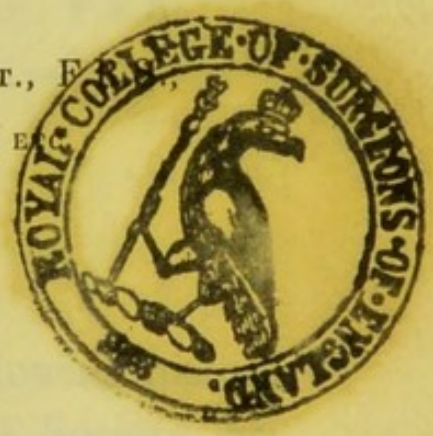
IN WHICH

A FOREIGN BODY

WAS

LODGED IN THE RIGHT BRONCHUS.

By Sir BENJAMIN C. BRODIE, Bart., F
SERJEANT-SURGEON TO THE QUEEN, ETC., E



FROM THE TWENTY-SIXTH VOLUME OF THE MEDICO-CHIRURGICAL TRANSACTIONS, PUBLISHED BY THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY OF LONDON.

LONDON:

PRINTED BY RICHARD KINDER, GREEN ARBOUR COURT, OLD BAILEY.

1843.

Digitized by the Internet Archive
in 2015

https://archive.org/details/b22348529

AN

ACCOUNT OF A CASE

IN WHICH

A FOREIGN BODY

WAS

LODGED IN THE RIGHT BRONCHUS.

By Sir BENJAMIN C. BRODIE, Bart., F.R.S.,

SERJEANT-SURGEON TO THE QUEEN, ETC., ETC.

READ JUNE 27th, 1843.

I am induced to communicate the following history to the Royal Medical and Chirurgical Society, believing that it embraces some points of considerable practical importance, which may be deemed not unworthy of their attention.

On the 3rd of April 1843, Mr. B. being engaged immediately after dinner in amusing some children, placed a half-sovereign in his mouth. By some accident it slipped behind the tongue, and a violent fit of coughing, in which he had the appearance of being nearly choked, was the consequence. This was immediately followed by vomiting, the contents

of the stomach being ejected with considerable force. He strained two or three times afterwards, but did not again vomit. In the course of the evening he coughed at intervals: but the cough was not violent. A sense of soreness and stiffness of the throat remained for the first twenty-four hours. He experienced little or no inconvenience during the two following days. He was not observed to cough, and he employed himself as usual, being able to entertain some friends at dinner.

On the 6th of April, he was again troubled with a cough. On the 7th he went on a journey into the country, and was more or less exposed to a cold north-east wind for two days and nights. The cough now became aggravated. He expectorated some mucus slightly tinged with blood, and small portions of a substance answering to the description of a thin membrane. He experienced, also, a pain in the right side of the chest, referred to a spot corresponding to the situation of the lower portion of the right bronchus.

On the evening of the 9th of April, he took two aperient pills, one of which was rejected by vomiting some time afterwards. In the act of vomiting, he experienced a sensation as if a loose substance had shifted its place in the chest; and for some time afterwards the cough was much relieved, and the pain in the chest entirely ceased.

On the 11th of April, the cough was again troublesome. There was little or no expectoration. At this time the chest was repeatedly examined,

with the stethoscope by Dr. Seth Thompson, but no unusual sounds were detected in any part of it.

On Monday the 17th of April, Mr. B. again went into the country, exposed to a cold easterly wind. On his return to London, the cough was again much aggravated.

On the 18th of April, by the advice of Dr. Seth Thompson, he consulted Dr. Chambers, and afterwards myself. From the detail of the symptoms, we were all of us led to believe that the half-sovereign had passed into the trachea, and that it remained lodged in the right bronchus.

On the 19th, this opinion seemed to be confirmed by a very simple experiment, which Mr. B. had himself made in the interval. He had placed himself in the prone position, with his sternum resting on a chair, and his head and neck inclined downwards, and, having done so, he immediately had a distinct perception of a loose body slipping forward along the trachea. A violent convulsive cough ensued. On resuming the erect posture, he again had the sensation of a loose body moving in the trachea, but in the opposite direction, that is, towards the chest.

On the 20th, I saw the patient again, with Dr. Thompson. I now suggested that a further consultation should be held on the case; and, accordingly, on the following day there was a meeting of Dr. Chambers, Dr. Seth Thompson, Mr. Stanley, Mr. Aston Key, and myself. The chest was again carefully examined by means of the stethoscope,

but no difference in the state of the respiration could be detected. The other indications of the existence of a foreign body in the air-passages, however, seemed to be so strong, that no one entertained any doubt on the subject. At this meeting it was agreed that the experiment, which Mr. B. had himself made, should be repeated in a more complete manner. Accordingly, on the 25th of April, he was placed in the prone position, on a platform made to be moveable on a hinge in the centre, so that on one end of it being elevated, the other was equally depressed. The shoulders and body having been fixed by means of a broad strap, the head was lowered until the platform was brought to an angle of about 80 degrees with the horizon. At first no cough ensued; but on the back, opposite the right bronchus, having been struck with the hand, Mr. B. began to cough violently. The half-sovereign, however, did not make its appearance. This process was twice repeated, with no better result; and, on the last occasion, the cough was so distressing, and the appearance of choking was so alarming, that it became evident that it would be imprudent to proceed further with this experiment, unless some precaution were used to render it more safe.

On the 27th of April, in a consultation of Dr. Seth Thompson, Mr. Aston Key, and myself, it was agreed that an artificial opening should be made in the trachea, between the thyroid gland and the sternum. In proposing this, we had a two-fold object; the one, that if the coin were lodged in any

part from which it might be safely extracted by the forceps, this method might be had recourse to; and the other, that, if relief could not be obtained in this manner, the artificial opening might answer the purpose of a safety-valve, and enable us to repeat the experiment of inverting the body on the moveable platform, without the risk of causing suffocation. The operation was immediately performed by myself, with the assistance of Mr. Aston Key and Mr. Charles Hawkins; and on it being completed, some attempts were made, both by Mr. Key and by myself, to reach the coin with the forceps introduced through the opening. The contact of the instrument with the internal surface of the trachea, however, induced on any occasion the most violent convulsive coughing. The coin was not seized, nor even felt; and our apprehensions of producing some serious mischief were such, that we did not deem it prudent, at that time, to persevere in our endeavours to remove it.

On the 2nd of May, we again made some trials with the forceps, but always with the same result. A violent convulsive action of the diaphragm and abdominal muscles ensued, on each introduction of the instrument; and the danger of groping in the bronchus, under such circumstances, surrounded as it is by the most remarkable assemblage of vital organs in the whole body, appeared to us to be so great, that we did not think ourselves justified in proceeding further. We were the more inclined to abandon the experiment with the forceps, as we had a strong expectation that a recurrence to the first

experiment, now that the safety-valve was established, would prove successful.

On the 3rd of May, a consultation was held with Mr. Lawrence and Mr. Stanley. They entirely concurred in the views of Mr. Aston Key and myself, and it was agreed that nothing more should be attempted until Mr. B. had sufficiently recovered from the effects of what had been already done, to admit of his being again inverted on the moveable platform.

A probe, or director, was occasionally introduced into the wound of the trachea, with a view to keep it in an open state; and, on the 13th of May, the patient having been placed on the platform, and brought into the same position as formerly, the back was struck with the hand; two or three efforts to cough followed, and presently he felt the coin quit the bronchus, striking almost immediately afterwards against the incisor teeth of the upper jaw, and then dropping out of the mouth; a small quantity of blood, drawn into the trachea from the granulations of the external wound, being ejected at the same time. No spasm took place in the muscles of the glottis, nor was there any of that inconvenience and distress which had caused no small degree of alarm on the former occasion.

It is unnecessary to describe the progress of the case afterwards. On the 20th of May, Mr. B. had sufficiently recovered to be able to go for change of air into the country, and when I saw him, about a

fortnight afterwards, the wound of the neck was nearly healed.*

The different results which foreign bodies produce when admitted into the trachea, may be referred chiefly to the differences of their size, weight, and figure. If it be of large dimensions, the foreign body will be lodged, and probably impacted, in the trachea itself, causing, in the first instance, more or less obstruction to the respiration, which becomes aggravated afterwards by the too abundant secretion of mucus from the lining membrane. If it be of small size, it will descend to the lower part of one bronchus (generally the right), or even into one of the subdivisions of it, of course obstructing the respiration in a less degree. If it be of light weight, and of moderate size, having no great irregularity of figure, on every fit of coughing it will be made to ascend to the glottis, threatening, and probably at last inducing, suffocation. If it be more ponderous, it will not ascend in the act of coughing, and the inconveniences which it causes, and the immediate danger, will in one respect be less. In

* For the early part of this history, I have availed myself of the notes of my friend Dr. Seth Thompson, who is nearly related to the patient, and to whom, also, I feel deeply indebted for the kind and zealous assistance which he afforded us during the whole progress of the case.

the case which I have just related, the symptoms described by the patient led all those who were consulted to believe that the foreign body lay in the right bronchus; and this opinion derived confirmation from some experiments made formerly by Mr. Aston Key, and lately repeated by myself and others, in which it was ascertained, that a coin of the size of a sixpence or half-sovereign, if dropped into the trachea of the dead body, almost invariably fell, by its own weight, into this part of the air-passages. It was evident that the weight of the half-sovereign rendered it nearly stationary in the ordinary position of the body; and to this circumstance may mainly be attributed the comparatively trifling inconvenience which the patient suffered. But it is not to be supposed that the ultimate danger of the case, if the foreign body had been allowed to remain, would have been therefore less; and the records of surgery furnish abundant evidence that, under such circumstances, disease of the lungs sooner or later is induced, and that the death of the patient invariably ensues.

The narrow space which a half-sovereign would occupy in the bronchus, sufficiently explains the failure of the stethoscope as the means of diagnosis. It would appear, however, that even under more favourable circumstances, we cannot, in cases of this description, rely on the information which is afforded to us by the use of this instrument. Mr. Hodgson of Birmingham has furnished me with the history of a case which fell under his observation, in

which the berry of a plant called the *bladder-senna*, of the size of a large pea, had found its way into the trachea of a boy six years of age. On repeated examinations with the stethoscope, nothing unusual was observed in the state of the respiration; yet, on the seventh day after the occurrence of the accident, the child suddenly expired, and on inspecting the trachea afterwards, the berry was found lodged in it about an inch below the cricoid cartilage. Mr. Phillips, surgeon to the St. Mary-le-bone Infirmary, and librarian of this Society, has informed me of another case, occurring in a little girl two years of age, in which a physician, much accustomed to the use of the stethoscope, had examined the chest with that instrument several times, and in the most careful manner, without detecting anything peculiar in the respiration; yet it was ascertained after death, that a portion of the claw of a lobster was firmly fixed in the trachea, a little above the level of the upper margin of the sternum.

I have already stated, that in making the artificial opening into the trachea, we had two objects in view; and it has been shown, that in the attainment of one of these, our success was as great as our most sanguine desires could have led us to anticipate. Although, before the opening was made, the experiment of inverting the patient on the platform was productive of a most distressing and long-continued spasm of the muscles of the glottis, no such spasm occurred afterwards. The half-sovereign escaped through the aperture of the

glottis, as easily as it would have done in the dead body; and the small quantity of blood which was ejected at the same time, and which had been manifestly furnished by the granulations of the external wound, sufficiently explains how this happened: as it is not to be supposed that blood could have been drawn into the trachea without the admission of air into it at the same instant. As connected with this part of the case, it may be well here to mention, that the distressing sensations arising from congestion in the vessels of the brain, while the head was in a depending position, were immediately and completely relieved by supporting the forehead with the hand, so as to keep the occiput in some degree inclined towards the back of the neck.

In the other object, for which the artificial opening was made, it must be confessed that we were wholly disappointed. In the dead body, with the assistance of proper forceps, there is no great difficulty in extracting a sixpence or a half-sovereign from the bronchus. But even here it is not always accomplished on the first trial. If the forceps be, as they ought to be, carefully and gently handled, the blades may actually slide over the surface of the coin without any sensation being communicated to the hand of the surgeon which will make him aware of the circumstance: or they may be passed downwards on one side of the bronchus, while the coin lies on the other. In the attempt to seize it, the forceps sometimes grasps the bifurcation of the trachea, or one of the subdivisions of the bronchus, instead of the foreign body.

Nor will these things appear remarkable to any one who bears in mind, that the parts in which the forceps is to be used are not only out of sight, but at a considerable distance from the surface. Including the depth of the external wound, the instrument must be introduced to the distance of from four and a half to five inches before it reaches the upper extremity of the bronchus, and in order that the whole of the bronchus should be explored, it must penetrate still one inch and a half further. But in the living person, there are difficulties of which no knowledge can be obtained from experiments on the dead body. We found that every attempt to use the forceps occasioned a convulsive action of the diaphragm and abdominal muscles, and violent coughing; and (contrary to the observations of M. Magendie on what happens in experiments on dogs) the result was nearly the same, whether the extremity of the instrument was directed upwards towards the glottis, or downwards towards the lungs. Dr. Williams has shown that the fibres of the whole of the bronchial tubes are endued with a high degree of contractility. The heart and its great vessels, the lungs, and the pulmonic plexus of the pneumo-gastric nerves, are immediately contiguous to the bronchi, and the phrenic nerves are only at a short distance on the forepart. How easy would it be for some unfortunate thrust of the forceps, for which, during a paroxysm of coughing, the hand of the surgeon could be in no wise responsible, to cause some such injury to these important organs as would prove

fatal to the patient! It was these considerations which made us cautious in the use of the forceps in the first instance, and ready to abandon it afterwards, in favour of a safer method of proceeding.

The foregoing observations are of course intended to apply only to cases like the present, in which the foreign body is lodged in the bronchus or in one of its subdivisions. When it is impacted in the trachea itself, there can be no doubt that it ought to be removed by the forceps, and that this may be safely and easily accomplished. But under all circumstances, we have a right to conclude, that an artificial opening in the trachea must contribute to the security of the patient, and that the establishment of it at an early period, is the first and most important duty of the surgeon.