

usually be small enough to be carried by its own weight to the bottom of the bronchus.

Another question arises here. What will happen when a ponderous body—a coin or other metallic substance—lodges in the bronchus? It will not cause great difficulty of breathing; for generally it is small enough not completely to obstruct that bronchus, or, at any rate, the patient can breathe with the other. It may occasion coughing, and if the patient invert himself so as to bring the head downward and elevate the chest, it will run down to the glottis and threaten suffocation. But the patient is in no danger of suffocation if he do not put himself into a position which, not being a natural one, it is not likely that he will do. It may, therefore, remain lodged there for a long time; but what will happen at last? It will give rise to disease of the lungs. A man swallowed a Louis-d'or, which got into the trachea; he died three or four years afterwards, and on examination there was found disease of the lung, the Louis-d'or being in an abscess. This case is recorded in the "Memoirs of the French Academy of Surgery." A boy got a sixpence into the trachea; he was sent to Guy's Hospital, where it was found that his lungs were diseased, and therefore Mr. Key refused to make any attempt to remove the sixpence. A boy swallowed a tin tack; when I saw him he was expectorating pus, so that it had formed an abscess, and it was doubtful whether the tin tack was there or not. By and by he coughed up the tin tack, and the discharge of pus ceased, and the patient recovered.

Foreign bodies are very frequently coughed up, and it has been proposed to endeavour to expel them by making the patient cough. No doubt you can make the patient cough, and there is a chance of the foreign body being thus removed; certainly, if it is to be got rid of by natural efforts, it must be by coughing. Some have proposed to bring up the foreign body by giving the patient an emetic, but I apprehend that it would be useless. In the act of vomiting there is a deep inspiration, not a forcible expiration; the diaphragm descends in order to press on the stomach, and, combining with the action of the abdominal muscles, it expels the contents of that organ. After vomiting is over there is no convulsive coughing, so that the diaphragm gradually returns to its own place. The idea of exhibiting an emetic is founded altogether on a wrong physiological notion; and I think it is dangerous to trust to the act of coughing for bringing up the foreign body. It is very true that it may be coughed up through the glottis; but it may stick in the glottis, and then the patient would die.

Now, what is the best rule to follow? If you are satisfied that the foreign body is in the trachea, I believe that the proper course to pursue is not to trust to nature, she may manage it, but you are not certain of it, and in a great number of cases where it is left to nature the patient dies. Make an opening in the trachea, and I believe that it is best to make it low down. You may proceed here as leisurely as you please, for the patient is not in danger of instant suffocation. Take up every vessel as you proceed, and separate the parts as much

as you can with a director, instead of cutting them, so as to avoid hemorrhage. If you open the trachea when bleeding is going on, every time the patient inspires, blood is drawn into the trachea, and the patient may be suffocated by the surgeon opening the trachea too hastily, and allowing it to become filled with blood. I know a case in which a surgeon performed tracheotomy, and the patient died almost directly. On examining the body, as I am informed, the trachea and bronchi were full of blood. Make the opening, then, as leisurely as you please; separate the parts by a blunt instrument rather than a knife; divide three or four rings of the trachea longitudinally, but there is no occasion to remove any portion of the trachea. What will now occur? When you have divided the trachea, if it be a light and movable body, such as a cherry or tamarind-stone, as soon as you have made the opening, if you hold back the edges, cough comes on, the foreign body is thrown up, and escapes by the artificial opening; or even if it do not escape there, the danger of suffocation, in consequence of its sticking in the glottis, is prevented. But if the foreign body be a bone or any rough substance that is stuck in the trachea, and not movable, then you may introduce the forceps and remove it; and I can conceive of cases in which it is right to take a foreign body from the bronchus. I advise you, however, never to attempt the latter if you can effect the object in any other way. The introduction of forceps into the bronchus will occasion violent coughing, great irritation, and it is a frightful thing to introduce these instruments into the bronchus when the patient is agitated by a convulsive cough. Only conceive of the important organs in the neighbourhood. The lungs are below, and you may injure them, or you may take hold of one of the subdivisions of the bronchi instead of the foreign body. There is the pulmonic plexus of nerves behind; you are close to the phrenic nerves; you are not far from the great vessels of the heart; and the heart itself is close by. Think of the mischief you may do by poking among these important organs with forceps when the patient is agitated by a convulsive cough. Still, if there be a piece of bone stuck across the bronchus, it may be the only way of taking it out. But it does not often happen that any ragged body will go into the bronchus; if, however, it do, you may have to introduce the forceps five or six inches from the part where you make the wound externally.

But suppose a case in which there is a loose and ponderous body in the bronchus. In the case of Mr. Brunel, which occurred last year, there was a half-sovereign in the right bronchus. This gentleman, in playing with a child, flung a half-sovereign into his mouth, and it slipped down the windpipe. In the first instance it produced sickness, and as he drew his breath, previously to vomiting, it descended into the bronchus and occasioned coughing every now and then. When his head was placed down it could be felt rolling along the trachea. We attempted to remove it by placing him on a movable platform, so that his feet were up and his head down nearly at right angles. The half-sovereign descended and stuck in the glottis so as nearly to choke him. We therefore determined not to repeat this



experiment till we had got an opening in the trachea which would act as a safety-valve. We made an opening some few days afterwards below the thyroid gland, but the half-sovereign was not coughed up as a cherry-stone would have been, because it was too heavy. We made some attempts to use the forceps, but found it so dangerous that we desisted. When he had recovered from the effects of this operation,—in the mean time passing a probe every now and then,—we again placed him on a movable platform, his back was struck with the hand, and the half-sovereign escaped from the bronchus. He could feel it rolling along the trachea, till it came to the glottis, and now, instead of sticking there, it passed through, just as you could roll it through the dead body, and came out of the mouth. There was no spasm of the glottis, and the absence of it was to be attributed to the opening in the trachea; for blood came out with the half-sovereign, which had evidently passed in from the external wound, and where blood went in you may be sure that the air went in also. I apprehend the rule to be this:—In all cases where a foreign body has got into the trachea you must not trust to nature, but make an opening into the trachea; and then it is very likely that if the body be light, it will be forced through the opening; or if, by its own weight, it can be made to assume a certain position, it will pass out through the glottis; or, if it be a rough, irregular substance, and sticks in the trachea, you may then, through the artificial opening, seize it with the forceps and extract it. But I advise you to be very careful how you use the forceps, except where the foreign body is actually in the trachea; cases may occur in which you must use them in the bronchus, but it must be done with the greatest possible caution.

## LECTURE XXI.

### FISTULA IN ANO.

I PRESUME that you are all aware of the fact that abscesses are very liable to form in the vicinity of the rectum, and that when so formed, they heal only with considerable difficulty, and, for the most part, do not heal spontaneously. You are also aware that the parietes of those abscesses contract, and become hard and callous, in which stage the disease takes the name of *fistula in ano*.

Now, this affection, although of frequent occurrence in hospital practice, is much more common in private practice, and, therefore, it is, in every point of view, a disease of great interest to the surgeon.

The first question that presents itself is this—Why is it that abscesses are so particularly liable to form in the situation in question, and that when so formed they do not heal like abscesses occurring in other parts of the cellular membrane? I formerly supposed that the

healing process was prevented chiefly by the irregular action of the sphincter and levator ani muscles. Further consideration, however, and more mature experience, have led me to the conclusion that this opinion was incorrect. That such causes may interfere with the healing of any abscess I well know, but I am now fully satisfied that they will not afford sufficient explanation why it so rarely happens that abscesses near the rectum heal spontaneously, and, at any rate, it is quite clear that the action of these muscles will not explain the formation of these abscesses. In order to explain their formation I must call attention to what happens in other parts of the intestinal canal. The mucous membrane, under a variety of circumstances, is liable to ulcerate. In patients who die from diseased liver, or phthisis pulmonalis, or at the end of continued fever, and various other diseases, you find the mucous membrane of the bowels ulcerated. This ulceration seldom extends further, does not involve the muscular tunic, but sometimes the latter is affected, and then some of the contents of the intestines escape. Should this occur where the intestine is covered by the peritoneum the contents may escape into the peritoneal cavity. For example, there was a little boy, seven years of age, who had symptoms of mesenteric disease, and who had just recovered from what was supposed to be a fever. When he appeared to be convalescent he was suddenly seized one evening with what was called a fainting fit, in which his pulse was not perceptible. After some time, under the influence of a stimulant, he recovered; nevertheless, he continued low and depressed. On the following day he had another attack of the same kind, from which he did not rally, and on examining the body after death I found that there was ulceration on the inner surface of the ileum, and that the mesenteric glands were diseased. In one place the ulcer had extended by a small opening through the muscular tunic, and also through the peritoneum, and a small quantity of the feculent matter had escaped into the cavity of the belly. Every person who has had much experience of disease has seen cases of the same kind; but there are others in which both the muscular tunic and the peritoneal coat ulcerate, and yet the contents of the intestine do not escape into the cavity. Adhesions take place round the ulcerated spot before the ulceration of the peritoneal coat is completed, and these adhesions cause the contents to escape, not into the peritoneal cavity, but to become infiltrated into the cellular membrane of some part of the abdominal parietes. A young man, of seventeen or eighteen years of age, who had long been in ill-health from disease of the lungs, and who was indisposed in other ways, was supposed to be rather better than usual, but one evening he was seized with violent pain in one side, and there was considerable tenderness of the whole of the abdomen. Two physicians were sent for; the symptoms were not exactly those of peritoneal inflammation, but they could not explain the symptoms so well in any other way as by assuming that he laboured under peritoneal inflammation. The inflammatory symptoms subsided, and two or three months afterwards I was called in to see him on account of a tumour which had formed in the front of the belly. It was an ab-