ENDOSCOPY AS AN AID IN DIAGNOSIS AND TREATMENT

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Although endoscopy has been developed comparatively recently, it has firmly established itself as an almost indispensable method in the diagnosis and treatment of many hitherto inaccessible conditions. It has made great strides since its advent some thirty-five years ago.

The most spectacular use of the endoscope, especially in the eyes of the laity, has been in the removal of foreign bodies from the food and air passages. Before its conception, these patients either had to dislodge the foreign bodies themselves or submit to daring and dangerous surgery, or the condition was regarded as hopeless. Yet even today when it is generally known that bronchoscopy and esophagoscopy are the surest means of removing such foreign bodies, many cases are not diagnosed soon enough and some patients are treated too long by the watchful waiting method. It is often true that when a small piece of bone is swallowed, the mucosa is scratched in passing. This leaves the patient with the sensation of some obstruction, and the act of swallowing produces pain at the site of the scratch. Such patients should soon become asymptomatic. The safest procedure in such instances is to immediately make a roentgen examination of the esophagus both with and without barium. If the symptoms persist for more than 48 hours, the patient should be examined with the esophagoscope. Within the past year a young girl came into one of the State University Hospitals complaining of severe hemorrhage from the mouth and tarry stools. She said a chicken bone had become lodged in the esophagus some six weeks previously. The discomfort had persisted but had grown less from day to day, so nothing had been done about it. Because of her condition, the esophagoscope was not used. She was given transfusions but failed to rally. At autopsy a chicken bone was found lying crosswise in the esophagus; it had eroded into the descending aorta producing the fatal hemorrhage. Had esophagoscopy been instituted immediately after the foreign body had become lodged, undoubtedly this patient would still be living today. A number of similar cases are recorded in the literature.

Mediastinitis is another dreaded complication. It cannot always be prevented, for some foreign bodies are very sharp and pierce the thin walls of the esophagus rather rapidly. However, the prompt removal of the foreign body will materially decrease the danger.

In the case of foreign bodies in the bronchi it is often very difficult to make the diagnosis without bronchoscopy. If the patient is seen by a member of the family at the time of aspiration, the story is quite typical. There is a sudden attack of coughing, usually accompanied by cyanosis. This generally quiets down after a bit and the child seems fairly well

except that there are recurring attacks of coughing, and he becomes somewhat listless and loses his interest in his play. If he is not seen during the initial attack, the picture can readily be confused with croup or bronchitis.

If the foreign body is metallic, it will easily be distinguished on the x-ray film. If it is of vegetable origin, such as a peanut or a bean, the roentgenogram will not show the object itself but the results of its presence are usually evident, especially if it is causing obstruction of one of the main bronchi. There will be a difference in the density of the two sides of the chest with a shifting of the mediastinal contents. If the obstruction is partial, allowing some passage of air on inspiration and expiration, little or no difference between the two sides may be seen. On examination of the chest some signs are almost always found. There is limitation of movement and diminished or absent breath sounds on the affected side no matter what type of obstruction is present. With partial obstruction, there is dullness on the affected side and râles are present. When obstruction is complete, atelectasis of the affected side develops and there is marked dullness and a shifting of the mediastinal contents to that side. If the obstruction is of the ball-valve type, allowing air to pass on inspiration but none on expiration, the lung on the affected side is gradually inflated until the picture of pneumothorax is simulated. A tympanitic note is obtained on percussion and the mediastinum is shifted toward the opposite or unaffected side. In this type of obstruction vocal resonance and fremitus are little affected, while in the other type they are both decreased on the side of the obstruction.

The vegetable foreign body, especially the peanut, frequently produces pneumonia rather soon, so one has the picture of actual chest infection to cloud the issue. In all cases where there are reasons to suspect the presence of a foreign body, a careful study and bronchoscopy should be done. This may save many lives and prevent some lung abscesses.

When lung abscesses have developed from any cause, the diagnosis can be confirmed by bronchoscopy and lung mapping. If the lung abscess drains readily into the bronchi, repeated aspirations at weekly intervals will materially aid recovery. If the abscess is not of long standing so that it is not surrounded by scar tissue which prevents its collapse, the aspirations may be all that are required to effect a cure. If they do not accomplish this, they will improve the patient's general condition so that he is better able to stand surgical drainage.

In bronchiectasis the outlook is not as bright, unless the patient is treated very early. If he is a child and the disease is not too well established, bronchoscopic aspirations at weekly or two weekly intervals may effect a symptomatic cure. These must always be assisted by daily

postural drainage and all active infection in the nose, throat, and sinuses must be removed.

For those patients who have had bronchiectasis over a long period of time, the aspiration treatment offers symptomatic improvement and better general health. If the bronchiectasis is limited to one lobe or one side, the treatment can be used to prepare the patient for surgical removal of the affected tissue. One patient, whose pathology was too extensive for surgery, has been under treatment for six or seven years. When first seen she was a scrawny child, just skin and bones. The right side of the chest was almost opaque to the x-ray and she was raising large quantities of pus. Today she is a buxom young woman. The right lung is clear to x-ray but an extensive bronchiectasis remains. Fairly large quantities of pus are still aspirated at treatment but she feels well, is active, and considers the treatments well worth her while.

There is one type of acute infection where the bronchoscope is of great value. This is when a so-called mucous plug develops in one of the bronchi. It is a collection of mucopus which is too thick for the patient to raise and, as a result, the bronchus is completely occluded and the lung on that side collapses. The patient presents the picture of atelectasis on one side, high fever, and prostration. The mucous plug can be removed by bronchoscopy and aspiration. The lung immediately fills with air and the patient begins to improve. The procedure may have to be repeated if the plug forms again but rarely more than two treatments are required.

The diagnosis of malignant growths of the lung and esophagus has been materially helped by endoscopy. The growth can frequently be visualized and a biopsy taken which establishes the diagnosis. In patients who are unable to swallow because of stricture of the esophagus or cardiospasm, the nature of the obstruction can be seen through the esophagoscope and the degree of the obstruction determined with soft nose dilators. If it is a cardiospasm, repeated dilations will give relief. If the stricture is due to some chemical cautery such as lye, a gastrostomy followed by retrograde dilations is indicated.