Two Cases of Intra-Bronchial Foreign Bodies of Long Duration*

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Case 1: Sara G. de R., 52 years of age, obese (89 kilos), had a chronic cough for one and one-half years which had steadily increased in severity. For some time she had not had a restful night because of violent paroxysms of cough which was productive of quantities of purulent sputum, at times streaked with blood. Periodic chills and fever, of late occurred at almost weekly intervals. There was no weight loss.

She had been treated in diverse ways, including antibiotics, with no noticeable improvement. She spontaneously tried to give her ideas as to the cause of her illness, but was interrupted by her daughter who begged her not to tell her story because she thought it would make the doctor (Dr. Boettner) laugh. However, the doctor asked the patient to tell her own story, and she explained that she was certain that her cough was due to the swallowing of a bone while eating soup.

Upon examination the patient did not appear to be acutely ill. Her temperature was 37.3 degrees C. She had hoarseness with persistent cough productive of quantities of purulent sputum. Examination of chest revealed some tenderness over the lower part of the right posterior chest wall. Breath sounds were normal throughout except for fine moist rales in the right base. Radiological inspection revealed a high right, but mobile diaphragm, and a definite, but poorly demarcated opacity in the right cardiophrenic angle. (Only after the extraction of the foreign body was it possible to detect a shadow that could correspond to it). On the first attempt to use the bronchoscope (Dr. Llamosas), a thorough examination was not possible due to the abundance of purulent sputum, but it was thought that a foreign body was seen in the inferior right bronchus. A biopsy was taken from an inflammatory nodule located in the right inferior bronchus. The pathologist reported (Dr. Carlos Maas) basal inflammatory tissue. Four days later Dr. Llamosas removed a fragment of bone 12 x 9 millimeters, perfectly preserved and without destruction of its sharp edges from the right inferior bronchus. Recovery was uneventful with rapid cessation of chronic productive cough.

Summary: (1) Chronic productive cough of one and one-half years duration following aspiration of foreign body (piece of bone). (2) Extraction of foreign body (bone) from right inferior bronchus. (3) Rapid cessation of productive cough following removal of foreign body.

Case 2: Osvaldo R., nine years of age, was first seen in the tuberculosis dispensary in October 1945, because of a chronic productive cough. He did not react to 1/1000 and 1/100 of tuberculin in December 1945, and again in 1946. He then dropped out of sight, and was not seen again until March 1949. At this time the child was emaciated, weighed 23

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Figure 1: Fragment of foreign body (meat fiber) in right lower lobe bronchus of boy nine years of age (Case 2).—Figure 2: High-power view of foreign body in previous figure (striated muscle fibers well preserved after four years of lodgment in bronchus).
kilos, had clubbing of fingers and toes and chronic cough with expectoration of quantities of purulent foul smelling sputum. During the examination by Dr. Perito he spontaneously said that his cough began following the swallowing of a piece of bone while eating meat, with the production of sputum beginning some weeks later.

Examination of the chest was negative except for dullness over the right lower lobe, and numerous coarse moist rales. Radiological inspection revealed the typical picture of bronchiectasis of the basal portion of the right inferior lobe. Bronchograms were not done. He was admitted to the Sanatorium “Bella Vista” on April 4, 1949 with diagnosis of bronchiectasis for lobectomy.

Bronchoscopic examination (Dr. Llamosas), on April 4, 1949 was difficult because of abundance of purulent sputum coming from the right inferior bronchus. There was marked inflammatory reaction of the bronchial wall. Lobectomy (right inferior lobe) was accomplished on April 14, 1949 (Drs. Riveros and Codas). Operative and postoperative course were uneventful, with complete cessation of cough and production of sputum. The pathologist (Dr. Maas), reported incomplete destruction of the main bronchus of the right inferior lobe by a foreign body with sacculated and fusiform bronchiectasis. Histological study of the foreign body showed it to be made up of striated muscle fibers with their characteristic disposition. The mass was surrounded by macrophages and lymphocytic cells. In certain fields there was marked degeneration of the muscle fibers with invasion of poly-morphonuclear leukocytes.

Summary: (1) Bronchiectasis, right inferior lobe—four years duration. (2) Lobectomy, right inferior lobe with complete cure. (3) Foreign body (muscle fibers) discovered in bronchus of right inferior lobe upon examination of specimen removed at operation. Presence of foreign body establishes veracity of patient’s statement that onset of illness dated back to the inhalation of a piece of meat four years ago.

Comments

The cause of diagnostic error in such cases is the failure to think of the possible existence of a foreign body. It is always best to allow the patient to talk of his disease even though at times his loquaciousness may distract the examiners attention. In both of the cases reported the patients knew the cause of their symptoms, but they were not heeded when they first presented themselves for treatment. In other instances the patient is unaware of the inhalation of a foreign body. There is cited the case of a man on board ship who one night while leaning against the rail, sneezed violently and he lost a denture which he thought fell in the water. Some hours later he developed an uncontrolled cough. Subsequent radiological inspection revealed the denture in a bronchus.

The Chevalier Jackson Clinic’s ample experience in this matter give several reasons for errors in diagnosis, which are good to remember, among which are: (1) Poor anamnensis; (2) Absence of history of inhalation of foreign body; (3) Failure to consider inhalation of a foreign body; (4) Erroneous belief that foreign body is
in the digestive tract and will be expelled by normal methods;
(5) Non-opaque foreign bodies.

Diagnosis: It is unnecessary to recall all the symptoms to establish the diagnosis. In the majority of cases the history is reduced to the aspiration of a foreign body, cough and suffocation. One of us (Dr. Lliamosas) always does a bronchoscopy on children with history of choking, gagging, and cough. The subsequent symptoms depend on the size, shape and character of the foreign body and the point of lodgement. If there is a foreign body involved, to think of it is to make the diagnosis.

Physical Signs: Small non-destructing foreign bodies may produce no symptoms, the initial symptoms being followed by a symptomless period. If a foreign body produces partial bronchial obstruction (check valve type—Chevalier Jackson) there is often an obstructive emphysema. In complete bronchial obstruction (stop valve type—Chevalier Jackson) there is obstructive atelectasis.

Location of Foreign Body: The Chevalier Jackson Clinic upon receiving 3,112 cases of foreign bodies in the bronchi places them as follows: 36.3 per cent in the lower right bronchus; 32.7 per cent in the lower right bronchus; 89.0 per cent in the lower bronchi.

The reasons given for the selectivity of the foreign body of the lower right bronchus are: (1) Larger diameter; (2) Minimum angulation; (3) The carina is located to the left of the mid-line; (4) Greater volume of air passes through the right bronchi.

Age Groups: Of 3,112 cases of foreign bodies reported by the Chevalier Jackson Clinic, 81.6 per cent of the cases were in patients under 15 years of age.

Length of Time Foreign Body may Remain in Bronchus: Of the 3,112 cases reported by the Chevalier Jackson Clinic, 434 had had their foreign body from two months to 40 years. In the majority of these cases the foreign body was of metallic origin. Desmeules and Richard report a case where a needle had been inbedded in the wall of a bronchus 32 years.

Types of Foreign Bodies: (1) Vegetable origin. These usually produce the severest symptoms, inasmuch as they swell when moistened and give rise to complete obstruction of the bronchus. (2) Metallic objects. These are the most frequent type of foreign body. The fact that they are radio opaque aids in diagnosis. They may become corroded after a time. (3) Bones, nuts, shells, are more irritating than metal, but less than vegetable substances. They do not give rise to complete obstruction unless they are globular in shape. Chevalier Jackson reports a case where a fragment of bone was removed after 11 years. In Case 1, the fragment of bone had been present one and one-half years. (4) Meat. In the American literature reviewed, only two cases are cited, but
ptomainotoxism was not observed. In Case 2 the morsel of meat had been present four years. (5) Tonsils. Chevalier Jackson cited a case of lung abscess in a physician's child which resolved itself after the removal of a tonsil which had been aspirated at the time of a tonsillectomy six months before. (6) Other objects. Wood, glass, rubber. Undergo little alteration.

Causes of Tissue Reaction to Foreign Bodies: (1) Mechanical due to partial or complete obstruction. (2) Chemical due to actual irritation by the foreign body, especially true of vegetable seeds. (3) Allergic, especially true in vegetable seeds. (4) Infectious, foreign body actually serves as the vehicle for the entrance of bacteria, or sets up an environment favorable to the growth of bacteria.

Recent non-obstructing foreign bodies may produce no changes other than slight inflammation at the point of lodgement. However, in those of long standing obstruction nature eventually leads to complete destruction of the bronchial tissue and the formation of septic cavities. Case 2 had undergone the latter changes, and the situation is irreparable. Only with lobectomy could a cure be effected.

Pulmonary inundation (the drowned lung of Chevalier Jackson) is produced in a few days. In such cases there is abundant bronchial suppuration, and the patient literally drowns in his own pus. However, the situation is reversible by the removal of the foreign body. Case 1 is a typical example of pulmonary inundation.

Hypertrophic Pulmonary Osteo-arthropathy. (Bamberger-Marie's Disease, Hippocratic or Clubbed Fingers). The disease is probably always secondary, the majority of the cases occurring with pulmonary disease of long standing. Our case 2 demonstrated this condition.

Prognosis: The spontaneous expulsion of a foreign body from the bronchial tree does occur at times, but it cannot be depended upon. Over 98 per cent of foreign bodies can be safely removed. Peroral endoscopic removal is the only method worthy of consideration.

The pathologic changes depend upon the location and character of the object, the length of sojourn, and whether or not there is obstruction. Obstructing foreign bodies will ultimately cause suppuration and bronchiectasis. Cure of these conditions will not usually be affected by the removal of the foreign body alone. Large obstructive foreign bodies may produce asphyxiation and death.

SUMMARY

Two cases of intrabronchial foreign bodies of long duration are described. In the first case, a piece of bone remained one and one-
half years in the bronchus of the right lower lobe with sympto-
matology of cough, fever and suppuration. With the endoscopic
extraction of the bone, rapid cessation of all symptoms was ob-
served. The bone had not suffered any change. In the second case,
a piece of meat was lodged in the bronchus of the right lower
lobe for four years producing bronchiectasis of the lobe. A lobec-
tomy cured the patient. In the histological examination, the piece
of meat (muscle fibers) was found surprisingly well conserved
after remaining four years in the lower bronchus.

RESUMEN

Se describen dos casos de cuerpos extraños intrabronquiales. En
el primer caso, se retuvo un pedazo de hueso en el bronquio del
lóbulo derecho inferior, con sintomatología de tos, fiebre y supura-
ción. Después de efectuar la extracción endoscópica del hueso, se
observó que cesaron rápidamente todos los síntomas. El hueso no
había sufrido cambio alguno. En el segundo caso, se alojó un
pedazo de carne en el bronquio del lóbulo derecho inferior du-
rante cuatro años, produciéndose la bronquiectasia del lóbulo. El
paciente quedó curado con una lobectomía. Al efectuarse el examen
histológico, se encontró que el pedazo de carne (fibra muscular)
se había conservado admirablemente bien después de permanecer
cuatro años en el bronquio inferior.

RESUME

Les auteurs décrivent deux cas de corps étrangers intra-bron-
chiques. Dans le premier cas, un morceau d’os resta un an et demi
dans la bronche lobaire inférieure droite, s’accompagnant de toux,
de fièvre, et de signes de suppuration. L’extraction par bronchos-
copie de l’os amena la cessation rapide de tous les symptômes.
L’os n’avait subi aucune altération. Dans le second cas, un morceau
de viande se situait dans la bronche lobaire inférieure droite,
depuis quatre ans, et avait entraîné une bronchiectasie de ce lobe.
La lobectomie amena la guérison. L’examen histologique montra
que le morceau de viande était admirablement conservé après être
resté ainsi quatre ans dans la bronche.

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