Spontaneous Disappearance of a Calcified Solitary Pulmonary Nodule*

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Two patients are presented who had spontaneous disappearance of a calcified solitary pulmonary nodule. The mechanism of this uncommon event is unknown, but various theories are discussed.

The incidence of solitary pulmonary nodules varies from 1 to 2 per 1,000 persons who have had an x-ray examination of the chest for various reasons. Approximately one-third of these nodules exhibit calcification. Rarely a calcified nodule may disappear spontaneously, without any history of expectoration of a broncholith. This report describes two such instances in which a calcified solitary pulmonary nodule vanished without explanation.

CASE REPORTS

CASE 1

An asymptomatic 28-year-old man was first seen at the Mayo Clinic in 1959 for evaluation of a 2 cm nodule situated in the peripheral and posterior portion of the left midlung field. The nodule had been discovered on routine x-ray examination of the chest (Fig 1 A and B). Tomography demonstrated calcification typical of granuloma. The histoplasmin skin test gave positive result and the tuberculin test a negative result.

The patient returned in 1969 after left pleural effusion developed. The effusion was minimal and did not recur after thoracentesis. No explanation could be offered for the disappearance of the nodule, noted at this time (Fig 1 C), and unfortunately no interim roentgenograms of the chest were available. Bronchoscopic examination performed because of the remote possibility that the nodule might be obscured by an atelectatic left lower lobe gave negative results. The patient could not recall coughing up anything resembling a broncholith.

CASE 2

In a ten-year-old girl treated at the Mayo Clinic in 1959

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for osteomyelitis of the femur, chest roentgenogram disclosed a 2 cm nodule in the left lower lung field posteriorly (Fig 2 A). A tomogram revealed central calcification diagnostic of granuloma (Fig 3 A). There were no pulmonary symptoms. The histoplasmin skin test showed a positive reaction, but the tuberculin test a negative reaction. No organisms could be cultured from sputum or gastric washings. A course of observation was chosen. Nine years later, she coughed up some blood together with a firm object that could not be retrieved, but that might conceivably have been a broncho-

lith. Chest roentgenogram and tomogram showed disappearance of the calcified nodule (Fig 2 B and 3 B) with faint residual infiltration. In retrospect, the chest roentgenogram taken in 1966 failed to show the calcified nodule.

DISCUSSION

Two large surveys of solitary pulmonary nodules including some with calcification have been reported, with periods of observation ranging up to four or five years. Comstock and associates traced 88 persons with solitary pulmonary nodules for an average interval of 53 months. They reported that in two cases the nodule disappeared spontaneously. No further details were given.

In 1959, Holin and associates screened 673,218 miniature films taken during a six-month period in Cuyahoga County, Ohio, and found 666 solitary pulmonary nodules. A complete five-year follow-up was possible in 575 instances (86 per cent). Sixty (9 per cent) of the nodules were thought to be tuberculomas. The authors stated that during a five-year period of observation, one-third of these nodules (20 of 60) disappeared or lost their nodular character by surgery, resolution, or spread. No mention was made as to whether or not the nodules were calcified, and specific cases were not described in any detail. Brown in 1949 and Fossati in 1951 each briefly mentioned one patient in whom a calcified tuberculoma completely disappeared. Both writers postulated that the patient coughed up the lesion although there was no definite history of this.

Campbell in 1955 described the spontaneous disappearance of tuberculomas of the lung in ten patients, four of whom had calcified lesions. It was his opinion


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that the tuberculomas were evacuated rather than re-
sorbed, and he offered as evidence the observation of a
“thin-walled space” in two patients prior to disappear-
ance of the nodule. None of his ten patients had received
any specific treatment for tuberculosis. All were asym-
ptomatic except for one patient in whom active disease
developed while the pulmonary nodule was disappear-
ing. Campbell postulated that some lesions underwent
liquefaction, established a communication with the
bronchial tree, and ultimately were evacuated in a liquid
or semiliquid state.

There are a number of possible explanations for the
spontaneous disappearance of a calcified solitary pulmo-
nary nodule. Expectoration of a solid concretion such as
a broncholith is usually a dramatic event, but may
occasionally pass unnoticed. However, in both patients
presented here the nodules were located far peripherally,
in areas where the bronchi hardly seemed large enough
to permit egress of the nodule via the air passages. We
speculate that the “firm object” coughed up by the
second patient was a small hilar broncholith and that it
did not represent the more peripheral lesion seen in the
roentgenogram of the thorax. It is difficult to envision
liquefaction of a firmly calcified nodule with ultimate
symptomless endobronchial evacuation. Resorption is
another possibility. The lesion might become bacteriolog-
ically active and in some way stimulate the defense
mechanisms of the body, with resorption the end result.
A fourth possibility exists for the first case recorded
here, and that is that the nodule may have eroded
into the pleural space producing pleural effusion, pos-
sibly on a “hypersensitivity” basis. This, too, is only
conjecture. Still other possibilities include engulfment
of the nodule by a neoplasm, or development of atelectasis
of that portion of the lung containing the nodule, with
resultant displacement and concealment of the lesion.

Spontaneous disappearance of a calcified granuloma
of the lung is uncommon, considering the prevalence of
these lesions. Those described in the literature have all
been thought to be calcified tuberculomas. In contrast,
our two patients probably had granulomas caused by
Histoplasma capsulatum. Nevertheless, the mechanism
of disappearance of a granuloma is probably the same
regardless of the causative organism.

Obviously, quite often the exact mechanism of spon-
taneous disappearance of a calcified pulmonary nodule
cannot be ascertained. The purpose of this report has
been to draw attention to this fact.

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