

established CD4 suppression the incidence of new cases of sarcoidosis might be low. The current epidemic of HIV infection should provide an opportunity for the study of these questions. The number of reports of cases in which both diseases have been diagnosed (about a dozen) is smaller than might be expected from their incidences and in view of the interest of the association between them. It is difficult to draw conclusions from these cases: many provide no information about the long term course and in two which ended fatally^{4,5} no necroscopic examination was performed.

Answers to several questions are desirable. Does the incidence of new cases of clinical sarcoidosis in those with established HIV infection differ from that in the general population? An epidemiological study to answer this question would be difficult to organise, expensive, and an unjustifiable addition to the

burden of those dealing with the AIDS epidemic. What is the clinical course of such patients? What happens to patients with established sarcoidosis who acquire HIV infection as their lymphocyte counts fall? These questions might be answered by central collation and follow up of all detected cases so that they could be critically analysed as a group. It should not be impossible to organise such a study.

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Transphrenic dissemination of actinomycosis

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Abstract

Thoracic actinomycosis is an uncommon disease and often presents difficulty in diagnosis. Two cases are presented in which thoracic actinomycosis produced fistulae between the thoracic and abdominal cavities. Surgical drainage and high dose penicillin for at least 4-6 months was the treatment of choice.

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Actinomycosis is an infectious disease caused by a facultative anaerobic Gram positive micro-organism, usually *Actinomyces israelii*. We describe two patients with thoracic actinomycosis in which transphrenic spread of the disease played a major part.

Case histories

CASE 1
This patient, a 50-year old man, was seen with a four month history of pain in the right side of the chest. Physical examination and chest radiography showed no abnormalities. An abscess developed just below the right nipple. No healing was seen after several drainage

procedures and the patient became increasingly unwell. Bronchoscopic examination repeatedly showed white tissue fragments in the medial segment of the middle lobe. A computed tomographic scan showed a right hilar mass with extension into the chest wall and a connection to a mass situated ventrally to the liver. Multiple fistulae later occurred in the right chest and abdominal walls. The liver showed indentation with a subphrenic abscess (fig 1).

Actinomyces israelii was isolated from cultures from the second bronchoscopic examination. Antimicrobial therapy was started with penicillin G (12 megaunits intravenously every 24 hours). The subphrenic abscess was opened through a right subcostal incision and the various fistulae were extensively cleansed and an irrigation system inserted into the phrenic cavity. Daily washings were performed and 0.5 megaunits of penicillin were instilled on each occasion.

After a postoperative period of two weeks the patient was discharged with continued anti-

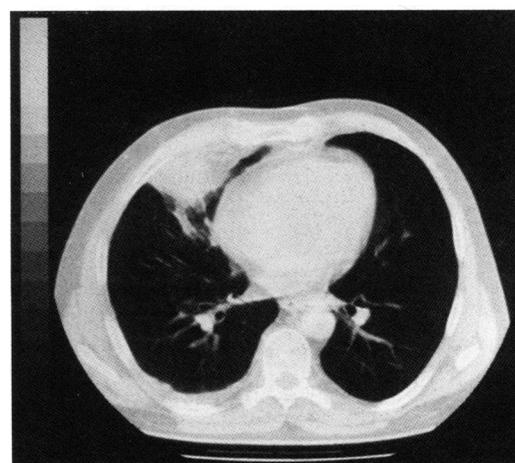


Figure 1 Computed tomographic scan of case 1 showing a subphrenic abscess along with infiltrative defects of the right chest wall.

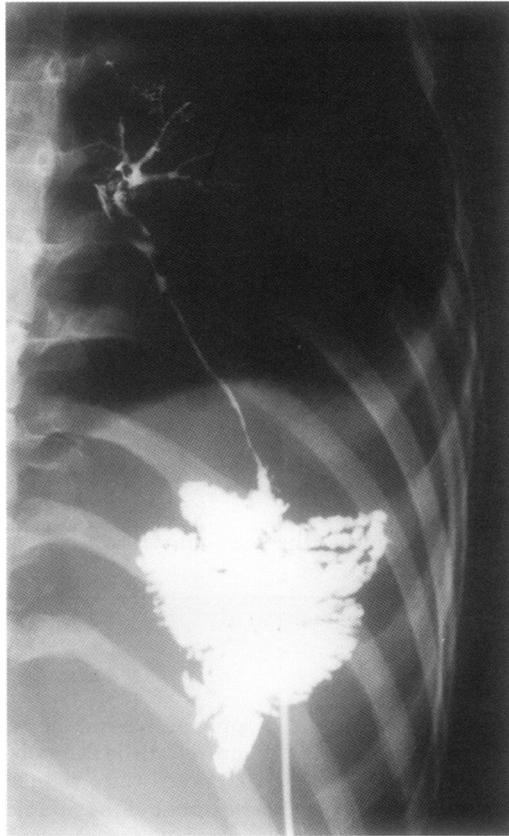


Figure 2 Fistulogram from case 2 demonstrating an abscess cavity of the left liver lobe which fistulated to the branches of the right bronchial tree.

biotic medication for six months consisting of amoxicillin 1 g four times daily and metronidazole 500 mg three times a day.

CASE 2

This 21 year old woman presented with a two week history of cough. One week earlier she had developed a progressive pain related to inspiration localised to the right anterior chest. Chest radiography revealed a right sided pleural effusion. Pleural aspiration produced 750 ml of a straw-coloured fluid. Six weeks later bronchoscopic and pleural biopsies showed no abnormalities.

During this time she developed abnormal liver function tests and a liver scan demonstrated a space-occupying lesion at the cranial side of the left liver lobe. Needle biopsy from this area revealed old blood and yellow-greyish necrotic material. Eventually, histological examination yielded the diagnosis as liver abscess due to *Actinomyces* and a fistulogram confirmed the presence of the cavity found by the scintigraphic scan. Two weeks later a second fistulogram revealed a track from the abscess cavity to the branches of the right bronchial tree (fig 2) and shortly afterwards the patient developed a small skin fistula.

The patient was treated with intravenous penicillin G (4 megaunits every 24 hours). The abscess was surgically drained and the cavity was flushed regularly with normal saline and

1 megaunit of penicillin G. After one week antibiotics were continued orally as two tablets of phenoxymethylpenicillin 625 mg four times a day and probenecid 500 mg twice daily.

A five month course of penicillin effected a complete cure and she was discharged after a further short period of follow up.

Discussion

Actinomycosis is an uncommon infection, occurring in general in patients between 30 and 60 years of age; men outnumber women by 4:1.^{1,2} In the chest, the lungs, pleura, mediastinum or chest wall may be affected, simulating a variety of pulmonary conditions.^{3,4}

A thoracic infection is generally the result of aspiration of infectious material from the oral cavity, as in case 1. By direct extension, with total disregard for anatomical boundaries or by sinus formation, the thoracic infiltrates may find their way to the chest wall. Case 1 had a poorly described subphrenic dissemination of the disease. Initially, case 2 also presented with pulmonary complaints, and the primary focus seemed to be in the right bronchial tree with secondary dissemination to the liver. An ultrasound or CT scan of the abdomen should therefore be regarded as an important part of the assessment of an unexplained pleural effusion.

If sulphur granules are seen in the material diagnosis can be made by light microscopy. They are typically greyish to yellow coloured *Actinomyces* granules. The lesions may be extensive, yet the number of organisms within the purulent material may be small due to their concentration within the granules, safely hidden in the indurated tissue.⁵ Thus, ample purulent material should be obtained to increase the chances of detecting and culturing these granules. Isolation of *Actinomyces* may be difficult as these microorganisms grow slowly under microaerophilic or anaerobic conditions. Moreover, the specimens are often contaminated with other microorganisms originating from the oral flora.

Actinomyces israelii is sensitive to most antibiotics. Penicillin is the antibiotic of choice and should be given in high dosages for six weeks to one year depending on the effect.⁶ In addition, and subject to the extent of the process, surgical intervention should also be considered. In both our patients surgical drainage was performed, combined with penicillin treatment.

Since *Actinomyces* infections tend to recur, protracted treatment is necessary and allows most patients to have a favourable prognosis.

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