SHORT REPORT

Pancoast's syndrome secondary to lung infection with cutaneous fistulisation caused by *Staphylococcus aureus*

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J Clin Pathol 2006;59:997-998. doi: 10.1136/jcp.2005.029421

Apical bronchial carcinoma is the most common cause of Pancoast's syndrome. Of the many other causes reported, infection is a rare one. A literature review is presented and a case of Pancoast's syndrome, secondary to apical lung pneumonia with bronchocutaneous fistulisation caused by *Staphylococcus aureus* infection, is reported. Clinical and radiological resolution was achieved after treatment with antibiotics.

Pancoast's syndrome was first described in 1932 as a combination of signs and symptoms, including shoulder and arm pain, Claude Bernard-Horner's syndrome, bone destruction or atrophy of the hand muscles. Nowadays, the term Pancoast's syndrome is, in fact, applied to any apical bronchial carcinoma accompanied by shoulder or arm pain on the same side. Primary lung malignancy is the most frequent aetiology,¹ but other causes must be considered, including metastasis from a distant cancer, benign tumours or haematological malignancies.² Infection is a rare but treatable aetiology. Therefore, a histopathological diagnosis is mandatory.

We present the case of a patient with Pancoast's syndrome and bronchocutaneous fistula caused by *Staphylococcus aureus* infection.

CASE REPORT

A 59-year-old man was admitted to the hospital because of left shoulder pain, low-grade temperature, a productive cough and an abnormal chest radiograph. He had a 1-month history of night sweats, low-grade temperature and cough, with occasional blood-stained sputum. Two weeks before admission, the patient had severe pain over the left scapula radiating to the arm. A few days before admission, he developed a productive cough with purulent sputum. He denied weight loss or anorexia. He had chronic bronchitis that had never required oral steroid treatment. He smoked 40 cigarettes a day and had a regular-moderate alcohol intake.

On examination, he appeared acutely ill and sweating, but did not have a fever. End-respiratory wheezes were heard in both lung fields. Heartbeats were regular, with no added sounds or bruits. Both pupils were equal in size and reactive to light. Pinprick sensation on the left arm was decreased. The lymph nodes were not enlarged and finger clubbing was not present. A chest radiograph showed a mass on the left apex (fig 1).

The results of laboratory tests were as follows: erythrocyte sedimentation rate 77 mm at the end of the first hour; white cell count $31.1 \times 10^9/l$ (91% polymorphonuclear cells); haemoglobin 166 g/l; platelets $619 \times 10^9/l$; arterial blood gases, glucose, urea and electrolytes and liver function tests were normal; anti-HIV antibodies were not found.

At entry, empirical antibiotic treatment (amoxycillin/clavulanate at 1.5 g/day oral) was started and the patient needed analgesics (morphine) and non-steroidal anti-inflammatory drugs (diclofenac sodium) to control pain. Two days after admission, he complained of worsening pain over the left scapula. Careful examination disclosed a swollen mass on his back extending from thoracic to lumbar level, with crepitation. A computed tomographic scan of the thorax showed an irregular and cavitated opacity on the left apex, fistulising to the posterior thoracic wall; oedema and air within the paravertebral muscles extending from thoracic to abdominal level; and no major lymph node enlargement (fig 2). Bronchoscopy showed normal bronchial tree. Bronchoalveolar lavage was negative for malignant cells and cultures for bacteria, fungus, *Mycobacterium tuberculosis*, *Nocardia* and *Actinomyces* were negative. A computed tomographic-guided needle aspiration of the paravertebral mass was carried out. We obtained an exudate that grew a pure culture of *S aureus* (sensitive to amoxycillin/clavulanate). *Nocardia*, *Actinomyces* and *M tuberculosis* were absent.

On the patient's second day in hospital, the dose of antibiotic was increased to 6 g/day intravenous, which was maintained for 3 weeks, followed by oral treatment for 5 weeks more. The clinical response of the patient was very good, with rapid amelioration of the pain and a decrease in the size of the paravertebral mass. Radiograph of the chest and computed tomographic scan of the thorax 6 months later showed an almost complete clearing of the lesions, with a persistent mild pleural thickening.

DISCUSSION

Causes of Pancoast's syndrome not related to malignancy, although rare, are recognised. Among the benign conditions causing Pancoast's syndrome, infections are extremely rare. Reports of isolated cases caused by fungus (*Aspergillus*),³

Figure 1 Mass on the left apex.

Figure 2 Irregular and cavitated opacity on the left apex, fistulising to the posterior thoracic wall; oedema and air are within the paravertebral muscles.

*Cryptococcus*⁴), tuberculosis⁵ and even parasitic infections (hydatid disease) are found in the literature. Occasionally, bacterial aetiology has been reported (*S aureus*,⁶⁻⁷ *Pseudomonas* spp,⁸ *Actinomyces*). The most common organisms are *Cryptococcus*, *Actinomyces* and *Aspergillus*, which commonly present a subacute clinical course. Gallagher *et al*⁶ reported a case of Pancoast's syndrome caused by fibrosing reaction precipitated by infection with *S aureus*. Silverman and MacLeod⁷ described a patient with Pancoast's syndrome caused by *S aureus* pneumonia with pleural effusion, presumed to be bloodborne from a diabetic foot ulcer.

Bronchocutaneous fistula is an infrequent condition usually affecting patients with predisposing pleuropulmonary diseases (tuberculosis, radiotherapy). Cases of infective aetiology (tuberculosis, aspergillosis, actinomycosis, *S pneumoniae*⁹) have been reported. No previous reports of bronchocutaneous fistula caused by *S aureus* infection, without previous thoracic surgical procedure, have been found in the exhaustive literature review (Medline, March 2005). The options reported range from conservative approaches (intralesional or systemic antibiotics, instillation of fibrin glue) to surgery.¹⁰

In our patient, malignancy can be ruled out because of both the negative histological evidence and also clinical and radiological improvement by treatment with only antibiotics. Moreover, culture showed a pure and profuse growth of *S aureus* and was negative for other more commonly reported pathogens. To our knowledge, this is the first reported case of Pancoast's syndrome and bronchocutaneous fistula caused by *S aureus*, with clinical and radiological resolution by treatment with antibiotics.

Take-home messages

- A case of Pancoast's syndrome secondary to apical lung pneumonia with bronchocutaneous fistulisation due to *Staphylococcus aureus* is reported.
- Infection is a very rare but treatable aetiology of Pancoast's syndrome. Therefore, histopathological diagnosis of patients with lung apical masses causing Pancoast's syndrome is mandatory.
- Bronchocutaneous fistulisation may cure with antibiotic therapy.

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Competing interests: None declared.

Informed consent was obtained for publication of the patient's details described in this report.

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Accepted for publication 8 June 2005

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