A Rare Cause of Arm and Shoulder Pain in an Eight-Year-Old Girl: Pancoast’s Syndrome Secondary to Lobar Pneumonia

Conflict of interest: No conflicts of interest declared.

Dear Editor,

Pancoast’s syndrome consists of pain in the arm and shoulder, atrophy of hand muscles, and Homer’s syndrome [1]. The initial symptom of Pancoast’s syndrome generally is pain in the shoulder. In some patients, only partial characteristics could be observed. It occurs mainly in patients with a superior pulmonary sulcus tumor invading the lower brachial plexus roots and the cervicothoracic sympathetic chain. However, infectious causes of Pancoast’s syndrome have been reported in the literature. Here, we report a case of Pancoast’s syndrome secondary to lobar pneumonia caused by Klebsiella pneumoniae in an 8-year-old Uygur girl who developed typical pain in her arm and shoulder.

An 8-year-old Uygur girl with a 5-day history of intermittent fever, 3-day of productive cough, 2-day of right shoulder and scapula pain, and dyspnea was admitted to a pediatric ward in Shufu County People’s Hospital. The right shoulder pain was exacerbated while the arm is being lifted and would radiate to the right upper arm. She reported no other neurological symptoms. She could sleep only in semi-reclining position because of dyspnea at night.

Physical examination was as follows: She was febrile. Body weight was 20 kg. Pulse rate was 110 beats per minute. Respiratory rate was 36 breaths per minute. There
was no subcostal indrawing or cyanosis. Decreased breath sounds were heard over the upper zone of the right hemithorax. There was obviously tenderness on palpation in the right shoulder and upper arm. She could not lift her right upper arm properly because of obvious pain. All of her extremities did not reveal swelling, deformity, or injury. Homer’s syndrome was not detected, and the remaining examination was unremarkable.

CBC showed WBC count of $10.7 \times 10^3$/mcL ($10.7 \times 10^9$/L) with neutrophils (60%), Hgb of 12.2 g/dL (122 g/L), and platelet count of $170 \times 10^3$/mcL ($170 \times 10^9$/L). Liver function, renal function, and myocardial enzyme were all in normal range. Erythrocyte sedimentation rate was 84 mm/h (normal range 0–20 mm/h). C-reactive protein was 26.48 mg/L (normal range 0–8.2 mg/L). Rheumatoid factor was 0.54 IU/mL (normal range 0–30 IU/mL). Anti-streptolysin-O was 742.55 IU/mL (normal range 0–200 IU/mL). Mycoplasma pneumoniae IgM serology was negative. Anti-HIV antibody was normal. Her chest radiograph demonstrated a right upper lobe consolidation on admission (Figure 1A).

The patient was treated empirically with intravenous cefoperazone (100 mg/kg/day) and intravenous dexamethasone (5 mg/day) at first. On day 2, the fever subsided. The respiratory condition got better day by day. On day 3, bacterial culture of sputum grew *Klebsiella pneumoniae* (sensitive to cefoperazone), and repeated chest film showed obvious resolution of right upper lobe infiltrates (Figure 1B). The right shoulder and scapula pain was totally relieved. Thus, intravenous dexamethasone was changed into oral prednisone (5 mg/day) for 3 days. After 7 days intravenous cefoperazone therapy, the girl was discharged and the antibiotic was changed to oral cefuroxime (500 mg/day) for 7 days. Because of markedly elevated anti-streptolysin-O, we prescribed 1,200,000 IU benzathine benzylpenicillin for intramuscular injection on the day of discharge. Four days after discharge, chest film showed marked improvement of the right upper lobe consolidation (Figure 1C). Two weeks after discharge, the girl totally recovered without sequelae on follow-up.

Under the combination therapy of antibiotic (cefoperazone) and low-dose corticosteroid (dexamethasone), both clinical manifestation and radiological finding got improvement dramatically. *Klebsiella pneumoniae*, with a thick mucoid capsule, could cause refractory infection and is best treated with third- or fourth-generation

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**Figure 1** A. Chest radiograph showing right upper lobe consolidation on admission. B. Chest radiograph showing partial resolution of the right upper lobe consolidation after 3-day therapy. C. Chest radiograph showing marked improvement of the right upper lobe consolidation after 11-day therapy (4 days after discharge).
cephalosporins, such as cefoperazone in this case. Because the girl’s lobar pneumonia is very severe, we add dexamethasone into the treatment regimen as it can reduce the length of hospital stay when added to antibiotic treatment in non-immunocompromised patients with community-acquired pneumonia [2].

Based on the characteristic and distribution of pain, and it was totally relieved with the resolution of right upper lobe infiltrates, it is undoubted that the right brachial plexus root was irritated by the inflammation of the right lung. There have been three cases of Pancoast’s syndrome caused by infectious disease without Homer’s syndrome, and all of them have pain in the arm or shoulder [3–5].

It is rare for Pancoast’s syndrome to be caused by infectious disease, and there are only 35 cases reported in the English literature. The pathogenic organisms included Echinococcus sp. (11 cases), Staphylococcus aureus (8 cases), Mycobacterium tuberculosis (3 cases), Actinomycete (3 cases), Aspergillus (2 cases), Mucor (2 cases), Allescheria boydii (1 case), Nocardia asteroides (1 case), Cryptococcus neoformans variety gattii (1 case), Pasteurella multocida (1 case), Pseudomonas aeruginosa (1 case), and unknown (1 case). Most of the cases were adults (33 cases); and there is only one case for teenager and infant each. Male patients (20 cases) outnumbered female patients (15 cases). Among the 35 cases, 31 cases have been reviewed by Heath D. White, who indicated that Pancoast’s syndrome secondary to infectious causes may be more common than previously reported [6].

To the best of our knowledge, this is the first reported Pancoast’s syndrome secondary to lobar pneumonia caused by Klebsiella pneumoniae in a school-aged child. Pancoast’s syndrome is a rare cause of arm and shoulder pain, which should be taken into consideration in clinical practice.

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References


Re: Are Peripheral Pain Generators Important in Fibromyalgia and Chronic Widespread Pain?

Dear Dr. Gallagher,

We appreciated Dr Gerwin’s editorial [1] reflecting on the interesting Albrecht et al. study “Excessive peptidergic sensory innervation of cutaneous arteriole–venule shunts (AVS) in the palmar glabrous skin of fibromyalgia patients: Implications of widespread deep tissue pain and fatigue” [2].

Dr. Gerwin summarizes the findings by Albrecht et al. [2]—“that changes in blood flow and increased thermal sensitivity may each contribute to local palmar pain”—and asserts that thereby “they contribute to peripheral nerve sensitization which gives rise to local pain as well as contributing to central sensitization and central pain.” In the article we could not find the evidence for this assertion, which is notable for proclaiming that peripheral nerve...