A case of pulmonary actinomycosis in a patient with systemic lupus erythematosus

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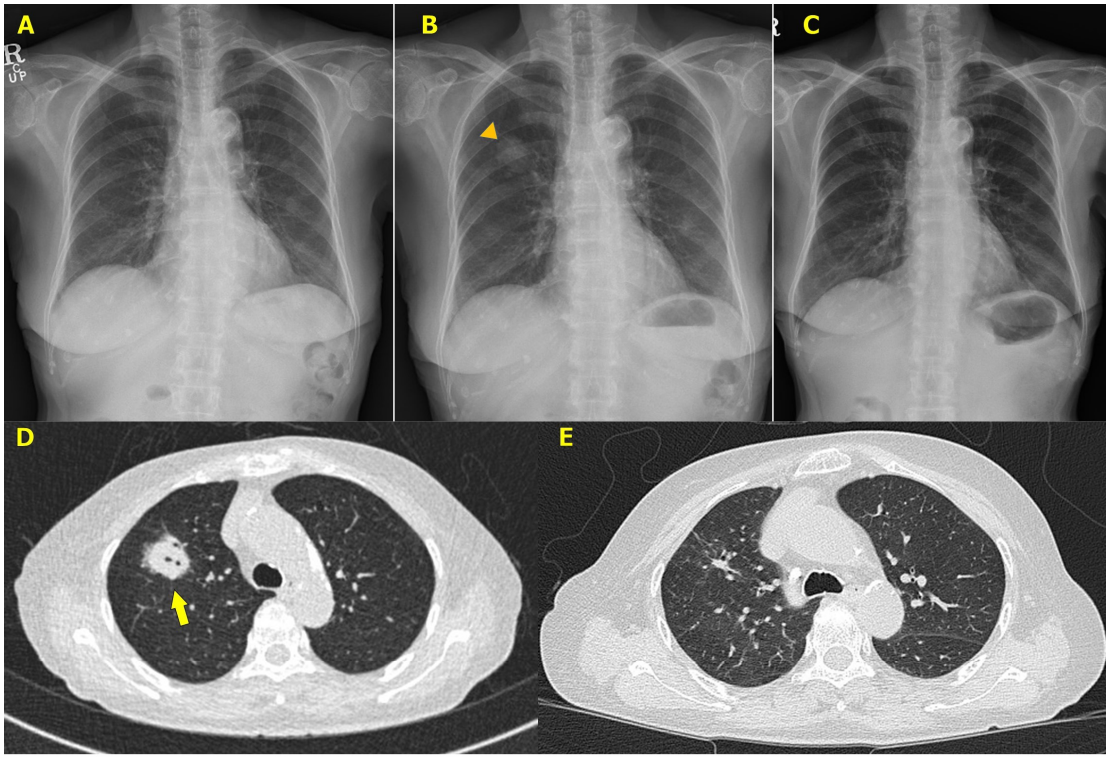
Background: Pulmonary actinomycosis is a rare disease that is difficult to diagnose. Even among experienced physicians delayed diagnosis or misdiagnosis as tuberculosis, lung abscess or lung cancer is common. We present a case of pulmonary actinomycosis that is diagnosed by histologic examination and culture.

Case presentation: A 76-year-old female with hypertension, diabetes and dyslipidemia visited the hospital complaining of shoulder pain for six months and skin rash for 15 days. With an ANA titer of 1:5120, Anti-dsDNA(+), low C3(67.9mg/dL), C4(9.56mg/dL), arthritis and cutaneous lupus, she was diagnosed with systemic lupus erythematosus. With the administration of methylprednisolone and hydroxychloroquine, her shoulder pain improved. Two weeks later, leukocytosis, CRP elevation and a lung mass on the chest X-ray(Figure A, B) were noted without fever, cough or sputum. Chest CT revealed nodular consolidation with cavitary change in the right upper lobe(Figure D), suggesting fungal pneumonia. However, Aspergillus galactomannan antigen and beta-D glucan test were negative. Using fiberoptic bronchoscopy, bronchoalveolar lavage(BAL) and transbronchial lung biopsy were performed. The histologic examination showed no fungal hyphae. Instead, actinomycosis or bacterial colony was suspected in the Gram(Brown-Brenn) staining. In the BAL fluid culture, Actinomyces sp. was identified. After diagnosing pulmonary actinomycosis, oral augmentin was prescribed and continued for 9months. During the follow-up, the lung mass decreased and resolved in the serial chest X-ray(Figure C, E).

Discussion: Immunosuppression state such as diabetes mellitus, steroid use, alcoholism, or organ transplant is known as a risk factor of actinomycosis infection. However, recent case reports were mostly in immunocompetent people. As clinical and imaging features are non-specific and non-diagnostic, the diagnosis is usually confirmed by surgical, percutaneous or bronchoscopic biopsy. Indolent or chronic course, mass-like lesion, progression through tissue planes, and refractory or relapsing infection after a short course of antibiotics are key features to the clinical suspicion of actinomycosis.



A. Chest X-ray, Initial ; B. Chest X-ray, 2 weeks after steroid therapy ; C. Chest X-ray, 1 month after augmentin therapy ;
D. Chest CT, 2 weeks after steroid therapy ; E. Chest CT, 7 months after augmentin therapy
Arrowhead: lung mass ; Arrow: nodular consolidation with cavitary change