



Descending Necrotizing Mediastinitis Mimics Upper Respiratory Tract Infection

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Case Presentation

A 46-year-old man having a sore throat and cough without fever for 2 weeks, who did not have a previous history of systemic diseases, was diagnosed as having nasopharyngitis at a local medical clinic. However, his sore throat aggravated and he developed persistent dull chest pain without cold sweating 2 days before his visit to our emergency department (ED). He had visited another hospital complaining of the same symptoms 1 day before presentation at our ED; however, his symptoms did not show any improvement. Furthermore, hematologic and radiographic examinations performed at the other hospital revealed no abnormalities.

The initial vital signs of the patient on arrival at our ED were as follows: temperature, 37.6°C; blood pressure, 96/61 mmHg; pulse, 93 beats/min; and respiratory rate, 10 breaths/min. Laboratory findings, including electrocardiogram recordings and cardiac enzyme levels, were within normal limits, except for elevations in C-reactive protein (34.862 mg/L) and white blood cells (17430/ μ L; neutrophils, 86.0%; lymphocytes, 7.0%; platelets, 210000/ μ L). Chest X-ray revealed an abnormal paratracheal air density on the left side (Fig. 1). Neck and chest computed tomography (CT) scans were performed; the scans revealed fluid collection and air pockets in the retropharyngeal and paravertebral regions (C4-T8) with rim enhancement, with the widest diameter measuring approximately 4 and 3 cm in the deepest region, as well as anterior displacement of the esophagus (Fig. 2).

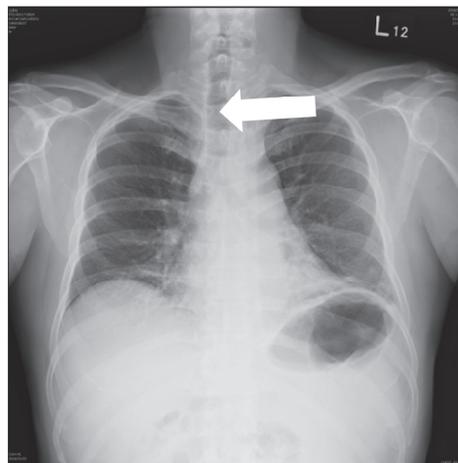


Fig. 1. X-ray imaging showing air density on the left side of the para-tracheal space (arrow).

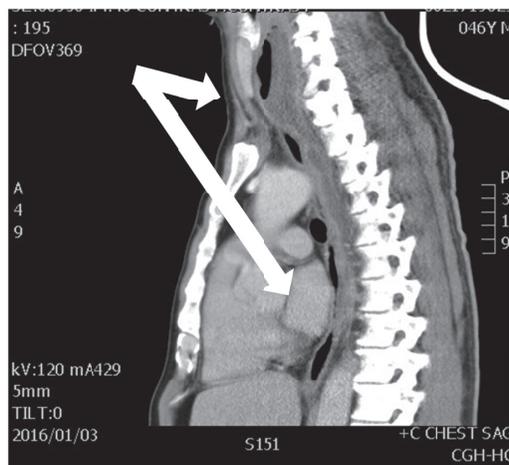


Fig. 2. Abscess located in the retropharyngeal and prevertebral regions (arrows).

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Surgery was performed immediately under the suspicion of deep neck infection with descending necrotizing mediastinitis (DNM). We observed approximately 60 and 30 mL of pus in the deep neck and posterior mediastinum, respectively. Pus culture results revealed *Streptococcus constellatus* infection, and blood cultures were negative. Empiric antibiotics, such as rocephin and metronidazole, were administered to the patient intravenously after the surgical intervention. The patient was discharged 3 days after surgery without further complications.

Discussion

DNM is a severe infective disease with a high mortality rate ranging from 24% to 40%.^{1,2} The route of infection is through the para-tracheal; lateral pharyngeal, also referred to as the perivascular dead space; or retropharyngeal region into the mediastinum. Individuals with diabetes, cancer, and alcohol and drug abuse form the high-risk groups for DNM.^{3,4} The most common origin of infection is odontogenic infection; however, pharyngeal, neck, and iatrogenic cervical infections have also been reported.^{2,3} Ridder et al. found that most DNM cases are caused by a mixed population of aerobic and anaerobic bacteria such as *Streptococcus* spp. and *Bacteroides* spp., respectively.² The common symptoms include fever (91.6%), dysphagia (75%), asthenia (66.6%), dyspnea with orthopnea (58.3%), and chest pain (50%).⁵ However, our patient presented only chest and throat pain without toxic symptoms. Therefore, CT should be performed if DNM is clinically suspected or abnormal findings are obtained in radiographic studies.

The immediate recognition of DNM can be

challenging because its symptoms and signs are not specific. In addition, the infection often remains clinically silent for a long period or the symptoms may be masked by analgesics, resulting in delayed diagnosis or misdiagnosis. The mean time from symptom onset to appropriate admission was 7 days, and the mean time between admission and diagnosis was 48 hours. The diagnostic delay was associated with difficulties in clinical diagnosis.⁵ Therefore, we suggest that an accurate diagnosis of DNM can be achieved by considering symptoms such as acute chest pain, fever, and prolonged upper respiratory tract infections along with careful interpretation of chest or neck X-ray.

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