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Case report

A case of mediastinitis accompanied with hyperosmolar nonketotic coma

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ABSTRACT

Mediastinitis is a serious infection involving mediastinal spaces after cervical infections spread along the facial planes. A late diagnosis of mediastinitis may result in death. Here we present a diabetic patient suffered from mediastinit accompanied with hyperosmolar nonketotic coma. A 61 years old male patient with type 2 diabetes was admitted to our hospital, with complaint of generalized worsening and fever. A diagnosis of nonketotic hyperosmolar coma was done and proper treatment started immediately. Neck tomography revealed abscess formation in the upper mediastinum. The needle aspirat culture failed to show bacterial growth. After five days of antibiotic treatment the patient's symptoms resolved. The abscess formation and pleural effusion almost disappeared on control tomography. No similar case presentation was seen in the current literature. Apart from this case, mediastinit should be keep in mind when a patient suffered from dysphagia, fever and cervical swelling.

1. Introduction

Mediastinitis is a serious infection involving mediastinal spaces after cervical infections spread along the facial planes, operations via sternotomy, endoscopic instrumentation, or blunt or penetrating trauma. Its most severe form, descending necrotizing mediastinitis following deep neck infections, is a rare but potentially fatal complication. It can be misdiagnosed due to its rarity. A late diagnosis of mediastinitis may result in death. Management aiming for surgical drainage in addition to antibiotherapy is necessary.[1] Here, we report a 61 years old male accompanied with mediastinit due to fish bones and treated successfully with antibiotics.

2. Case presentation

A 61-year-old male diabetic patient was admitted to the emergency department with complaints of generalized worsening, fever, dysphagia and cervical swelling for 7 days. He had a history of impacted fish bones in his throat one week ago. He was examined by the endoscopist and given oral antibiotics but no improvement was observed. Physical examination revealed dysphagia, dysphonia, and cough, in addition to deterioration of general condition. The patient's body temperature was 39 °C. Laboratory tests showed a white blood cell count of 18,900/mm^3, a hemoglobin level of 11.3 g/dL, CRP 64 ng/ml (normal range 0–5), plasma glucose level 680 mg/dl, pH:7,4 and plasma osmolarity 320 mOsm/kg. He was diagnosed as nonketotic hyperosmolar coma and taken into the intensive care unit. Intravenous insulin and % 0,9 NaCl administered immediately with a wide spectrum prophyactic antibiotic, ceftriaxon 2 gr/day intravenously. His fever was remained high after three days. A neck ultrasound examination, due to neck pain, revealed an abscess formation in the upper mediastinum with a close relation to thyroid gland. A cervicothoracic computed tomography (CT) revealed gas and abscess formation in upper mediastinum on the both side of the neck and pleural effusion in the both hemithorax (Fig. 1). Gram stain of the needle aspiration in his neck showed polymorphonuclear leukocytes existence, and no bacteria. The needle aspirat culture failed to show bacterial growth. Thus, ceftriaxon was discontinued and meropenem 3 gr/day intravenously was started. After five days of antibiotic treatment the patient's symptoms resolved. A control cervicothoracic CT was taken on 10th day. The abscess formation and pleural effusion almost disappeared (Fig. 2). Fifteen days following admittance, the patient was discharged.

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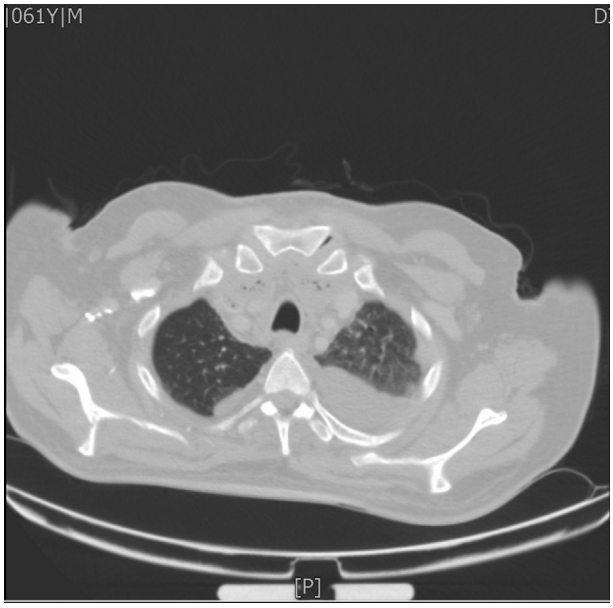

Fig. 1. Cervicothoracic CT showing gas and abscess formation in upper mediastinum on both sides of the neck and pleural effusion in both hemithorax.

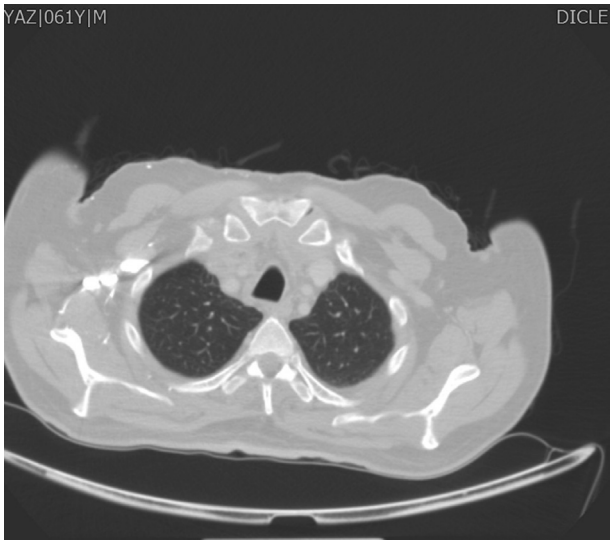

Fig. 2. Disappearance of abscess formation and pleural effusion on cervicothoracic CT.

3. Discussion

Mediastinitis is an uncommon, acute, polymicrobial infection of the mediastinum that can develop rapidly after an oropharyngeal or esophageal infection spreading to the mediastinum.[2] If esophagus lacerations remain untreated, then cervical soft tissue mediastinitis, pleuritis develop, followed by sepsis and death. Mortality rates ranges from 16% to 80%.[3,4] Esophageal injuries almost require surgical correction; however, small esophageal tears may occasionally be managed expectantly. Several factors suppressing the body defense contribute to the pathogenesis of this life-threatening disease, such as poor physical status, malnutrition, diabetes mellitus, alcoholism, immune deficiency, metabolic disorders, and drug addiction. Signs include an acutely ill-appearing patient with fever, subcutaneous or mediastinal emphysema, tachycardia, tachypnea, vomiting, and dysphagia A polymicrobial infection from the oral flora is common. Among aerobes, streptococci are the most common, and found in more than half of the cases. No bacterial agent from the isolates infers that they have no role in the development of the disease.[5]

The infectious process reaches the upper mediastinum within the first two or three days as a result of extension. This makes surgical intervention essential to management. The suggested criterion for the diagnosis of mediastinitis is as follows: severe oropharyngeal infection, radiographic evidence of mediastinitis, perioperative confirmation of both infections, and the establishment of a relation between oropharyngeal infection and mediastinitis. Specific clinical symptoms of mediastinitis, including dyspnea, dysphagia, pain, cough, fever, and swelling in the neck, which were observed in the presented case. Radiological tests, mediastinal widening, mediastinal emphysema, displacement of the tracheal air column and unilateral or bilateral effusions are easily observed in the chest x-ray. Cervicothoracic CT reveals changes in soft tissues and confirms the diagnosis. CT examination showed the infection in the parapharyngeal space and anterior mediastinum via the pretracheal space in the presented case. CT determines the spread of the inflammatory process into the cervical and mediastinal area.[6,7] In our patient, the CT scan showed free air in the mediastinum and pleural fluid collections. Treatment of mediastinitis consists of broad-spectrum antibiotic therapy and early drainage of the mediastinum and pleural cavity to remove the cause of infection. Once it is diagnosed, antibiotic treatment should be initiated. In the present case, no agents were isolated in the specimen obtained by mediastinal drainage due to previous antibiotherapy. Antibiotic therapy is selected to treat both aerobic and anaerobic bacteria and continued for 21 days. Our case has several clinical importances. First the mediastinitis due to fish bones are very rare. The second, patients with mediastinitis are almost undergo a surgical intervention, our patient was improved without any surgical process. The third, mediastinitis had been overlooked in the previous hospital admissions and the diagnose was done after presentation with nonketotic hyperosmolar coma. In conclusion, prompt diagnosis, control of the infection, and careful management can save a patient with mediastinitis, in spite of its high mortality rate. Intravenous antibiotics are a crucial part of this treatment to prevent possible sepsis.

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