Abstract

We present a case of an 88-year-old female with a history of tuberculosis, who was transferred to our hospital due to the sudden onset of epigastralgia and back pain. A chest X-ray demonstrated a bilateral shadow of the upper lung, which suggested the history of tuberculosis. A computed tomography scan demonstrated a large amount of hematoma from the neck to mediastinum and leakage of contrast medium around the distal aortic arch. We diagnosed rupture of thoracic aortic aneurysm, and selected conservative treatment. The patient was intubated under sedation and blood pressure was controlled with vasodepressors. The patient was completely off the ventilator after 65 days of disease, and the patient was discharged after 4 months. This is the first successful case of conservative therapy for ruptured thoracic aortic aneurysm.

Keywords: Rupture of thoracic aortic aneurysm; Tuberculosis; Conservative treatment

1. Introduction

Rupture of an aortic aneurysm represents a life-threatening condition. Most patients die within 6 h after rupture [1]. In such cases, emergency surgery is performed in general; however, the mortality is high [2,3]. There have been no reports about conservative therapy for rupture of aortic aneurysm. Furthermore, tubercular involvement of blood vessels is a rare phenomenon [4—7]. Herein, we report a successful case of conservative therapy for a ruptured thoracic aortic aneurysm with a history of tuberculosis.

2. Case report

An 88-year-old female with history of hypertension and chronic atrial fibrillation was transferred to the emergency department with sudden onset of epigastralgia and back pain. On arrival, her blood pressure (BP) was 135/92 mmHg, heart rate was 92 beats/min and the temperature was 36.6 °C. Her abdomen was soft, with slight tenderness and no peritoneal signs, and her neck was swollen. Electrocardiogram showed atrial fibrillation and no evidence of myocardial ischemia. Laboratory findings showed that the red blood cell count was 3.69 × 10^{12}/μl and the hemoglobin was 10.6 g/dl. While abdominal X-ray was normal, chest X-ray demonstrated a bilateral shadow in the upper lung and tracheal shift to the right. A contrast computed tomography (CT) scan demonstrated hematoma in which there was leakage of contrast medium around the distal aortic arch, a large amount of hematoma from the neck to the mediastinum, and pericardial effusion (Fig. 1A).

The patient was diagnosed with ruptured thoracic aortic aneurysm. Massive bleeding to the pulmonary cavity was not evident on the patient’s chest X-ray and CT scan, which might have been sealed by an old tubercular adhesion. We decided not to perform an emergency operation, because the patient’s vital signs were stable and her family selected conservative therapy. The patient received a calcium-channel antagonist by continuous intravenous infusion immediately after admission to the hospital to reduce the systolic BP to lower than 120 mmHg. She was intubated under sedation and we controlled her BP (systolic BP < 120 mmHg) with oral β-blocker, calcium-channel antagonist and angiotensin II receptor-blocker via a gastric tube, which was also used for enteral nutrition. A follow-up CT scan on the 12th day after onset demonstrated a remarkable reduction of pericardial effusion and hematoma from the neck to the mediastinum (Fig. 1B). The patient was followed up with CT scans until 3 months later, and we confirmed that the hematoma was reduced (Fig. 1C). Since the patient had been intubated for a long time, we performed tracheotomy after 43 days of disease. The patient was completely weaned from the ventilator on day 65 of disease. The patient received physical training rehabilitation because of her physical state, which was reduced due to prolonged immobilization, and she was discharged after 4 months.
3. Discussion

If rupture leads to cardiac arrest, the prognosis is very poor [8]. Johansson et al. reported 158 patients with thoracic aortic aneurysm. In this study, 41% of 158 patients with ruptured thoracic aortic aneurysm were alive on arrival at an emergency department, however the overall mortality rate was 97% [1]. Ingoldby et al. reported that up to 62% of patients with aortic dissection/rupture die before reaching the hospital [9]. In our case, the patient was transported to our hospital about 45 min after the onset of symptoms of rupture. She was alive and alert upon arrival, and was discharged after 4 months.

In cases in which rupture of the aortic aneurysms occurs, standard therapy involves surgical placement of an interposition graft. However, despite significant improvement in anesthesia techniques, surgical techniques, and perioperative care, thoracic aortic surgery carries substantial risks of serious complications and mortality (5—15% in elective cases and up to 50% in emergency situations) [2,3]. Furthermore, there have also been some reports that adhesions to surrounding tissues are extremely dense in case of tuberculous pseudoaneurysms [5,6]. In this case, we decided not to perform the operation because of the patient’s age, suspicion of a dense adhesion around the aortic arch, and her family’s intention to select conservative treatment.

In general, conservative treatments, such as the Stanford type B aortic dissection in which the adventitia of the aorta is maintained, have often been successful. On the other hand, conservative treatment of a true aneurysm rupture has not been published so far, because it results from the damaged adventitia. Although there have been some reports about endovascular treatment for ruptured aortic aneurysms [10], there have been no reports about conservative treatment for ruptured thoracic aortic aneurysm. However, some cases of ruptured aortic aneurysms may occur with dense adhesion in the pulmonary cavity, such as the old tuberculosis in our case, and which is able to be a substitute for the adventitia and seal the ruptured site. Although our case might be very rare, we believe that sometimes the prognosis of conservative treatment may be better than surgery in cases in which the patient is elderly, massive bleeding to pulmonary cavity is not demonstrated on chest X-ray or CT scan and the patient’s vital signs are stable.

References