Chronic Expanding Hematoma of Thorax Extended to the Neck

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We report a rare case of chronic expanding hematoma of thorax extended to the neck. An 83-year-old man with a history of Lucite ball plombage and thoracoplasty of bilateral thorax was admitted with numbness of left upper extremity. In 6 months, left supraclavicular fossa was gradually bulged like tumor. The lesion was diagnosed as chronic expanding hematoma. Surgically, Lucite balls were removed with surrounding hematoma debris and fluid, and neck hematoma, which was slightly communicated to the thorax, was extirpated. We discussed the genesis of this hematoma and its extension to the neck.

Keywords: chronic expanding hematoma, neck, lucite plombage

Introduction

Extrapleural pneumonolysis (plombage) with polymethyl methacrylate (Lucite) balls was performed in the 1950s for pulmonary tuberculosis. However, this operative procedure faded out because of its early complications such as infection and of the development of antituberculous drugs.\(^1\) Furthermore, this procedure causes sometimes late complications such as migration of balls or empyema.\(^1\) We experienced chronic expanding hematoma, which was a rare late complication of plombage. Moreover, extension of hematoma to the neck is extremely rare. We discuss the pathogenesis of expansion of hematoma and extension to the neck.

Case Report

An 83 year-old man was admitted to our hospital with numbness in left upper limb and a hump of the left neck.

He had been undergone extrapleural bilateral plombages with polymethyl methacrylate (Lucite) balls and thoracoplasty for pulmonary tuberculosis in 1951. In 1999, numbness in the right limb and pain in the right anterior chest wall was occurred. He underwent an operation for removal of Lucite ball in the right thorax and then these symptoms disappeared. In 2008, he felt numbness in the left upper limb. In 6 months, the center of his left supraclavicular fossa was gradually bulged like tumor. Since he had a chronic renal failure and mild cognitive disorder, we followed the course of this disease. In 2010, the bulge of left neck was rapidly developed (Fig. 1) and numbness of his left arm was exacerbated. A chest x-ray showed some of the damaged balls in the left upper thorax (Fig. 2). Chest computed tomography showed a heterogeneous mass with capsule and extended to the left supraclavicular region (Fig. 3). The communication between the left neck tumor and the thorax was obscure. Many Lucite balls, some of which were crashed and were filled with soft tissue or fluid, were observed. The floor of the pleura after thoracoplasty was ossified or calcified. He had no fever. His white blood cell count was 5,200 per micro litter and serum C-reactive protein level was lower than 0.3 mg/dl. We underwent biopsy for the neck tumor for ruling out the possibility of malignancy. The histological diagnosis was necrotic debris. So, we diagnosed this lesion as chronic expanding hematoma and decided surgery, although he had few complications.
Under general anesthesia, posterolateral incision was made along with previous operative wound. About 300 ml of dark brown fluid and granulomatous materials spouted out. Thirty Lucite balls were removed with surrounded granulomatous materials. Despite these procedures, the hump of his left neck did not shrink. The dome of the left thorax did not seem to be communicated to the neck anywhere. Then, the other skin incision was added on the neck tumor, and the content, which consisted of granulomatous material and dark brown fluid, was removed with capsule. Finally, the communication between chest and neck was detected at a 2 mm in diameter of hole at the dome of left thorax. After washing and hemostasis, operation was completed. Bacteriological examination showed that all materials were sterile, including M. tuberculosis and other bacterial organisms.

After operation, the patient was discharged one month later, although of postoperative wound infection, which
was cured with antibiotics therapy. Final histological examination showed the diagnosis of chronic expanding hematoma. However, the patient was died of aspiration pneumonia after 18 months.

**Discussion**

Ball plombage is a transitional treatment of pulmonary tuberculosis in 1950s. Until the decade, the patients did not have effective drugs for pulmonary tuberculosis and had little hope for long life by the exacerbation of this disease. At these circumstances, collapse therapies including ball plombage were proposed in the cavitary disease, if radical excision of diseased lung could not be indicated. After then, potent antituberculous drugs were developed. Now, these procedures are obsolete and their problems remain only in their complications.

Ball plombage has late complications. Most of its complications fall into two categories: empyema with fistula and migration complication.1 Chronic expanding hematoma is a rare another complication after plombage operation. There is a report that a giant mass developed in the right chest wall and was treated with removal of Lucite ball and hematoma, successfully.2 But, there is no report of chronic expanding hematoma extending to the neck like our case.

Chronic expanding hematoma was first reported as a clinical entity by Reid JD.3 Labadie EL, et al. described the genesis of the subdural hematoma as a chronic expanding hematoma.4 Chronic inflammation, invoked by the hematoma including blood and its breakdown products, makes the capsule around hematoma, and new vessels grow in and around the capsule. Then, fibrinolysis process and increased permeability of vessels cause repeated exudation or bleeding from capillaries in hematoma. By these processes, hematoma gradually develops. Respiratory motion and coughing may affect the increase in the volume of the hematoma. In our case, some of the Lucite balls were cracked. They might damage and affect the surrounding tissue, and might promote the development of hematoma.

The extension of hematoma to the neck is rare complication. However, supraclavicular fossa might be an inevitable extension site in our case. This patient had thoracoplasty and ball plombage. The plombage space was bordered by three planes: (1) scapula, (2) floor of collapsed space, which hardened by calcification or ossification after thoracoplasty, and (3) so-called thoracic outlet. So, the first and the second plane were hard and were barriers to extension of hematoma. Then, intruding point was only thoracic outlet plane. After extension to the neck, same developing process of chronic expanding hematoma should occur and the hump developed at the neck. At the same time, numbness of left upper extremity, which is a typical symptom of thoracic outlet syndrome, might appear by the impairment of brachial plexus. This symptom disappeared soon after operation.

Preoperative biopsy was essential. Malignant change induced by implanted materials has been presented.5 In our case, neck tumor was gradually enlarged like malignancy. Malignancy should be considered in the differential diagnosis.

Strategy of its treatment is significant. The ideal treatment is complete removal of the hematoma, including the capsule.6 However, Roper, et al. described a successful result after removal of hematoma, remaining the capsule.7 Our case could not completely remove the capsule because of the tightness of the capsule to the lung. Fortunately, hematoma did not recur, despite the short term follow-up.

Collapse therapy including ball plombage is obsolete. But, prevalence of multi-drug resistant (MDR) mycobacterium tuberculosis and non-tuberculous mycobacteriosis (NTM), in which any drugs do not cure effectively, may return to this old method, the effect of which is coped to anti-tuberculous agents to naive tuberculous patients.8 Our presentation of a later complication of ball plombage should be a worthwhile one, when collapse therapy will become an option of MDR tuberculosis and NTM.

**Disclosure Statement**

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**References**