Clinical picture

Superior vena cava syndrome related fluid collection in retropharyngeal space

Case report

A 44-year-old male smoker presented with productive cough, sore throat and dyspnea for 2 weeks. He had no fever but had lost about 8 kg in body weight in the recent 2 months. He was referred to a tertiary hospital where a physical examination revealed face, neck and right arm swelling. A chest plain film showed right upper lung consolidation and upper mediastinal widening (Figure 1). Chest computed tomography (CT) showed a right hilar-mediastinal large lobulated and confluent mass, measuring 10.7 x 9.5 x 12.0 cm. The lesion resulted in nearly complete obstruction of the superior vena cava (SVC) and an increase in mediastinum collateral circulation (Figure 2). A CT-guided biopsy of the tumor was performed, and a pathological examination revealed a picture of small cell carcinoma. Immunohistochemical analysis of the tumor revealed positive chromogranin A and synaptophysin staining. Due to the patient’s sore throat, neck CT was done which revealed a long fusiform retropharyngeal space fluid collection, ranging from the first to fifth cervical spine level (Figure 3). The patient then received CT-guided fine-needle aspiration of the retropharyngeal fluid. Gram’s stain and culture of the aspirated fluid revealed no evidence of infection. The cytological examination of the fluid was also negative for malignancy.

He received a cycle of chemotherapy with EP regimen (etoposide 70 mg/m² for Day 1 to Day 3, and cisplatin 70 mg/m² for Day 1), and size of the tumor gradually decreased. Follow-up imaging showed no further retropharyngeal fluid accumulation (Figure 4).

Discussion

The SVC transfers blood from the upper body to the heart. If the SVC becomes blocked, venous pressure...
in the upper body elevates. Thus, edema of the head, neck and arms results in distended subcutaneous vessels and facial swelling. Edema of the larynx causes cough, dyspnea, stridor, dysphagia and a hoarse voice. Cerebral edema causes headache, dizziness, and confusion.1–3 SVC syndrome is an oncological emergency and life-threatening condition.

The first case of SVC syndrome was described in 1757 in a patient with tuberculous mediastinitis and syphilitic aortic aneurysm. With the development of effective antibiotics, however, malignant diseases are now the most common cause of SVC syndrome,4 and the most common etiology of SVC syndrome in adults is lung cancer. SVC obstruction is often diagnosed by physical examination and confirmed by chest CT. Treating the underlying disease is the most important consideration. If the cause is a tumor, a biopsy of the mass should be taken for pathologic identification, and the most effective therapy (such as radiotherapy, chemotherapy or placement of an intravascular stent) should be implemented. In our patient, SVC syndrome improved after chemotherapy.

The retropharyngeal space ranges from the skull base to the upper thorax, is surrounded by the cervical and alar fascia, and is composed of fat and lymph nodes. Normally, it is demonstrated as thin fat density in CT imaging. Common disorders of the retropharyngeal space include inflammation and malignancy.5 Fluid collection in the retropharyngeal space can be seen in patients with retropharyngeal abscesses and suppurative retropharyngeal nodes. Occasionally, retropharyngeal edema with fluid collection can be caused by radiotherapy, internal jugular vein thrombosis or retropharyngeal calcific tendonitis.6

Although an obstructed SVC leads to increased upper body venous pressure, fluid collection in the retropharyngeal space is an unusual finding in SVC syndrome. Fluid aspiration and culture were done in our case, and all showed negative for bacteria growth. There was also no evidence of malignant spread. The patient received chemotherapy without antibiotics and the retropharyngeal fluid collection subsided. These suggest that the retropharyngeal fluid collection was related to SVC syndrome rather than infection. To the best of our knowledge, this is the first case of fluid collection in the retropharyngeal space due to small cell lung cancer with SVC syndrome.

Photographs and text from: C.-Y. Chang, Division of Chest Medicine, Department of Internal Medicine, Far Eastern Memorial Hospital; Y.-C. Lai and S.-C. Chang, Division of Chest Medicine, Department of Internal Medicine, National Yang-Ming University Hospital, #152, Xin-Min Road, Yilan City 260, Taiwan.
email: dtsurga9@yahoo.com.tw
Cheng-Yu Chang and Yi-Chun Lai contributed equally to this work.
Conflict of interest: None declared.

References