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【 EDITORIAL 】

A Prompt Diagnosis of Superior Vena Cava Obstruction Established by Physical Examination

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In the era of rapid technological advancements, clinicians have come to rely on laboratory tests and imaging techniques, as they have become easily available (1). However, now more than ever, clinicians still need to carefully record the patient's medical history and perform physical examinations. Each disease has *a priori* clinical features that differentiate it from other similar conditions, serving as clues for a definitive diagnosis. Accurate diagnoses from test results and imaging findings are based on appropriate hypotheses made using clues from history and physical examination (2).

While physical examination has many disadvantages, such as low sensitivity, insufficient reliability, and lack of reproducibility, it has the advantages of being noninvasive, time-saving, and economical (3). Physical examination can be performed anytime, anyplace, and many times over. Therefore, it plays an important role in monitoring the changes of pathophysiology in real time. Although a comprehensive and non-selective compilation of physical signs is no longer considered useful (4), selected physical examination can provide definite signs of a disease with good specificity, quantitative evaluation of the disease (3), and thus sometimes make it possible to make a "snap diagnosis" in a short time (5). One study reported that among patients newly admitted to an internal medicine department, 20% could be correctly diagnosed at admission based on the medical history alone and 40% with the combination of history and physical examination (6). In addition, a combination of these methods could provide prognostic information in selected medical situations (7).

In the latest issue of the journal Internal Medicine, Adachi et al. reported a case of superior vena cava (SVC) syndrome with severe venous dilatation in the thorax and abdomen (8). The SVC is a thin-walled low-pressure vessel, measuring from 6 to 8 cm in length, that drains venous blood from the head, neck, upper extremities, and upper thorax to the right atrium of the heart, carrying approximately one-third of the total venous return to the heart (9). More than 70% of SVC syndromes occur secondary to external compression from the intrathoracic malignant masses, most commonly from lung cancer, followed by malignant lymphoma and other metastatic cancers. In addition, benign causes, such as thrombosis and stenosis of SVC from central venous catheters and pacemaker leads, are now increasing (9, 10). The signs and symptoms of SVC syndrome result from an impairment of the blood flow to the heart via the SVC. This is an oncologic emergency because patients with this syndrome frequently complain of dyspnea and orthopnea, and present with edema, flushing, and cyanosis in the face, neck, arms, and upper trunk. In serious cases, progressive headache and a disturbance of consciousness may be noted, along with an elevated intracranial pressure (9, 10). The prognosis of SVC syndrome largely depends on the underlying disease. The prognosis of the underlying disease is generally poorer when accompanied with SVC syndrome (9, 10).

The present case showed winding and distended veins in the thoracic and abdominal wall that was identified at a glance. For the differential diagnosis of deep venous obstruction, the direction of the blood flow is crucial (Figure) (11, 12). Blood drains downward (caudal) in patients with SVC obstruction, whereas it drains upward (cephalad) in cases of inferior vena cava obstruction. Dilated, tortuous veins (Caput Medusae) radiating from the umbilicus suggest portal hypertension. The distribution of the venous distention is also important (Figure): Venous distention confined to the neck, shoulder girdles, and upper thorax indicates that the obstruction site is above the entry of the azygos vein in the SVC. In this case, blood from the head and neck drains through the external jugular vein, the superficial veins on the anterior thorax, internal thoracic veins, intercostal veins, and finally, the azygos vein system that enters the SVC below the obstruction site (13). When the obstruction occurs below the entry of the azygos vein, then the blood from the

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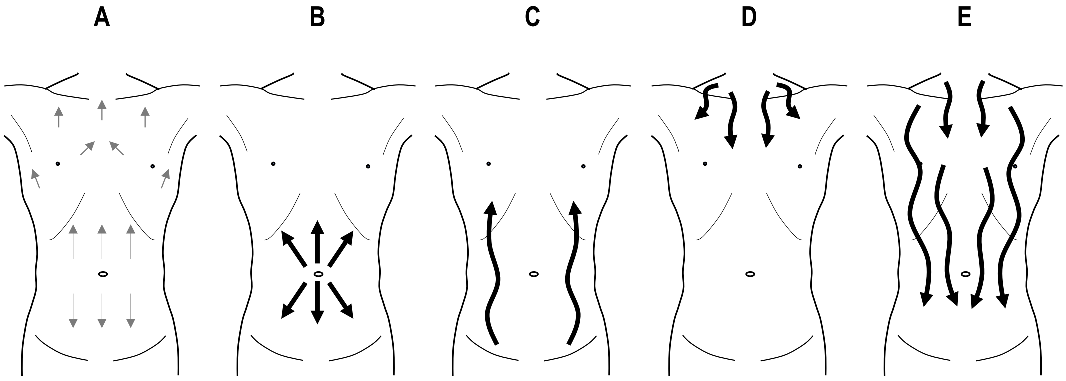

Figure. **Venous patterns in the thoracic and abdominal wall. The direction of the blood flow and distribution of venous distention are indicative of deep venous obstruction.**

head and neck flows through collateral veins, such as the thoracoepigastric vein and inferior epigastric vein, which are connected to the external iliac vein, and finally, to the inferior vena cava (13). In this case, the cervical venous pressure can reach 20 to 40 mm Hg (normal range: 2 to 8 mm Hg), resulting in an elevated risk for cerebral edema and upper respiratory tract narrowing from the nasal region and laryngeal edema (9).

This case report reminds us that focused physical examination provides both functional and structural information essential for the treatment planning of patients.

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