Spontaneous isolated subclavian artery dissection

A 66-year-old man with hypertension was admitted to the emergency department with a sudden onset of back pain between the shoulder blades with radiation to the right arm. He had been operated for pituitary adenoma, has been under long-term treatment with hydrocortisone, and was recently diagnosed with paroxysmal atrial fibrillation.

Imaging Findings:

The patient immediately underwent computed tomography (CT) with aortic dissection as the primary diagnosis. CT scan with intravenous contrast medium during the arterial phase showed isolated dissection of the right subclavian artery (Fig. 1, 2) without signs of involvement of the right common carotid, brachiocephalic (Fig. 3) or a more proximal artery (Fig. 4). There was no sign of closure of the artery or suppression of perfusion. The patient was treated conservatively with control of blood pressure without any surgical intervention. Control CT after a week showed no progression of dissection.

Discussion:

Isolated subclavian artery dissection is a rare condition, generally in relation with arterial catheterisation, connective tissue disease or blunt trauma. Spontaneous dissection without any trauma has rarely been reported in the medical literature [1].

Typical clinical presentation is sudden-onset of severe or “ripping” chest pain [5]. Acute CT scanning of the thorax with contrast is needed for diagnosis since symptoms can be very similar to aortic dissection, both of which potentially are life-threatening but in various levels.

Intravenous contrast-enhanced CT is a rapid and widely available diagnostic procedure which reliably confirms or excludes aortic/subclavian dissection, and may clarify other diagnoses, including pulmonary embolism. CT is, therefore, the most common definitive imaging study used in patients with suspected aortic/subclavian dissection [4].

Long-term steroid use may increase the fragility of the vascular system by its negative effect on collagen formation and connective tissue strength, thereby potentially making vessel rupture more likely [3]. However, many patients requiring steroids for various clinical conditions never suffer any kind of arterial dissection, but as some previous studies [3] show possible relation between long-term steroid use with pulmonary artery dissection, a possible relation to the subclavian dissection has to be discussed.
Some studies [2] recommend conservative treatment with close follow-up and control of blood pressure in patients with dissection without critical ischaemia, to avoid unnecessary surgery or stenting.

The patient discussed had hypertension as a known risk factor for arterial dissection and long-term use of corticosteroids. However, subclavian dissection is uncommon in the absence of trauma [1] and without involvement of thoracic aorta, but the diagnosis should still be considered in patients with acute chest pain and especially with a history of hypertension and corticosteroid use.

Written informed patient consent for publication has been obtained.

**Differential Diagnosis List:** Aortic aneurysm/dissection, Spontaneous isolated subclavian artery dissection, Acute coronary syndrome, Pulmonary embolism

**Final Diagnosis:** Spontaneous isolated subclavian artery dissection

**References:**


Description: CT scanning of thorax-horizontal view with intravenous contrast shows right subclavian artery dissection. **Origin:** Department of Radiology- Holbaek Hospital, Holbaek, Denmark, 2018.
Figure 2

Description: Coronal CT scanning of thorax with intravenous contrast shows right subclavian artery dissection

Origin: Department of Radiology- Holbaek Hospital, Holbaek, Denmark, 2018
**Description:** Coronal image of the contrast-enhanced CT scan showing normal right brachiocephalic artery and ascending aorta without any dissection. **Origin:** Department of Radiology- Holbaek Hospital, Holbaek, Denmark, 2018
Description: Thoracic CT, sagittal view of the contrast-enhanced CT scan showing no dissection in descending thoracic aorta. Origin: Department of Radiology- Holbaek Hospital, Holbaek, Denmark, 2018