Case 13078

Spontaneous dissection of superior mesenteric artery, due to fibromuscular dysplasia (presumed)
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ISSN: 1563-4086
Section: Cardiovascular
Area of Interest: Arteries / Aorta
Procedure: Diagnostic procedure
Imaging Technique: CT-Angiography
Special Focus: Dissection Tissue characterisation
Dysplasias Case Type: Clinical Cases
Authors: Yang, JHSilva, IRR
Patient: 53 years, female

Clinical History:

A 50 year old female patient presented with intermittent and diffuse upper abdominal colic pain for one year, not related to meals, no changes in bowel habits, and no weight loss were reported. No major medical history, and no clinical or haematological findings for connective tissue disorders were present.

Imaging Findings:

An abdominal ultrasound performed during abdominal colic pain detected irregular superior mesenteric artery (SMA) (not shown).
Magnetic resonance angiography (MRA) and computed tomographic angiography (CTA), performed a few days later presented multifocal stenosis along the SMA truncus. A small dissection flap, 0.2 cm in length, was seen 3 cm from the aorta. No bowel ischaemia, or dilatation, and no mesenteric haemorrhage were seen. An additional significant finding was a subtle tubular stenosis in both right and left common carotid arteries. Aorta and renal arteries were normal. As an unrelated incidental finding, 1 cm diameter saccular aneurysm in splenic artery was found. The patient did not undergo any specific treatment. CTA performed 4 months later kept SMA stenosis, without false lumen. Internal carotid arteries did not present any significant changes.

Discussion:

Isolated spontaneous SMA dissection is seldomly described, and nature history is not fully understood. Haemodynamic force at the transitional point from the fixed to relatively mobile segment may play a significant role. It may be related to fibromuscular dysplasia (FMD), and segmental arterial mediolysis (AM) [2, 4]. FMD is a small- and medium-calibre multifactorial, non-atheromatous, non-inflammatory vascular disease. There is a female predominance, and the disease presents between 4 to 6% in the renal arteries, and up to 3% in carotid and vertebral arteries [1]. The pathophysiology may be related to adventitial ischaemia due to compressed vasa vasorum [1]. Any arteries could be affected, and multivessel involvement is described in FMD [1-3]. AM may be a spectrum of FMD, overlapping similar histologic findings, but a distinct clinical presentation. Most patients are late middle-age or elderly. AM commonly presents with intraabdominal haemorrhage, due to chronic repeated vasoconstrictive responses leading to medial lysis, dissection, saccular aneurysms, or thrombosis [4]. SMA dissection in this case may be due to a medial type FMD, the most frequent, typically presenting the string-of-
beads aspect due to fibrotic tissue replacing smooth medial muscle [1]. Both the common carotid arteries present
tubular subtle stenosis, a characteristic finding for subadventitial type FMD. This is the second most frequent FMD
type, due to elastic tissue accumulation in external media [1].

Most SMA dissection present significant improvement under conservative treatment, with or without anti-thrombotic
therapy. Invasive treatments, either endovascular or open surgery are required in the minority of the patients in
which conservative treatments fail, or under bowel ischaemia [2, 3].

Take home message: Due to unspecific symptoms and complications needing dedicated management, radiologists
play a crucial role in early SMA dissection diagnosis [1-4].

**Differential Diagnosis List:** Spontaneous dissection of superior mesenteric artery, due to fibromuscular
dysplasia (presumed), Takayasu\'s arteritis, Superior mesenteric artery dissection due to atherosclerosis, Segmental
arterial mediolysis

**Final Diagnosis:** Spontaneous dissection of superior mesenteric artery, due to fibromuscular dysplasia (presumed)

**References:**


Description: Dissected superior mesenteric artery, stenosis and poststenotic dilatation. Origin: Yang, JH. Icon Diagnósticos por Imagem, Jundiaí, São Paulo, Brazil
**Description:** Same as 1a, in detail. **Origin:** Yang, JH. Icon Diagnósticos por Imagem, Jundiaí, São Paulo, Brazil
Description: Normal renal arteries. Small splenic aneurysm, incidental finding. Origin: Yang, JH. Icon Diagnósticos por Imagem, Jundiaí, São Paulo, Brazil
Figure 2

Description: Subtle tubular stenosis in both right and left common carotid arteries. Normal aortic arc, and subclavian arteries. Origin: Yang, JH. Icon Diagnósticos por Imagem, Jundiaí, São Paulo, Brazil
**Description:** Subtle tubular stenosis in both right and left common carotid arteries. Normal aortic arc, and subclavian arteries. **Origin:** Yang, JH. Icon Diagnósticos por Imagem, Jundiaí, São Paulo, Brazil
Figure 3

Description: Normal thoracic and abdominal aorta

Origin: Yang, JH. Icon Diagnósticos por Imagem, Jundiaí, São Paulo, Brazil