



## Isolated Dissection of Superior Mesenteric Artery

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### Abstract

*Isolated dissection of the superior mesenteric artery is a rare occurrence with a hitherto unknown exact etiology. Patients may present with abdominal symptoms or hemodynamic instability.*

*We herein present a case of spontaneous isolated superior mesenteric artery dissection in a 48-year-old man, who was admitted with epigastric pain. Due to an undiagnosed paced rhythm on the electrocardiogram, he was given fibrinolysis treatment for acute myocardial infarction. On further evaluation, angiography revealed that the cause of pain was the dissection of the superior mesenteric artery. The patient's symptoms were diminished with conservative management, obviating the need for the angioplasty of the superior mesenteric artery.*

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### Introduction

Isolated spontaneous dissection of the superior mesenteric artery (SMA) without aortic involvement is a rare event. Diagnosis may have been difficult in the past, but recent advances in imaging modality and knowledge of mesenteric arteries disease have rendered diagnosis easier.<sup>1</sup> That is perhaps why this disease is much more common than we used to think. There is, however, no general consensus about the best treatment option.<sup>2</sup> Here we report a case of isolated spontaneous dissection of the SMA, which we managed conservatively.

### Case Report

A 48-year-old man was admitted to our hospital with a sudden onset of epigastric pain, nausea, and vomiting commencing three hours previously. He had no history of hypertension or diabetes, but he had smoked one pack of cigarettes daily for the previous ten years. He had a permanent pacemaker, implanted one year before because of symptomatic bradycardia. Physical examination revealed a normal blood pressure (137/87 mmHg) and mild tenderness over the epigastric area with no peritoneal signs. On admission in the emergency room due to left bundle branch block in the electrocardiogram (Figure 1) and epigastric pain, thrombolytic therapy was done on suspicion of acute myocardial infarction. The patient was transferred to the cardiac care unit (CCU), where he continued to complain of severe abdominal pain, especially after eating. The patient was kept fasting, and a nasal gastric tube was, therefore,

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employed and Enoxaparin, Aspirin, and Clopidogrel were continued. Laboratory tests, including complete blood count, amylase, liver enzymes, and cardiac markers, were normal. Endoscopic examination revealed no remarkable finding. Coronary angiography was normal, but superior mesenteric angiography showed a dissected non-flow limiting lesion at the proximal part (Figure 2). In CT angiography, the aorta and the other visceral vessels were normal and a dissection was detected at the proximal part of the SMA, which extended only about two centimeters. The false lumen was occluded by a thrombus (Figure 3). Despite our recommendation, the patient refused to accept SMA stenting and conservative therapy was, consequently, continued. The patient was kept fasting for five days; at first, the epigastric pain decreased but was thereafter exacerbated by eating. As a result, he was kept fasting for one more week, at the end of which he started eating gradually. The patient was discharged after two weeks. In the first month, he preferred to have a low calorie, low volume diet to reduce the pain, but afterwards he became completely asymptomatic and was able to tolerate food normally.

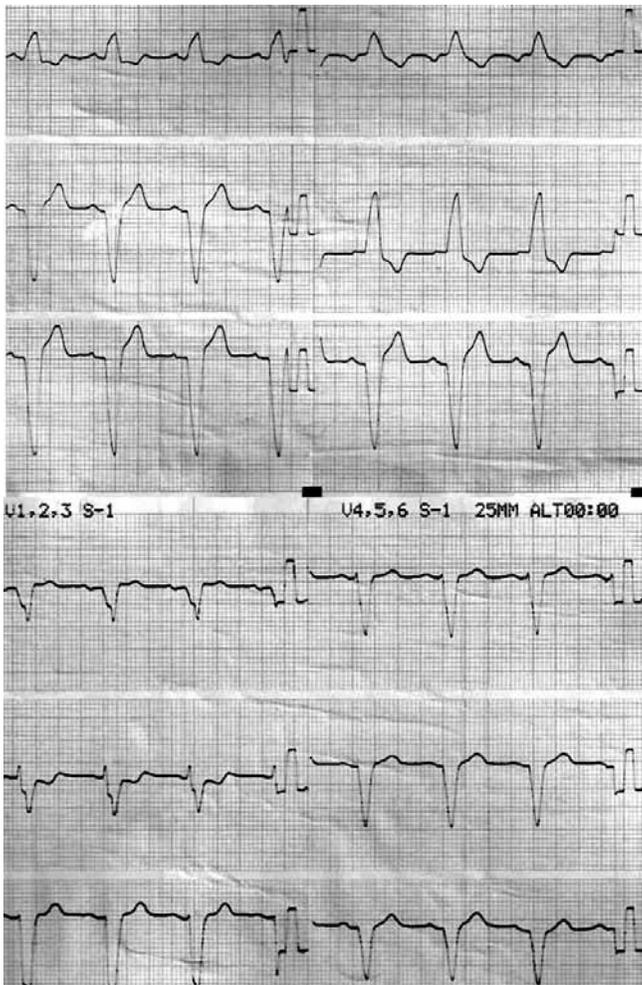


Figure 1. Paced rhythm electrocardiogram of the patient

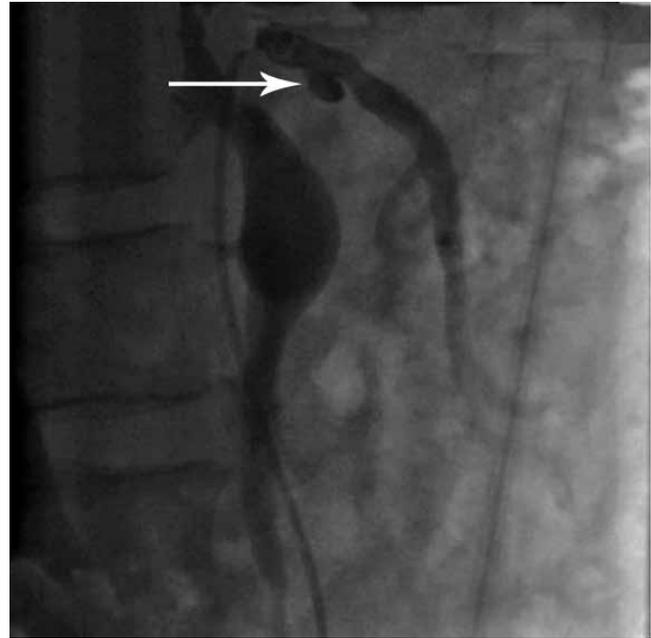


Figure 2. Dissected lesion in the proximal part of the superior mesenteric artery (arrow)



Figure 3. CT angiography of the patient shows true and false lumen localized to the proximal part of superior mesenteric artery (arrow)

## Discussion

Isolated spontaneous dissection of the SMA is a rare occurrence even among spontaneous dissections of the peripheral arteries.<sup>1</sup> Bauersfeld first described dissection of the SMA in 1947 in a series of patients with aortic dissection.<sup>2</sup>

When dissection is isolated to the SMA, it usually begins 1.5 - 3 cm from the orifice of the SMA, thereby sparing the origin of the artery.<sup>3</sup> The etiology of spontaneous SMA dissection in most reported cases and in our case is unknown, but it may include arteriosclerosis, fibromuscular dysplasia, congenital connective tissue disorders, mycotic infection, trauma, vasculitis-like giant cell arteritis, Takayaso's arteritis, polyarteritis nodosa, and iatrogenic-induced dissections due to endovascular interventions. Some dissections occur spontaneously without any identifiable etiology.<sup>4-6</sup> Kimura et al. reported the risk factors to be high blood pressure and smoking.<sup>7</sup>

In most cases of the SMA dissection, patients present in one of two ways: with vague abdominal pain due to the stenosis of the true lumen by the dilatation of the false lumen causing mesenteric ischemia,<sup>1</sup> or with profound shock after the rupture of the dissection.<sup>5</sup> As a result, it should be considered in the differential diagnosis of abdominal pain. Upper abdominal bruit, which was not detected in our patient, is an important physical finding of this disease.<sup>8</sup>

Spontaneous SMA dissection used to be diagnosed via angiography; more recently, however, CT scans have become the most reliable diagnostic modality. Through dynamic CT, the separated true lumen and false lumen are identified by the intimal flap. The lumen that appears with staining first is the true lumen and the lumen that shows delayed dark staining and continuous staining is the false lumen.<sup>9</sup> A previous report demonstrated that increased attenuation of the fat around the SMA is a useful finding.<sup>10</sup>

There is no clear protocol for the treatment of the SMA dissection. Reported treatments include surgical treatment, endovascular repair, and conservative treatment.<sup>11</sup> The mainstay of treatment of the dissection of the SMA has been surgery.<sup>12, 13</sup> Several authors have shown promising results for the stenting of the SMA dissection.<sup>14, 15</sup> Leung et al. have reported the first successful case of isolated spontaneous dissection of the SMA treated via percutaneous stent placement.<sup>13</sup> Miyamoto et al. reported that 24 out of 55 patients with spontaneous SMA dissection were treated conservatively.<sup>16</sup> Obstruction of the main SMA trunk does not always result in bowel infarction because of the existence of the mesenteric marginal artery.

According to the literature, it seems that endovascular stent placement is indicated in cases with short segment dissection, in cases without the signs of bowel ischemia or peritonitis, and in cases not improving on conservative therapy. Surgery is indicated in cases with bowel ischemia and perforation.<sup>16, 17</sup>

## Conclusion

The SMA dissection can present with symptoms that are not specific; highly clinical suspicion and early diagnostic

modalities are, therefore, necessary.

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