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A Rare Case of Isolated Idiopathic Inferior Mesenteric Artery Dissection

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Statistical Analysis C
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Conflict of interest: None declared

Patient: Male, 43
Final Diagnosis: Isolated idiopathic inferior mesenteric artery dissection
Symptoms: Lower abdominal pain
Medication: —
Clinical Procedure: —
Specialty: Cardiology

Objective: Rare disease
Background: Isolated dissection of a mesenteric artery is very rare and usually presents with acute gastrointestinal symptoms. There have been previously published reports on the isolated dissection of the superior mesenteric artery. However, isolated dissection of the inferior mesenteric artery is rare.
Case Report: A 43-year-old man presented with sudden onset of lower abdominal pain. Abdominal computed tomography (CT) imaging confirmed isolated dissection of the inferior mesenteric artery. To prevent exacerbation of the dissection, his systolic blood pressure was controlled to <140 mmHg, and his progress was observed for ten days while in hospital during which time the dissection stabilized. There was no extension of the dissection. After three years, the dissection had healed and did not recur.
Conclusions: To our knowledge, this is the first case report of isolated dissection of the inferior mesenteric artery that resolved spontaneously. This case shows the importance of blood pressure control in the management of arterial dissection.

MeSH Keywords: Case Reports • Dissection • Mesenteric Artery, Inferior

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Background

Isolated idiopathic dissection of the inferior mesenteric artery is very rare but has been reported to be associated with fibromuscular dysplasia (FMD) and segmental arterial mediolysis (SAM). There is no established definitive treatment for dissection of the inferior mesenteric artery. Conservative medical treatment involves antihypertensive therapy, and stenting may be considered if antihypertensive therapy is not effective. If the patient is hypertensive, it is important to control blood pressure to prevent expansion of the arterial dissection.

This report is of a case of isolated idiopathic inferior mesenteric artery dissection in a 43-year-old man.

Case Report

A 43-year-old man experienced sudden lower abdominal pain early in the morning. He attended hospital, but no abnormal findings were present on examination. Although his abdominal

pain initially improved, it recurred and this led to his admission to our hospital. His abdominal pain improved initially but recurred, prompting him to consult at our hospital. He had no history of confusion or disorientation and smoked 20 cigarettes per day for 30 years.

On examination, he had regional abdominal pain on applying pressure. No other abnormal findings were noted on physical examination. Laboratory tests were normal. Abdominal computed tomography (CT) was performed to determine the cause of the abdominal pain. Contrast-enhanced CT imaging showed isolated inferior mesenteric artery (IMA) dissection and no intestinal ischemia was seen (Figure 1A, 1B).

The patient was hospitalized, and blood pressure control was commenced to control the systolic blood pressure to <140 mmHg to prevent exacerbation of the dissection, as he had high systolic blood pressure values at home of between 150–160 mmHg. Feeding was recommenced on the third day after hospital admission. A repeat abdominal CT scan was performed on the tenth hospital day, with no expansion of

Figure 1. Abdominal computed tomography (CT) imaging from a case of isolated idiopathic inferior mesenteric artery dissection in a 43-year-old man. (A, B) Abdominal computed tomography (CT) shows the isolated inferior mesenteric artery dissection at the time of hospitalization (triangle). (C) Abdominal CT was performed on the tenth hospital day and shows no extension of the dissection. (D) Abdominal CT shows that the inferior mesenteric artery dissection became smaller and spontaneously disappeared three years later.

the dissection (Figure 1C). The patient was discharged on the 13th hospital day.

The patient was investigated for the presence of fibromuscular dysplasia (FMD) and segmental arterial mediolysis (SAM), but the presence of arterial abnormalities were not found on CT. The patient was followed-up in the outpatient department and continued with anti-hypertensive treatment. The inferior mesenteric artery dissection became smaller and spontaneously resolved three years later (Figure 1D). At the time of writing this report, the patient remains well, with no recurrence of the inferior mesenteric artery dissection.

Discussion

To our knowledge, this is the first report of idiopathic isolated inferior mesenteric artery dissection. Isolated dissection of the branches of the abdominal aorta is rare, and only a few previous reports have described this condition. In a previously published report that studied the clinical features of isolated dissection of branches of the abdominal aorta, reported between 2010 to 2013, arterial dissection occurred in a total of 276 celiac arteries, 715 superior mesenteric arteries, 23 splenic arteries, and 11 hepatic arteries [1]. In these patients, the most common features were male sex (78–92%), hypertension (48–65%), and smoking (35–65%) [1]. The age of the patients ranged from 54.7–56.8 years [1]. In the present case report, the patient was male and had a history of smoking.

Although there have been previous reports of cases of superior mesenteric artery dissection, there have been no previous reports of idiopathic and spontaneous inferior mesenteric artery dissection. The occurrence of superior mesenteric artery dissection is related to the bifurcation angle of the artery and shear stress, particularly on the proximal part of the superior mesenteric artery [2]. Therefore, it is possible that this anatomical difference between the superior mesenteric artery and the inferior mesenteric artery is the reason for the rare occurrence of dissection of the inferior mesenteric artery. Also, inferior mesenteric artery dissection can be associated with fibromuscular dysplasia (FMD) and segmental arterial mediolysis (SAM).

FMD most commonly affects the renal and carotid arteries, results in luminal stenosis and aneurysms, but may be associated with arterial dissection. SAM commonly develops suddenly in middle-age usually without an underlying cause and presents with internal hemorrhage in the abdomen, and involves visceral arteries, such as the splenic artery or the superior mesenteric artery. It is believed that SAM leads to the destruction of the arterial media and results in dissection, but the cause is unclear [3]. In this case, FMD was excluded, as it is more common in young middle-aged women, is mostly

asymptomatic or presents with ischemic symptoms due to stenosis, and affects the renal artery or the internal carotid artery, and the presence of a lesion outside the kidney is rare, occurring in only 9% of cases [4].

Also, in the present case, SAM was also ruled out because this case did not present with abdominal cavity bleeding [5], which is a part of the diagnostic criteria of SAM. There have been ten previously reported cases where the dissection was repaired surgically, and histopathology confirmed FMD in three cases, fibrous hyperplasia was found in one case, and cystic medial necrosis was found in one case.

Currently, there is no established treatment for idiopathic isolated inferior mesenteric artery dissection. In a previous report describing the treatment of 18 patients with superior mesenteric artery dissection, conservative medical treatment with antihypertensive management was used in seven patients, arterial stenting was used in nine patients, and surgical management was used in two patients [6]. The presence of intestinal ischemia determines the necessity for invasive treatment, and early invasive treatment is required if there is intestinal tract ischemia [7]. Since intestinal ischemia was not found in this case, conservative medical treatment with antihypertensive therapy was undertaken.

In this case, antithrombotic medical treatment was not administered. The dissection causes stenosis of the true cavity, resulting in a risk of thrombus because the arterial diameter is reduced in size, which means that antithrombotic medical treatment may be beneficial. A previously published report has indicated that treatment with antithrombotic medical therapy can prevent intra-arterial thrombosis, and antihypertensive treatment can prevent progression of the dissection [8]. However, antithrombotic therapy may be unnecessary because it inhibits thrombosis of the false cavity, and reduction in the size of the false cavity tends to be seen in cases where the false cavity undergoes thrombosis immediately when compared with when the false cavity remains patent. Therefore, antithrombotic medical therapy is not an established treatment, and further studies on antithrombotic medical treatment are needed to confirm its benefits in the management of mesenteric artery dissection.

Conclusions

A rare case of isolated idiopathic dissection of the inferior mesenteric artery is reported. Because intestinal tract ischemia was not present, conservative medical treatment with antihypertensive therapy was commenced and the patient was managed conservatively and recovered without surgical intervention. The use of antithrombotic medical treatment for mesenteric artery dissection remains controversial.

Conflict of interest

None.

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