



Brief Report

Characteristics and diagnostic pitfalls of spontaneous visceral artery dissection in the emergency department☆☆☆



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ABSTRACT

Background: Spontaneous visceral artery dissection (VAD) is a rare disease that mainly occurs in the superior mesenteric artery and celiac artery. However, VAD has been detected more frequently in the past several years because of the increasing use of computed tomography (CT) for the evaluation of abdominal symptoms. A prompt diagnosis and referral to a specialist should be made, because VAD occasionally causes critical bowel ischemia. However, there is no well-established management approach. We performed a retrospective analysis to evaluate the characteristics and prognoses of patients diagnosed with VAD.

Methods: We retrospectively examined data on patients who visited the Emergency Department (ED) at Fukui Prefectural Hospital, and were diagnosed with VAD using enhanced CT scanning from April 2004 to March 2015. All data were collected from the hospital's electronic medical records. We analyzed the clinical characteristics, comorbidity, risk factors, imaging findings, and treatment of patients.

Results: Fifty-six patients were identified (superior mesenteric artery: 40 patients, celiac artery: 16 patients). The median age of the patients was 54 years (range, 32–86 years) and 89.3% were men. The majority of the patients complained of abdominal pain (37 patients, 66%). Thirty-nine of the patients (69.6%) were hospitalized. All hospitalized patients received conservative treatment initially. Three patients received endovascular therapy, and 2 patients received surgery. No fatal cases were observed. Twenty-eight patients presented with ED at their initial visit, and 8 cases (29%) were undiagnosed on their initial visit by emergency physicians, though enhanced CT scans were obtained.

Conclusion: Patients with VAD often present with sudden onset abdominal pain. Most patients were managed successfully with conservative treatment. No fatal cases were observed; however, some cases were missed, even with an enhanced CT scan. It is necessary to include VAD among the differential diagnoses of acute abdominal pain. Patients with VAD should be referred to a specialist, because this disease occasionally causes critical bowel ischemia, necessitating surgical intervention.

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1. Introduction

Spontaneous isolated visceral artery dissection (VAD) is defined as a dissection of the superior mesenteric artery (SMA), celiac artery (CA), inferior mesenteric artery, or renal artery, in the absence of aortic dissection. This disease was once considered to be rare, but has been detected more frequently in the past several years because of the increasing use of computed tomography (CT) for the evaluation of abdominal symptoms.

The natural history and appropriate treatment for this disease are uncertain because of its past rarity. The clinical course of this disease

may be self-limited. It is potentially life-threatening and may require urgent treatment when bowel ischemia or arterial rupture occurs. A variety of treatment options have also been described, including conservative management with or without antithrombotic therapy, endovascular treatment, and open surgery; however, there is no recommended management approach.

To address this issue, we investigated the clinical findings, natural history, and outcomes of treatment in patients with isolated spontaneous visceral artery dissection.

2. Methods

A retrospective review of the radiology database from April 2004 to March 2015 was performed at Fukui Prefectural Hospital in Japan. In 2014, Fukui Prefectural Hospital had 28,995 ED visits and 4854 of the patients underwent abdominopelvic CT scans. VAD was diagnosed using

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Fig. 1. Spontaneous isolated dissection of superior mesenteric artery.

enhanced CT scans by the presence of an intramural hematoma and/or intimal flap in the SMA or CA without aortic dissection (Figs. 1, 2). Patients with concomitant aortic dissection were excluded from the study.

We retrospectively analyzed the clinical characteristics, comorbidities, risk factors, imaging findings, treatments, and early outcomes of the patients. We also compared the imaging findings of the CT scans, including dissection lengths and the distances from the entry site to the origin of the artery. The SMA dissections were classified into 4 categories according to Sakamoto's classification: type I represented false lumens with both entry and reentry; type II represented “cul-de-sac” shaped false lumens without reentry; type III represented thrombosed false lumens with ulcer-like projections defined as localized blood-filled pouches protruding from the true lumens into the thrombosed false lumens; and type IV represented completely thrombosed false lumens without ulcer-like projections (Fig. 3) [1].

Treatments were categorized into 3 types: conservative, endovascular, and surgical. Conservative treatment consisted of bowel rest, blood pressure control (with or without anticoagulation or antiplatelet therapy) intravenous fluid therapy, and parenteral nutritional support. Endovascular treatment included stenting or coiling. Patients with bowel ischemia and arterial rupture were treated surgically. Treatment and management were at the discretion of the attending physician.

3. Results

We identified 56 patients with VAD. VAD was found in the SMA of 40 patients (the rest in the CA). There were no dissections in other branches. The characteristic, coexisting medical conditions and symptoms are summarized in Table 1. Most patients were male (89.3%).



Fig. 2. Spontaneous isolated dissection of celiac artery.

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