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Outcomes of Spontaneous Isolated Superior Mesenteric Artery Dissection Without Antithrombotic Use

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WHAT THIS PAPER ADDS

In spite of the increasing frequency of reports on SISMAD seen with the improvements in diagnostic capability, there is still no consensus regarding the treatment of this condition. Patients with an incidental finding of SISMAD are assumed to be in the chronic phase of the disease, and anticoagulation therapy does not seem to be mandatory because the acute phase has already passed without treatment. This study was designed from this assumption and the 'no antithrombotics at all' strategy worked well without morbidity or mortality in this series.

Objectives: This study aimed to show the intention to treat results of treatment for spontaneous isolated superior mesenteric artery dissection (SISMAD) without anticoagulation or antiplatelet agents and the follow-up results of SISMAD according to the configuration on computed tomography (CT) scans.

Design: Retrospective, observational single centre study

Methods: All cases of SISMAD were enrolled consecutively from 2006 onwards. There were 25 symptomatic and four asymptomatic patients in whom SISMAD was found incidentally. The SISMAD patients were treated using a consistent therapeutic strategy without antithrombotics. SISMAD was categorized into four types based on the configuration on CT scans by Yun's classification. Follow-up CT was performed at 3 months, 6 months, and yearly thereafter.

Results: The median follow-up duration was 57 months (13–129 months). Improvement or complete resolution on CT scans, with no symptom recurrence, was seen in 27 patients. The non-invasive approach failed in three cases and two patients underwent further intervention. No patient died during the follow-up.

Conclusions: Weighing the risks versus benefits of antithrombotics and considering the benign nature of SISMAD, conservative treatment without antithrombotics might be sufficient in patients without evidence of bowel ischaemia or infarction on initial CT scan.

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INTRODUCTION

The incidence of spontaneous isolated superior mesenteric artery dissection (SISMAD) is relatively low,[1–4] but is increasing as a result of advances in computed tomography (CT) resolution and development of new imaging technologies.[5–7]

The exact causes or risk factors for SISMAD are not well known and the general risk factors for arteriosclerosis such as hypertension or diabetes appear to have little relevance, as patients are usually relatively young men in their 40s and 50s.[8–10] Although some authors have suggested connective tissue disorders or hereditary disease as one of the aetiologies of SISMAD,[11,12] definite evidence on their association is still lacking. Normally acute superior mesenteric artery occlusion is a potentially life threatening condition, and most patients require immediate revascularisation to survive.[13] Although invasive treatment including endovascular treatment and surgery has been described with favourable outcome in SISMAD,[14] recent reports suggest that invasive treatment may not be essential.[10,15–17] Proposed conservative treatment mainly consists of anticoagulation or use of antiplatelet agents.[18–21] However, the accompanying risk of aneurysmal rupture, which may result in life threatening haemorrhage, and the bleeding risk associated with antithrombotics question the benefit of antithrombotic use in SISMAD.[22,23] In this study, the natural course of SISMAD was examined according to CT scan configuration, and

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attempts were made to determine a treatment strategy without antithrombotics.

MATERIALS AND METHODS

A retrospective, observational study was conducted on 32 patients. All the patients with SISMAD diagnosed based on CT findings in Ulsan University Hospital from March 2006 were consecutively enrolled, treated with the designed treatment strategy, and registered for follow-up. Patients who received antiplatelet or anticoagulant therapy for the management of other underlying conditions were excluded from this study.

Diagnosis and classification

SISMAD was defined as superior mesenteric artery wall dissection without aortic dissection on a contrast enhanced CT scan. The dissection was not related to trauma, abdominal surgery, or other interventions on the artery. Patients with dissection of the coeliac trunk and inferior mesenteric artery were excluded. SISMAD was classified into four types according to the configuration on CT scans. Two radiologists and two vascular surgeons reviewed and classified the SISMAD separately. If there were any discrepancies, all four members discussed the cases and reached agreement. CT images taken at other hospitals were either used without modification, or a repeat scan was performed using the study hospital equipment (SOMATOM Sensation 16, Siemens) if CT scans showed inadequate image resolution. SISMAD types were categorised as described previously by Yun et al.[9] In type III, the distance between the starting point of the dissection and the ostium was measured.

Treatment strategy

Soon after diagnosis, patients fasted until the pain subsided, after which they were closely monitored for changes in pain severity levels. Except for fluids to prevent dehydration, no specific medication, including antiplatelet or anticoagulant therapy, was administered. Food intake was initiated carefully after the pain was relieved, and those who could eat without pain recurrence were discharged and followed up. However, the patients with recurrent pain were re-hospitalized and a repeat CT scan was performed to investigate complications such as aneurysmal rupture or bowel ischaemia. Initial blood tests included a complete blood count (CBC), aspartate transaminase (AST), alanine transaminase (ALT), amylase, lipase, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), arterial pH, and lactate. Thereafter, CBC, AST, ALT, ESR, and CRP were followed up in all patients during hospitalisation. Arterial pH and lactate levels were checked again in patients whose pain was aggravated. An invasive treatment approach was considered in patients who showed no improvement, developed increasingly severe pain or dissecting aneurysm size, or were suspected to have complications from bowel ischaemia. Bowel ischaemia was considered in patients with aggravated pain or decreased bowel enhancement on CT scans. Suspected bowel ischaemia was confirmed by laparoscopy and bowel resection with or without revascularisation which was performed if necessary. Insertion of an endovascular stent or a stent graft was considered for the treatment of some types of dissecting aneurysms. The treatment strategy is summarized in Fig. 1.

Follow-up

Patients with no recurrent pain were followed-up by CT scans at 3 months, 6 months, and 1 year after the initial diagnosis. Patients with symptoms or signs indicative of aggravated mesenteric dissection underwent another set of CT scans with the advice of vascular surgeons. All patients were questioned for postprandial pain or weight loss on follow-up, and were asked to visit the hospital once in 3 months or whenever pain recurred.

Follow-up computed tomography and result classification

The CT results on follow-up were compared with the initial findings, and were classified according to the following:

1) Complete resolution: complete superior mesenteric artery (SMA) remodeling with no evidence of abnormality (Fig. 2).
2) Improvement of luminal diameter: increase in true lumen size with or without reduction in false lumen size in Type I, IIa, and IIb.
3) Type change: change in configuration from 1 type to another. A change from Type IIa to IIb, I to IIb, or III to IIb was considered to be an improvement, while a change to Type IIa or III was considered to be a worsening (Fig. 2).

Ethical considerations

This study was approved by the Institutional Review Board of Ulsan University Hospital (UUH-2015—03—011).

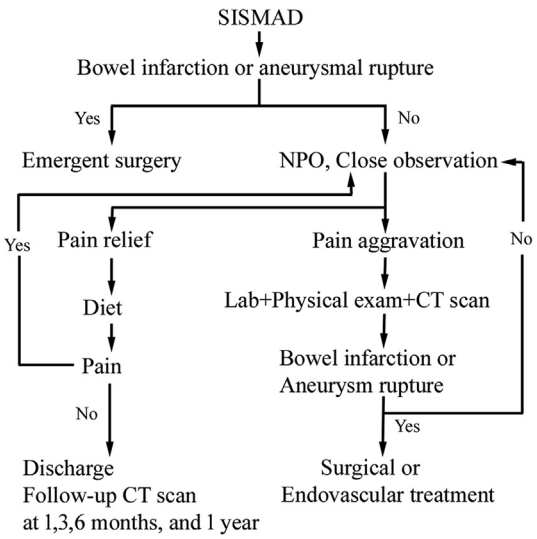

Figure 1. Treatment strategy for spontaneous isolated superior mesenteric artery dissection. SISMAD, spontaneous isolated superior mesenteric artery dissection; NPO, nil by mouth; Lab, laboratory tests; CT, computed tomography; f/u, follow-up.

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