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## CASE REPORT

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# Mesenteric Phlebosclerosis — Features on Plain Radiograph and Computed Tomography Scan

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### ABSTRACT

*Mesenteric phlebosclerosis is also known as phlebosclerotic colitis. Mesenteric phlebosclerosis is a rare disease related to non-thrombotic stenosis or occlusion of mesenteric veins, which can lead to subsequent ischaemic colitis. This report presents the relevant radiological features in a Chinese adult with mesenteric phlebosclerosis. The clinical and pathological aspects of this entity are also discussed.*

*Key Words: Colitis; Ischemia; Mesenteric veins; Radiography; Tomography, X-ray computed*

## 中文摘要

### 腸系膜靜脈硬化—X光平片及電腦斷層掃描之影像特徵

郭啟欣、羅尚銘、馮漢盛、范子和、王旺根

腸系膜靜脈硬化是一種罕見的疾病。此現象是由於非凝血性的腸系膜靜脈堵塞，繼而引起缺血性腸炎。本文章描述一位華籍成年男性患上腸系膜靜脈硬化之狀況，並就其臨床、放射醫學及病理學之特徵作出討論。

### INTRODUCTION

Mesenteric phlebosclerosis is a rare disease related to non-thrombotic, non-inflammatory stenosis or occlusion of the mesenteric veins.<sup>1,2</sup> To date, most of the patients reported in the literature are from Japan.<sup>1-6</sup> Although this condition is rare, its radiological features are characteristic. This report presents the imaging findings for plain radiograph and computed tomography (CT) in a Chinese patient. The clinical and pathological features are also discussed.

### CASE REPORT

A 60-year-old previously healthy man was admitted to the surgical ward at the Queen Elizabeth Hospital, Hong Kong in August 2009 with fever, abdominal pain, and diarrhoea for 2 days. He did not smoke but was a

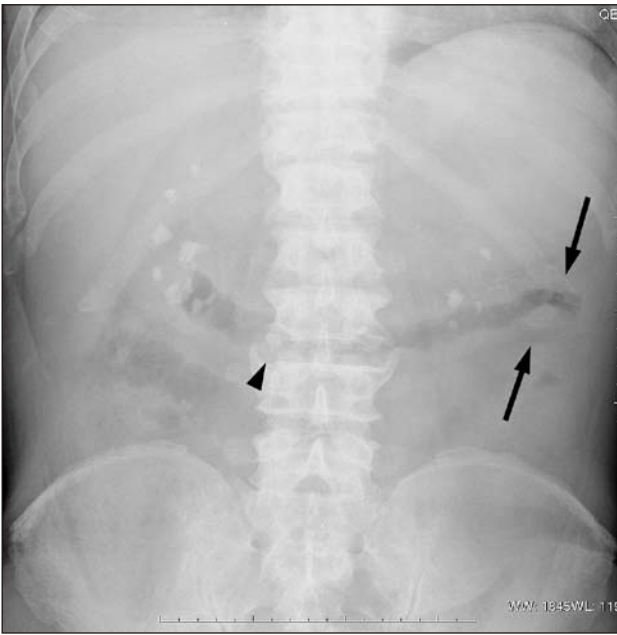
chronic alcohol drinker. Physical examination revealed tenderness and guarding of the right lower abdomen. He was anaemic, with a haemoglobin level of 47 g/L (reference range, 140-175 g/L).

Plain abdominal radiograph showed a segment of transverse colon with an abnormal thickened wall and loss of haustrations (Figure 1). Some tortuous thread-like calcifications were visible around the colon. Multiple bilateral renal stones were also noted. Emergency CT scan of the abdomen and pelvis showed markedly thickened bowel wall from the terminal ileum to the upper rectum, and numerous serpiginous calcifications within the bowel wall and adjacent mesentery (Figure 2). After injection of intravenous contrast agent, bowel enhancement was present and the central branches of

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**Figure 1.** Frontal plain radiograph of the abdomen showing the transverse colon (arrowhead) with thickened wall with loss of haustrations. Faint tortuous thread-like calcifications (black arrows) represent venous calcifications. Multiple bilateral renal stones are also present.

the superior and inferior mesenteric vessels were well opacified. Increased peritoneal enhancement and fluid collection were noticed in the right lower abdomen suggesting peritonitis and abscess formation.

Emergency operation revealed gangrenous bowel from the terminal ileum to the rectum. The bowel wall was

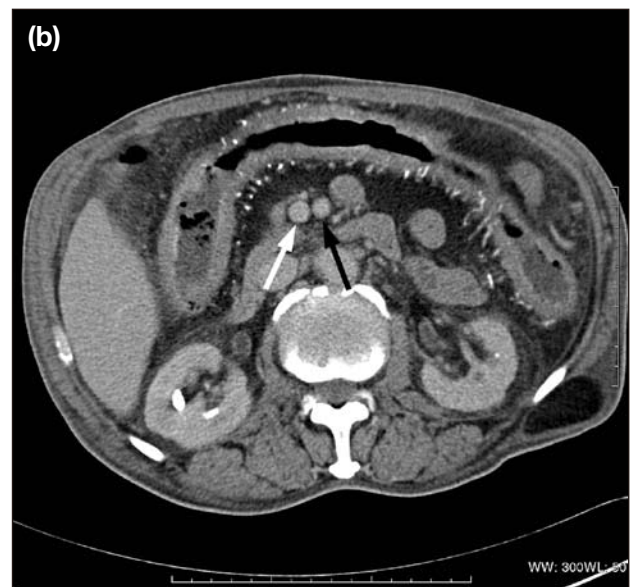
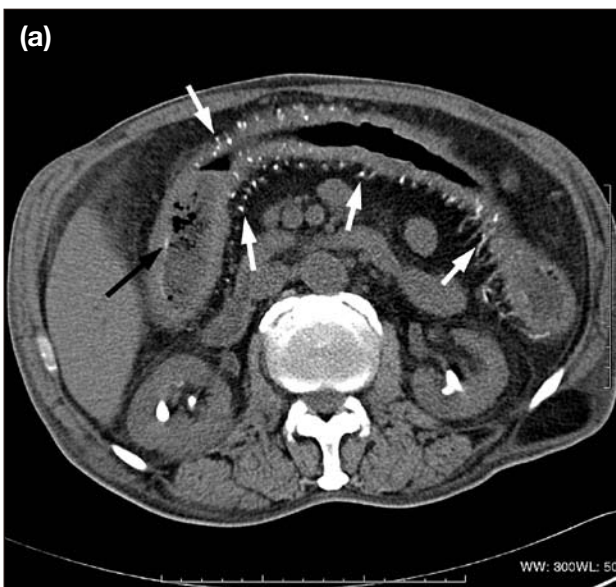
hardened and thickened. The superior and inferior mesenteric vessels were patent. Subtotal colectomy was subsequently performed in view of the bowel ischaemia.

Pathological assessment of the colonic mucosa showed diffuse dark brownish discoloration with patchy ulceration. Upon microscopic examination, the large bowel showed ischaemic changes with patchy ulceration, fissure formation, mucosal haemorrhage, and mixed inflammatory infiltrates. Many of the intramural and mesenteric veins showed luminal occlusion by loose fibrovascular tissue, fibrosclerosis of the vessel wall, and focal calcification. The arteries close to the sclerotic veins also showed intimal fibrosis. There was patchy fibrosis of the mucosa and submucosa. No evidence of vasculitis was noted. The findings were suggestive of mesenteric phlebosclerosis.

## DISCUSSION

Mesenteric phlebosclerosis is also known as phleboscrotic colitis. This rare condition was initially reported in Japan.<sup>1-6</sup> To date, less than 30 relevant patients have been reported.<sup>1-6</sup> The right-sided colon is the most often affected bowel segment.

The pathogenesis of this disorder is inconclusive. It has been proposed that there is a slow, but long-standing hypoxic injury to the venous muscular layer, leading to gradual mummification, sclerosis, and calcification of the venous muscles. This is followed by damage to the



**Figure 2.** Computed tomography of the abdomen. (a) Axial non-contrast image showing numerous serpiginous calcified small vessels in the colonic wall (black arrow) and adjacent mesentery (white arrows), thickened bowel wall, bilateral renal stones, and an incidental finding of a subcutaneous lipoma at the left side; and (b) axial contrast image showing bowel enhancement, and well-opacified superior mesenteric artery (black arrow) and vein (white arrow).

reactive hyperplastic myointima in the veins, leading to gradual venous occlusion.<sup>2</sup> Disturbance of venous return results in secondary ischaemic colitis.<sup>3</sup> The exact aetiology remains unknown. Some authors have suggested that herbs may contribute to the pathogenesis.<sup>4</sup> There may also be a genetic predisposition, as this disease is more commonly reported in Japan.<sup>5</sup>

Clinically, patients with mesenteric phlebosclerosis present with abdominal pain, vomiting, diarrhoea, constipation, and symptoms of gastrointestinal bleeding.<sup>1,3-6</sup> Frank ischaemic colitis can occur as a complication; this happened in this patient, who developed ischemic colitis and presented with signs and symptoms of peritonitis. His anaemia might also suggest previous gastrointestinal haemorrhage.

At colonoscopy, the diseased colon may reveal discoloured bluish-black oedematous mucosa, mucosal ulceration, and luminal narrowing.<sup>1,4-6</sup> Endoscopic ultrasound may also show thickening of the colonic wall with intramural calcification.<sup>5</sup>

The radiological features of mesenteric phlebosclerosis are characteristic and most often involve the right-sided colon. Plain radiographs of the abdomen can show the venous calcifications as thin tortuous thread-like calcifications.<sup>1,3-6</sup> Features of ischaemic colitis can be visualised as abnormal bowel wall thickening and loss of colonic haustrations. CT scan also clearly demonstrates the venous calcifications in both the colonic wall and adjacent mesenteric veins.<sup>1,3,5,6</sup> In addition, CT scan can detect the signs of ischemic colitis and its complications. These features were well illustrated in this patient. However, this patient was slightly atypical in that the involvement was more extensive, from the terminal ileum to the

upper rectum. If barium enema is performed, it may reveal loss of normal haustrations, thumb printing, mucosal irregularity, luminal narrowing, and overall rigidity of the colonic wall.<sup>1,3</sup> Angiogram may demonstrate dilatation of the veins along the vasa recta in the venous phase.<sup>3</sup>

As only a few patients have been reported, the clinical course and prognosis of mesenteric phlebosclerosis remains uncertain and there is no current consensus on treatment. Most patients underwent operations, but some patients achieved successful outcomes with conservative management.<sup>6</sup> Further study is necessary to determine the most appropriate management.

In conclusion, mesenteric phlebosclerosis is a rare disease with non-specific presenting signs and symptoms. Nevertheless, the radiological features are characteristic and enable prompt diagnosis of the condition.

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