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Mesenteric venous thrombosis after prolonged air travel—a case report

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ABSTRACT

We present a case of acute mesenteric venous thrombosis after a long distance flight in a traveller presenting with abdominal pain, diarrhoea and vomiting within 48 h of prolonged immobility situation. Venous thrombosis in the lower limbs and venous thromboembolism has been clearly associated with prolonged air travel (economy class syndrome). Thrombosis was diagnosed by computed tomography of the abdomen, and after starting anticoagulant therapy with acenocumarol, symptoms yielded completely in a few weeks. The study of thrombophilia was negative, although the existence of two first–degree relatives (mother and grandmother) with a history of venous thrombosis with a history of venous thrombosis makes it likely a situation of inherited thrombophilia. Although exceptional, mesenteric venous thrombosis should be considered in travellers with acute abdominal pain after prolonged air travel when there are thrombophilic conditions.

1. Introduction

Air travel has been linked with an increment of the risk for the development of deep vein thrombosis (DVT) in lower limbs and pulmonary thromboembolism[1–7]. This fact has been particularly proved for prolonged flights (more than 8 h) as, although it has also been described after shorter flights, the relationship is not so clear[4]. The frequency of air travel–related thromboembolism might be underestimated as affected individuals are often asymptomatic[6].

Mesenteric venous thrombosis is a rare entity associated with thrombophilic conditions–malignancies most

commonly, intra–abdominal surgery and liver cirrhosis[8]. We present the first case reported in the English literature of mesenteric venous thrombosis after a long–haul flight in a patient most probably suffering from an inherited thrombophilic disorder given his family history.

2. Case report

The patient is a 35–years–old Spanish male with a smoking habit of 40 cigarettes per year until the preceding year and a history of cholecystectomy because of cholelithiasis 1.5 years before presentation. He was under no chronic medication. Among blood relatives, his mother and grandmother had a history of lower limbs vein thrombosis. Architect by profession, he had travelled that same year to Guinea Bissau on account of his work, with no incidents to report.

He presented at our outpatient clinic 5 d after returning

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from a weeklong working trip to Sao Tome and Principe. He reported abdominal pain that began 48 h after arriving in Sao Tome, where he got after an air travel of about 6 h and 30 min departing from Lisbon. During the flight he had remained seated and leaned forward all the time because in the next seat there was a traveller with an important obesity. He had taken atovaquone proguanil as antimalarial prophylaxis. For the former trip he had been immunized against yellow fever, typhoid fever and tetanus.

The abdominal pain appeared mainly after meals, radiated to the back and was accompanied by diarrhoea without blood, pus or mucus with 4–5 stools per day, and occasional vomiting. There was no fever, respiratory or urinary tract symptoms nor weight loss in the last few months.

Full blood count showed $9\,500/\text{mm}^3$ WBC (neutrophils 64%, lymphocytes 25%, eosinophils 2%), Hb 16.2 g/dL (later controls, after hydration, were normal), platelet count $218\,000/\text{mm}^3$. Other main findings in laboratory test were a slight increment in serum transaminases (ALT 72 IU/L, reference range 0–45; AST 43 IU/L, reference range 0–35), and elevated LDH and C-reactive protein values: LDH 324 IU/L (reference range 0–247), CRP 1.72 mg/dL (reference range <0.5).

Urinalysis was normal as were chest and abdominal radiographs. Malaria was ruled out by peripheral blood smear, rapid malaria test and polymerase chain reaction, as was dengue as well by rapid test (platelia dengue NS1 Ag assay, IgM and IgG). Routine stool culture and parasite detection in stool were negative, and abdominal ultrasonography only showed findings compatible with hepatic steatosis.

The patient received symptomatic treatment with metamizol and discontinued atovaquone proguanil use. Five days after his first visit, symptoms have worsened, being the postprandial abdominal pain so intense that completely prevented the patient from eating anything at all. The patient was then admitted to hospital to continue study and treatment.

During hospitalization, an upper intestinal endoscopy showed a small hiatal hernia, and a contrast-enhanced computed tomography (CT) of the abdomen revealed an almost complete thrombosis of the mesenteric vein (Figure 1). Before starting anticoagulants, thrombophilia testing was undertaken (prothrombin G20210A, antithrombin, protein C and protein S deficiencies, activated protein C resistance, Factor V Leiden, JAK2 gene, ANA, lupus anticoagulant, anticardiolipin and anti- β -2-glycoprotein

antibodies, and homocystein levels) being its results finally negative. Plasma immunoglobulins (IgG, IgM, IgA) and tumor markers (alfa-fetoprotein, CA 19–9, CEA and PSA) were also within normal range.

Anticoagulant treatment was initiated with low molecular weight heparin followed by acenocumarol. Patient was discharged with substantial symptomatic improvement. Two months later, diarrhoea had disappeared, abdominal pain had significantly improved and abdominal CT showed complete resolution of the mesenteric thrombosis.

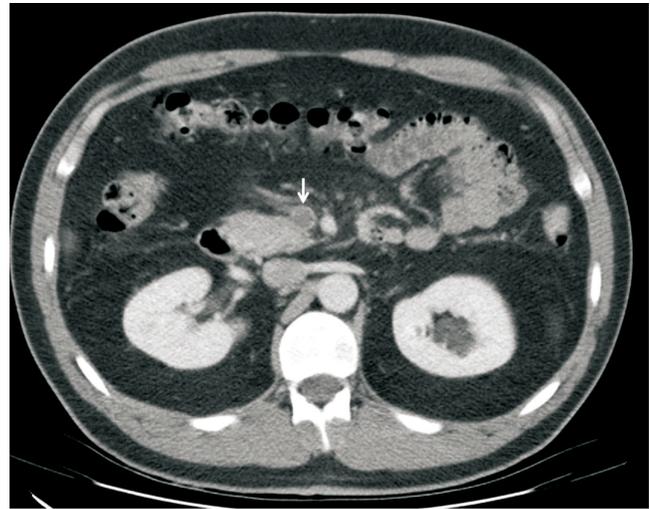


Figure 1. CT showing enlarged superior mesenteric vein with low-attenuation central filling defect, representing acute mesenteric thrombosis.

3. Discussion

The association between long-haul flights and thromboembolic disease is clearly established since the late 1970s, being called “the economy class syndrome” by some authors[9]. Since then, many studies have been published, relating this condition to the duration of travel, patients’ comorbidities and existence of previous thrombophilia predisposing factors[10]. The thromboembolic disease has been addressed mainly as lower limbs DVT and pulmonary thromboembolism. The true prevalence of the disease is difficult to ascertain as many patients with DVT are asymptomatic[6] or do not present with suggestive symptoms until several weeks after their flight[9,10].

In a comprehensive search of the literature undertaken in Pubmed crossing the terms “travel-related and mesenteric venous thrombosis”, “traveller and mesenteric venous thrombosis” and “air travel and mesenteric venous thrombosis” no such a case was found. Mesenteric venous thrombosis may be an incidental finding on

abdominal imaging or a cause of abdominal pain^[8]. The incidence is low (2–2.7 cases/100 000 patients per year), but has increased in the last years due to the widespread use of abdominal imaging, especially abdominal CT^[11]. The superior mesenteric vein is more commonly involved than the inferior one, and is occasionally associated with portal venous thrombosis. The pre-thrombotic states that favour its development are common to the rest of thromboembolic disorders, but local factors such as abdominal trauma or surgery, pancreatitis, cirrhosis, inflammatory bowel disease or intra-abdominal infections can also contribute^[8]. Idiopathic or primary cases vary from 0% to 49%, depending on the extension of the investigation carried out^[12,13]. With respect to our case, we can consider it an idiopathic or primary one, although given the patient prominent family history of thromboembolic disease, there is probably an underlying inherited thrombophilia that we have been unable to detect for the moment. This situation, and the position of sitting and leaning forward for several hours, could influence the development of mesenteric thrombosis.

Mesenteric venous thrombosis is more frequent in males between 40 and 60 years old, and when presentation is acute like in our case, the dominant symptom is abdominal pain, which is usually significant and may be accompanied by nausea, vomiting, diarrhoea and intestinal bleeding. In severe cases it may lead to bowel infarction. The presence of fever suggests pylephlebitis and is usually a sign of severity. As for chronic cases, the most important consequences are portal hypertension and bleeding from esophageal varices.

The treatment is anticoagulation during 6 months for patients with known reversible conditions and lifelong in patients with prothrombotic states or without any identifiable etiology^[8].

In summary, we present a case of mesenteric venous thrombosis after a long-haul flight. Although a rare entity, it should be borne in mind in patients with gastrointestinal symptoms after a prolonged air travel with no other alternative diagnose. Likewise, those patients with prothrombotic conditions should be advised to follow appropriate preventive measures such as proper hydration, avoidance of alcohol consumption, mobilization during the journey, usage of compression stockings or heparin prophylaxis whenever they are to make an international long distance travel^[14].

Conflict of interest statement

We declare that we have no conflict of interest.

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