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Pancreatoduodenal Artery Aneurism rupture post colonoscopy – Case report

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ABSTRACT

INTRODUCTION: Complications related to colonoscopy is considered low and in most cases involves intestinal perforation. Vascular complications involving aneurysm rupture are rare in the literature and may occur after colonoscopy.

PRESENTATION OF THE CASE: We report a case of a 58-year-old male patient that ruptured pancreatoduodenal artery aneurysm after colonoscopy, successfully submitted to endovascular treatment.

DISCUSSION: Colonoscopy is frequently used as a diagnostic procedure. The risk of complication inherent to the procedure is considered low, and intestinal perforation is one of the most frequent.

Other complications may present similar clinical symptoms, and it is necessary to complement the diagnostic investigation to offer the most appropriate treatment for the patient.

Among the complications, there is one report of aneurysm rupture after performing colonoscopies and no case involving aneurysm rupture of pancreatoduodenal artery has been reported to date.

CONCLUSION: A patient with ruptured pancreatoduodenal artery aneurysm is a rare entity that can be adequately treated with endovascular intervention. This is the first report of rupture related to colonoscopy.

1. Introduction

Colonoscopy is a frequently used diagnostic procedure, with a risk of complication inherent to the procedure considered low, and intestinal perforation is one of the most frequent.

Other complications may present similar clinical symptoms, initially presenting abdominal pain as the sole symptom, and it is necessary to complement the diagnostic investigation to offer the most appropriate treatment for the patient.

We report a case of ruptured pancreatoduodenal artery aneurysm after colonoscopy, successfully submitted to endovascular treatment.

The work has been reported in line with de SCARE criteria [14], and is approved by the ethics committee of Oswaldo Cruz German Hospital, São Paulo, SP, Brazil (register: 38691020.1.0000.0070).

2. Case report

A 58-year-old male patient engineer, married, native to Brazil, with controlled hypertension, no other relevant medial history, BMI of 26, attends to the Emergency Room with an abdominal pain associated with the onset of symptoms 12 h after and uneventful colonoscopy in another service, and fever. The patient brings with him a report of computed tomography of the abdomen and pelvis performed without contrast in the service in which he performed the colonoscopy, which presented gas distension of the colons and diverticula without inflammatory signs.

On admission, the patient underwent laboratory tests, which came without alterations, except for PCR of 8.0 and an Hb of 10.2 (previous Hb of 14.0, 5 days prior to this test). It was opted for a new contrast-free abdominal tomography due to the fact that the patient is allergic to iodine. In this, it became evident the presence of liquid in the retroperitoneal region with density compatible with blood, without evidence of pneumoperitonea, being chosen to proceed the investigation with abdominal CT angiography after desensitization of the patient.

In turn, the CT angiography showed celiac trunk with luminal reduction in its proximal third determined by compression by the median arcuate ligament, presence of saccular aneurysm in the lower pancreatoduodenal artery measuring 0.5 cm, and paramedian retroperitoneal hematoma to the right measuring about 8.5 × 7.5 × 3.5 cm, which features intimate relation to the pancreatoduodenal arteries (Figs. 1 and 2).

As the patient remained hemodynamically stable, without further hematimetric falls, arteriography was performed with

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Fig. 1. Vascular 3d recontruction – arrow points the pancreatoduodenal artery aneurism.

Fig. 2. CT scan showing the pancreatoduodenal artery aneurism.

embolization of the aneurysm of saccular aspect, using micro coils, with satisfactory filling at the end of the procedure, and maintaining patency of the superior and inferior pancreaticoduodenal arteries up to the embolized aneurysm region (Figs. 3 and 4).

The patient presented a good evolution in the postoperative period, with no complaint of abdominal pain or hematimetric fall, being discharged from the service 3 days after endovascular procedure.

Fig. 3. Endovascular image showing the aneurism.

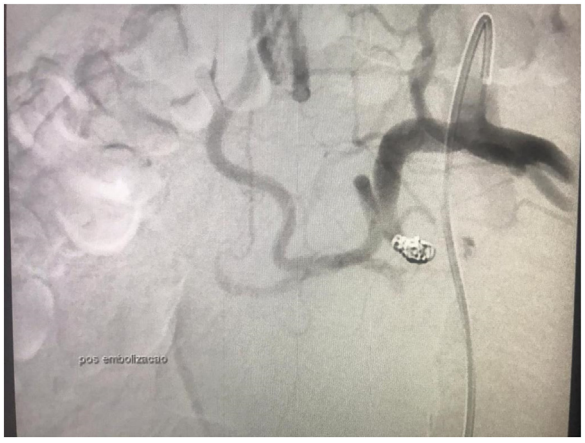

Fig. 4. Endovascular image showing the embolization of the aneurism.

3. Discussion

Generally speaking, the colonoscopy is a safe procedure with a low rate of complications. The combined prevalence of perforation, post-colonoscopy bleeding, and mortality was 0.5/1000 (95 % confidence interval (CI) 0.4–0.7), 2.6/1000 (95 % CI 1.7–3.7), and 2.9/1000 (95 % CI 1.1–5.5) colonoscopies [1].

Among the complications, there is a report of aneurysm rupture after performing colonoscopies. In 2003, Soto *et al* reported a case of rupture of iliac artery aneurysm [2], and no case involving aneurysm rupture of pancreatoduodenal artery has been reported to date.

Pancreatoduodenal artery aneurysms have an association established in the literature with the compression of the celiac trunk by the arcuate ligament, which was initially described in the 1970s [3,4], as well as with any stenosis or occlusion of another etiology; and its pathophysiology is related to increased blood flow in the pancreatoduodenal arteries, due to the deviation of blood flow from the superior mesenteric artery [3,5,6]. Its size is varied, with an average in the literature around 9 mm. However, the aneurysm size does not present a direct correlation with greater or lesser chance of rupture [12].

These aneurysms may be asymptomatic or present symptoms related to extrinsic compression of the gastrointestinal or biliary tract. Intestinal bleeding may occur due to aneurysm rupture in the duodenum and/or pancreatic ducts, and are usually diagnosed in complementary investigation by CT angiography [3,7,8].

Pancreatoduodenal artery aneurysms, together with gastroduodenal artery aneurysms are also called peripancreatic aneurysms, corresponding to about 2 % of visceral aneurysms [10].

Although rare, these aneurysms are among those at higher risk of life of all splenic aneurysms due to the high rupture rate (45 %–53 %). For this reason, the current literature recommends the surgical treatment of these aneurysms regardless of the diameter it presents.

There is no consensus on the need for treatment of extrinsic compression or atherosclerotic stenosis of the celiac trunk in asymptomatic patients with concomitant pancreatoduodenal artery aneurysm, and its surgical indication is controversial even after aneurysm treatment [7,9].

Surgical treatment of these aneurysms can be done openly or endovascularly. Aneurysms that are morphologically favorable to the endovascular technique are narrow neck, adequate collateral flow and non-terminal vessels. A meta-analysis carried out in 2019 showed that 226 cases of aneurysms involving the pancreatoduodenal artery or gastroduodenal artery, 182 were treated by endovascular technique [11].

Open surgical treatment of visceral aneurysms still has indications, but the endovascular approach has several advantages, such as being less invasive, lower perioperative morbidity and mortality, and allowing selective embolization [9].

According to Bonardelli et al., both the open and endovascular approach can be used for the treatment of visceral aneurysms. What will define the access route is the clinical condition of the patient on admission to the emergency service and the vascular anatomy previously studied in the imaging exam that has diagnosed the aneurysm [13].

Embolization can be performed with several materials, and embolization with micro coils is the most used. The use of covered stents for the exclusion of aneurysms presents some difficulties related to the technique, such as limited lengths and diameters, difficulty in navigability, difficulty in accommodation in more tortuous arteries and risk of intra-stent thrombosis. The use of covered stents is more indicated in arteries larger than four millimeters, as prevention of migration of micro coils in wide neck saccular aneurysms or fusiform aneurysms [7].

4. Conclusion

A patient with ruptured pancreatoduodenal artery aneurysm is a rare entity that can be adequately treated with endovascular intervention. This is the first report of rupture related to colonoscopy.

Declaration of Competing Interest

The authors report no declarations of interest.

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At our own expenses.

Ethical approval

This case report was approved by the ethics committee of Oswaldo Cruz German Hospital, São Paulo, SP, Brazil (register: 38691020.1.0000.0070).

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Luca G A Pivetta, conceptualization, Validation, Writing - Original Draft ; Pedro H F Amaral: Methodology, Validation ; João P V Carvalho, Formal analysis, Data Curation ; Sergio Roll, Writing - Review & Editing, Supervision, Project administration ; Gustavo J P Telles, Methodology, Writing - Review & Editing.

Registration of research studies

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