CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 33 (2017) 115–118

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Successfully-treated asymptomatic celiac artery aneurysm: A case report

Nobuhiro Takeuchi[a], Junichi Soneda[a], Hiromichi Naito[b], Atsuyoshi Iida[b,*], Tetsuya Yumoto[b], Kohei Tsukahara[b], Atsunori Nakao[b,*]

[a] Department of Internal Medicine, Kobe Tokushukai Hospital, Tarumi, Kobe, Japan
[b] Department of Critical Care and Emergency Medicine, Okayama University Hospital, Okayama, Japan

ARTICLE INFO

Article history:
Received 7 October 2016
Received in revised form 13 February 2017
Accepted 13 February 2017
Available online 27 February 2017

Keywords:
Celiac aneurysm
Splanchnic aneurysm
Surgical repair

ABSTRACT

BACKGROUND: Celiac artery aneurysm is a rare vascular lesion. It is frequently discovered after rupture, which leads to death in most cases. We present a case of an asymptomatic celiac artery aneurysm discovered in a 72-year-old female during an evaluation for high grade fever and general fatigue.
CASE PRESENTATION: The patient visited our department with complaints of fever and general fatigue. The patient's medical history included type 2 diabetes mellitus with poor control and hypertension. Blood culture and urine culture that were submitted at arrival presented *E. Coli*. Then, she was diagnosed with bacteremia by urinary tract infection. Transesophageal echocardiography revealed no vegetation at her valves. Computed tomography was performed for investigating her urological abnormalities, revealing a 28 × 30 mm aneurysm at the trunk of the celiac artery. Blood and urine cultures submitted at arrival were positive for *E. coli*. Surgical repair performed after the improvement of her urinary tract infection revealed a non-infective aneurysm; thus, aneurysm closure and prosthetic grafting were conducted.
CONCLUSION: Clinician awareness regarding this rare entity and discovery efforts to discover the splanchnic aneurysm before rupturing are imperative.

1. Introduction

Celiac artery aneurysm is a quite uncommon vascular lesion, accounting for 5.1% of all splanchnic artery aneurysms [1]. Although rare, celiac artery aneurysm carries a definite risk for rupture and other complications [2]. However, because of its rarity, no strong consensus concerning indications for intervention of asymptomatic celiac artery aneurysm exists in the literature. Due to more frequent use of cross-sectional imaging, the dilemma of choosing the appropriate therapeutic option has become increasingly more important. Herein, we present a case of an un-ruptured celiac artery aneurysm that was treated by surgical repair and also discuss the appropriate therapeutic strategy based on a literature review.

2. Case presentation

A 72-year-old female visited our department with complaints of fever and general fatigue. The patient's medical history included type 2 diabetes mellitus with poor control and hypertension. She has no history of infectious disease or trauma. She denied any tobacco and alcohol use. Physical examination upon arrival revealed that her blood pressure was 147/62 mmHg, heart rate was 104 beats/min with regular rhythm, blood oxygen saturation was 95% under atmospheric conditions, and body temperature was 38.7 °C. Blood analyses revealed 11,260 white blood cells/μl with 80.6% neutrophils and 0.69 mg/dl C-reactive protein); mild hypoalbuminemia (3.3 g/dl); coagulant dysfunction (fibrin/fibrinogen degradation products; 7 μg/dl fibrinogen; and 2.1 μg/ml D-dimer), and severely impaired glucose tolerance (157 mg/dl and 11.2% hemoglobin A1c). Further, mildly increased gamma-glutamyltransferase (215 IU/l) and alkaline phosphatase (671 IU/l) were also revealed. At her initial clinical examination, she weighed 52.4 kg, was 150 cm tall, and had a body mass index was 23.3 kg/m^2. Inspection of the palpebral conjunctiva revealed no evidence of anemia. Chest auscultation revealed no signs of abnormal heart murmurs and no rales or other abnormal respiratory sounds. The abdomen was slightly distended and her peristalsis

* Corresponding author at: Department of Emergency and Critical Care Medicine, Okayama University Graduate School of Medicine Dentistry and Pharmaceutical Sciences, 2-5-1 Shikata-cho, Kita-ku, Okayama-shi, Okayama, 700-8558, Japan.
E-mail addresses: takeuchi1207@yahoo.ne.jp (N. Takeuchi), soneda@kobetokusyukai.jp (J. Soneda), naito05084@gmail.com (H. Naito), atsuyoshiiida1656@gmail.com (A. Iida), tetsujaam@yahoo.co.jp (T. Yumoto), hei.trp@gmail.com (K. Tsukahara), qq-nakao@okayama-u.ac.jp (A. Nakao).

http://dx.doi.org/10.1016/j.ijscr.2017.02.018

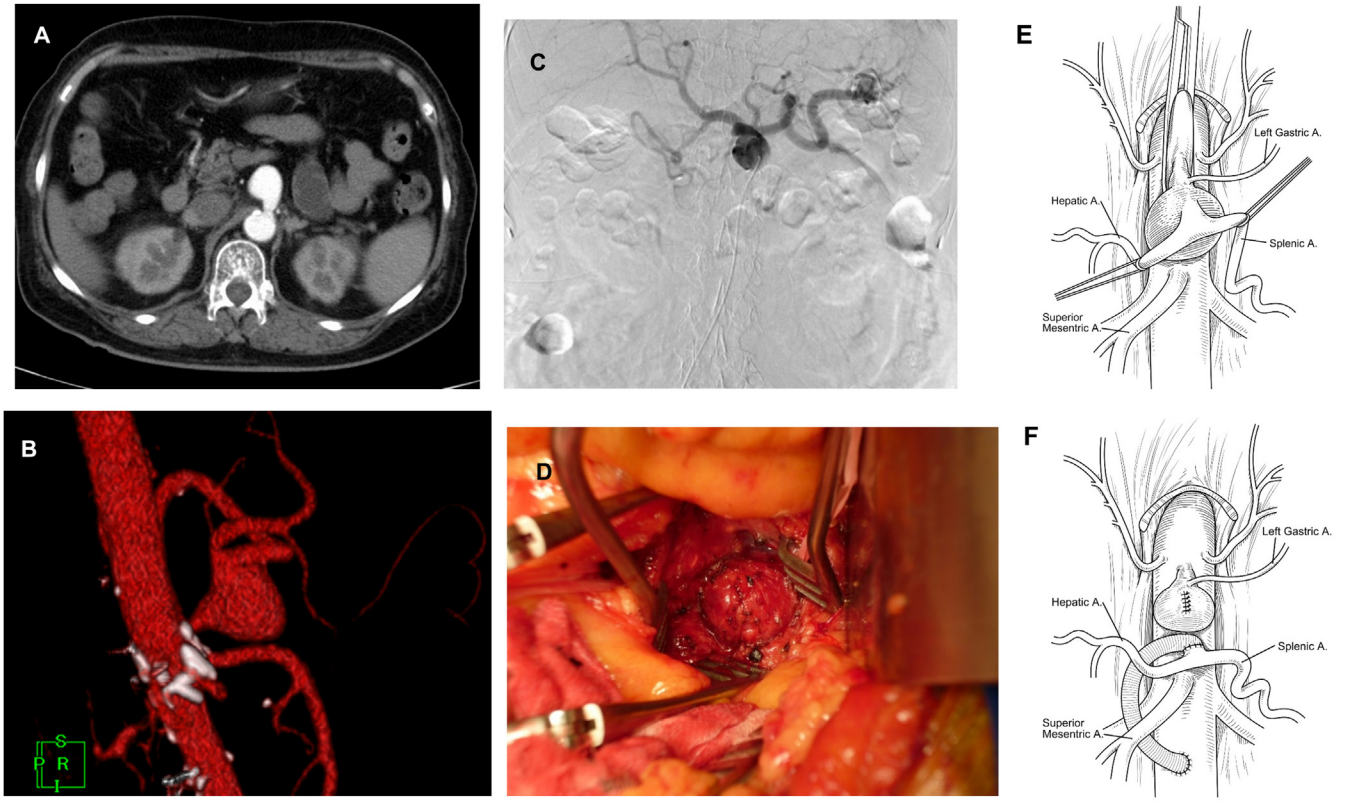

Fig. 1. A) Contrast-enhanced computed tomography revealed a 28 × 30 mm size celiac artery aneurysm 10 mm distal to the outlet of the artery. B) Volume rendering of computed tomography revealed an aneurysm that had a common trunk of the hepatic and splenic artery. C) Angiography revealed that blood flow of proper hepatic artery was dominantly supplied from the celiac artery. D) Surgical findings revealed an exposed celiac artery aneurysm. E, F) Schema shows pre- and post-operative findings.

was normal; no tenderness was observed in the upper abdomen. No mass was palpable, and there were no signs of peritoneal irritation. Physical examination showed no edema or cyanosis.

Electrocardiography revealed a normal, regular heart rhythm without ischemic changes. Chest radiography revealed nothing that suggested infected lesions. Blood culture and urine culture that were submitted at arrival revealed *E. coli*. She was then diagnosed with bacteremia by urinary tract infection and antibacterial medicine (cefmetazole 2 g per day) was initiated. Transesophageal echocardiography was performed to investigate infective endocarditis, revealing no vegetation at her valves. Contrast-enhanced computed tomography (CT) was performed for investigating her urological abnormalities, revealing no urological deformities but a 28 × 30 mm sized aneurysm at the trunk of the celiac artery (Fig. 1A, B). Based on the angiography finding, the proper hepatic artery was dominantly supplied from the celiac artery, the left gastric artery being bifurcated from the celiac trunk, and the celiac artery and the splenic and common hepatic artery had a common trunk (Fig. 1C).

Surgical repair of the aneurysm was performed after confirmation of negative blood culture for bacteria on day 32.

Upper abdominal midline was performed under general anesthesia. Firstly, lesser omentum and crus of diaphragm were incised to expose abdomen aorta at the level of the trunk of the celiac artery. The proper hepatic artery was taped at the hepatic hilus. After that, the superior mesenteric artery was taped at the trunk of the small bowel mesentery. The celiac artery aneurysm was exposed. The left gastric artery was bifurcated from the common hepatic artery. The common hepatic and splenic artery were taped. Then, abdominal aorta was exposed at the level of the renal artery. Abdominal aorta was clamped both at the head of celiac artery and at the level of renal artery to prevent blood flow. The aneurysm was incised to ligate it from the inside. Then, abdominal aorta was declamed after 12 min of clamping time. The distal celiac artery of the aneurysm was cut and 8 mm size prosthetic graft was anamotosed. Another end of the prosthetic graft was anamostosed through the dorsum of duodenum to abdominal aorta below the level of renal artery (Fig.1D, E, F). The greater omemtum was intervened to prevent infections.

Postoperative course was uneventful and she was discharged on day 47.

3. Discussion

Celiac artery aneurysm is an uncommon type of splanchnic artery aneurysm that carries a high risk for mortality if it ruptures. A total of 9.1% of celiac artery aneurysms are accompanied by abdominal aortic aneurysms [1]; solitary celiac artery aneurysms not accompanied by other aneurysms are extremely rare. Etiology of celiac artery aneurysm includes infectious diseases, atherosclerosis, trauma, or congenital conditions [2]. Atherosclerotic degeneration is the most common cause. Other causes of celiac artery aneurysm include medial necrosis, inflammation, trauma, and median arcuate ligament syndrome. In our patient, the cause of the aneurysm was presumably derived from atherosclerosis due to the poor-controlled diabetes mellitus, hypertension, and aging.

Since most patients are asymptomatic, celiac artery aneurysm is frequently incidentally discovered by imaging modalities for the investigation of other conditions or diseases [3]. The major presentation of celiac artery aneurysm is gastrointestinal symptoms, including abdominal pain, nausea, vomiting, appetite loss, or symptoms of mesenteric ischemia.