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SECOND-LOOK LAPAROSCOPY CAN BE AN EARLY DIAGNOSTIC TECHNIQUE FOR ISCHEMIC COLITIS AFTER OPEN REPAIR OF RUPTURED ABDOMINAL AORTIC ANEURYSM

RÜPTÜRE ABDOMİNAL AORT ANEVRİZMA TAMİRİ SONRASI İSKEMİK KOLİT TANISINDA LAPAROSKOPİK İKİNCİL BAKI

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Abstract

Ischemic colitis following open repair of ruptured abdominal aortic aneurysm is an infrequent but severe complication and has high mortality rates. Colon ischemia or low perfusion can sometimes be detected intraoperatively or predicted by recognizing the high-risk patients. Since postoperative diagnosis of ischemic colitis requires early suspicion and timing is crucial for the management of ischemic colitis, rapid diagnostic tools are mandatory. In this context, second-look laparoscopy is a minimally invasive technique that is performed for diagnostic purposes and reduces negative laparotomies. Here, we describe a case of ruptured abdominal aortic aneurysm with ischemic colitis that was diagnosed via planned second-look laparoscopy.

Keywords: Ischemic colitis, ruptured abdominal aortic aneurysm, laparoscopy

Öz

Rüptüre abdominal aort anevrizmasının açık onarımını takiben iskemik kolit nadir görülen ancak ciddi bir komplikasyondur ve yüksek mortalite oranlarına sahiptir. Kolon iskemisi veya düşük perfüzyon bazen intraoperatif olarak tespit edilebilir veya yüksek riskli hastaların belirlenmesiyle önceden tahmin edilebilir. İskemik kolitin postoperatif tanısı erken şüphe gerektirdiği ve iskemik kolit tedavisinde zamanlama çok önemli olduğu için hızlı tanı araçlarının varlığı zorunludur. Bu bağlamda laparoskopik ikincil bakı, tanı amaçlı yapılan ve negatif laparotomileri azaltan minimal invaziv bir tekniktir. Bu çalışmada, rüptüre abdominal aort anevrizması sonrası planlı laparoskopik ikincil bakı ile teşhis edilen iskemik kolit olgusunu sunmayı amaçladık.

Anahtar Kelimeler: Rüptüre abdominal aort anevrizması, iskemik kolit, laparoskopi

Introduction

Ischemic colitis after ruptured abdominal aortic aneurysm (RAAA) repair is one of the major complications after these operations and may lead to perforation and then intra-abdominal sepsis, which makes early diagnosis very important in the postoperative period. Although the incidence of ischemic colitis has decreased after endovascular aneurysm repairs, the incidence after open repair of RAAA remains higher comparing the endoscopic interventions[1]. Early diagnosis of ischemic colitis in postoperative intensive care conditions is crucial to conclude a decision about the appropriate time and type of the intervention.

We, herein, present the case of a patient who developed ischemic colitis after open repair of a RAAA and diagnosed with bedside laparoscopy in intensive care unit at postoperative 36th hour.

- *Case*

An 86-year-old male was admitted to the emergency department with sudden onset of abdominal pain. On history, the pain has started a couple of hours ago and did not relieve, and the patient denied any other gastrointestinal symptoms including diarrhea, constipation or hematochezia. His medical history was remarkable for cardiovascular disease with myocardial infarction 3 months ago, and he refused to undergo surgery for coronary artery bypass grafting. He has been under medication for 75 mg clopidogrel and 100 mg acetyl salicylic acid since the cardiac event. Other comorbidities were hypertension and diabetes. On presentation, general condition was poor, blood pressure was 60/30 mmHg and pulse rate was 86/min. Physical examination revealed tenderness in the middle region of the abdomen. Laboratory findings was unremarkable other than a mild metabolic acidosis.

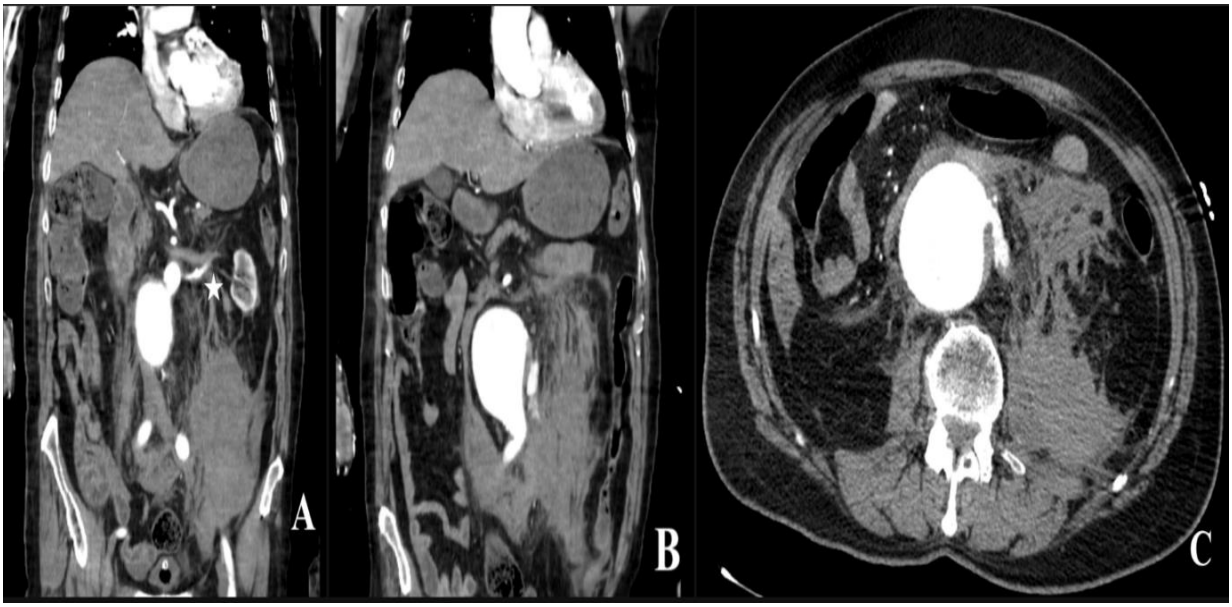

Image 1. Preoperative computed tomography angiogram images. The coronal images (A, B) show aortic abdominal aneurysm below the renal artery (star in A). Ruptured aneurysm at the left lateral wall in B and C.

Image 2. Sigmoid colon necrosis at second-look diagnostic laparoscopy in intensive care unit.

Computed tomography angiogram (CTA) showed a 6 cm diameter fusiform abdominal aortic aneurysm with ruptured left lateral wall, starting from the infrarenal level, continuing approximately 10 cm throughout to the proximal of the iliac bifurcation (Image 1). The patient was immediately brought to operating room and underwent surgery for an open repair. A tubular polytetrafluoroethylene (PTEF) graft, from the infrarenal level extending 1 cm proximal to the iliac bifurcation, was placed. During operation no gastrointestinal perfusion impairment was observed. A laparoscopic 12 mm trocar was placed in the right lower quadrant of the patient to perform second-look laparoscopy for a potential ischemic colitis. Patient was sent to intensive care unit after the surgery. During postoperative period he was treated with three types of inotropic agents, and he received low molecular weight heparin with treatment dosing of 1 mg/kg. In the 36th hour of post-surgery, he was still intubated and due to its feasibility to perform, a bedside laparoscopy by using pre-existing trocar in intensive care unit was performed. On laparoscopy transmural necrosis of sigmoid colon was observed and patient was transferred to operating room for laparotomy (Image 2). Due to necrosis of sigmoid colon and distal descending colon, left hemicolectomy with an end colostomy was performed. There was no leakage or any other complication with the aortic graft. The patient who did not develop any complications in the postoperative period was discharged from the hospital 12 days following surgery with full recovery. Today, after two years, he is completely well and did not develop any other complications. Colostomy reversal was not planned for this patient due to his comorbidities and increased risk for general anesthesia.

Image 3. Preoperative computed tomography angiogram image. The branching of the inferior mesenteric artery (arrow) and complete filling of sigmoidal arteries.

Discussion

Ischemic colitis after ruptured abdominal aortic aneurysm (RAAA) repair is one of the major complications. Early diagnosis of ischemic colitis in postoperative intensive care conditions is crucial to conclude a decision about the appropriate time and type of the intervention. In this context, laparoscopy is a minimally invasive technique and easy to perform for a rapid and accurate diagnosis[1-3].

In preoperative period, demonstration of anomalies, such as absent middle colic artery or incomplete marginal artery of Drummond or already existing arterial occlusions, with a detailed imaging study can provide to make predictions for the probability of ischemic colitis in RAAA with an impaired inferior mesenteric artery[4]. In our patient, preoperative CTA confirmed the complete and well patency of the superior mesenteric artery, and additionally inferior mesenteric artery was also patent in the initial CTA (Image 3). However, patients with renal failure is a diagnostic challenge because of the risk for developing contrast induced nephropathy. Even in postoperative newly developed renal failure, second-look laparoscopy can

replace CTA for the diagnosis of ischemic colitis and maintain renal safety of the patient[5].

Early diagnosis of ischemic colitis is important due to high risk of mortality. Miller et al.[6] reported high mortality rates as a result of severe colonic ischemia. In the same study bowel resections appear to be linked to late diagnosis of gastrointestinal ischemia. Authors suggest additional diagnostic work-up such as endoscopy or guaiac test for patients who have subtle signs and symptoms of ischemia.

In summary, laparoscopy as a second look procedure is a feasible technique to diagnose a possible gastrointestinal low perfusion or necrosis and it also aids surgeons to avoid unnecessary laparotomies. In RAAA, implementation of second-look laparoscopy as a step of open repair may facilitate early diagnosis of ischemic colitis.

Conflict of Interest

The authors declared they do not have anything else to disclose regarding conflict of interest with respect to this manuscript.

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Ethical approval

Informed consent was obtained from the parents of the patient to publish this case in a medical journal.

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