CASE REPORT

Acute iliac arterial thrombosis during laparoscopic abdominoperineal resection

Kota Sahara1, Atsushi Ishibe1,*, Taichi Yabuno2, Hiroki Kondo2, Gakuryu Nakayama1, Shota Yasuda3, Takahiro Nishida3, Jun Watanabe1, Yasuko Uranaka3, Hirotoshi Akiyama1, Akira Sugita4, and Itaru Endo1

1Department of Gastroenterological Surgery, Yokohama City University Graduate School of Medicine, Yokohama 236-0004, Japan, 2Department of Gastroenterological Surgery, Yokohama Municipal Citizen’s Hospital, Yokohama 240-0062, Japan, 3Department of Cardiovascular Surgery, Yokohama Municipal Citizen’s Hospital, Yokohama 240-0062, Japan, and 4Department of Inflammatory Bowel Disease, Yokohama Municipal Citizen’s Hospital, Yokohama 240-0062, Japan

*Correspondence address. Department of Gastroenterological Surgery, Yokohama City University, 3-9 Fukuura, Kanazawa-ku, Yokohama 236-0004, Japan. Tel: +81-45-787-2650; Fax: +81-45-782-9161; E-mail: a.ishibe1225@gmail.com

Abstract

Background: Acute iliac arterial thrombosis during surgery is very rare complication. There were few reports on this complication relative to gastroenterological surgery, and the risk has not been recognized.

Case presentation: A 70-year-old man, diagnosed with a rectal cancer (adenocarcinoma of rectum) with known history heavy cigarette smoking with no known history of peripheral vascular disease underwent a laparoscopic abdominoperineal resection. He presented severe pain in the left leg in the recovery room. A computed tomography (CT) scan revealed the complete obstruction of the left common iliac artery. A successful revasculization was achieved through a thrombectomy and percutaneous transluminal angioplasty with a stent immediately after the diagnosis. The pain in the left leg disappeared immediately after the revasculization.

Conclusion: An acute arterial thrombosis is a potential complication of the laparoscopic colorectal surgery with the lithotomy position.

INTRODUCTION

Acute compartment syndrome (ACS) in the lower extremities causing peroneal nerve dysfunction and deep vein thrombosis (DVT) is widely recognized as a complication during the surgery with the lithotomy position [1]. In comparison to ACS, acute arterial thrombosis during the surgery is extremely rare complication. We report a novel case which had acute iliac arterial thrombosis through the laparoscopic abdominoperineal resection and was rescued with prompt diagnosis and emergent thrombectomy.

CASE REPORT

A 70-year-old man underwent a colonoscopy after having episodes of bright red stool per rectum and diarrhea. A lower rec-
summarized nine reported cases of acute limb ischemia during surgical procedure Including present case. Six

The numbness in his left lower leg. A heparinization had been commenced on the postoperative day 1, then this was switched to the clostazol prior to the discharge for home. We note that the patient continued reporting the left lower leg numbness even one year past the surgery.

**DISCUSSION**

Causes of acute limb ischemia include acute thrombosis of limb artery, embolism from the heart or a diseased artery, dissection, and trauma [2]. In our case, the thrombosis was presumed to associate with acute limb ischemia according to the past history and operative findings without traumatic procedure. No article elaborated the incidence of iliac arterial thrombosis during the surgery but, to the best of our knowledge, there are only eight cases reporting the intraoperative acute limb ischemia in terms of pelvic surgeries except this case (Table 1) [3–8]. Of note, this is the first case with acute limb ischemia during a laparoscopic gastroenterological surgery.

In present case, there seemed to be multiple risk factors for arterial thrombosis which were ASO, head-down lithotomy position, intravascular dehydration and hypercoagulopathy. ASO was retrospectively suspected from the iliac arterial calcification on the CT and might be responsible mainly. Additionally, it indicated background ASO that he had two risk factors of ASO, smoking and hypertension, among the risk factors such as smoking, diabetes, hypertension and hypercholesterolemia [9]. In regards of the body position during operation, Horgan et al. elaborated the addition of 15° head-down tilt led to an immediate and significant drop in lower limb perfusion with lithotomy position [10]. This fact could suggest that laparoscopic rectal surgery often using deeply head-down lithotomy position tends to decrease the perfusion in lower limb compared with open approach. Furthermore, intravascular dehydration was highly suspected by clinical factors, urine volume, in-out balance described above and systolic blood pressure remaining about 90 mmHg during the surgical procedure. Hypercoagulopathy associated with the concurrent and active cancer may have contributed the vascular complications.

Table 1 summarized nine reported cases of acute limb ischemia during surgical procedure Including present case. Six
patients were diagnosed as cancer of ninth patients caused by thrombosis, and it suggests the association between cancer and thrombotic ischemia. Remarkably, patients without risk factor of ASO had experienced acute limb ischemia owing to intraoperative injuries or compartment syndrome. We failed to predict the risk of arterial thrombus complication at a stage of preoperative evaluation, while the prompt diagnosis and surgical intervention for arterial thrombus prevented from the potentially worse outcomes, such as total limb necrosis requiring amputation. As an alternative evaluation, an Ankle Brachial Pressure Index (ABI) may have been valuable measurement during the preoperative evaluation. Moreover, the perioperative monitoring of pedal blood pressure by intraarterial cannulation or pulse oximeter on lower limbs may have been convenient and useful if routinely performed for high risk patients. This is a relatively simple procedure and provide an immediate reaction when there is decreased flow to the foot. An acute arterial thrombosis is a potential complication of the colorectal surgery with lithotomy position, especially performed laparoscopically. Surgeons should recognize multiple risks of arterial thrombosis and minimize the patient's complications by early detection and intervention.

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CONFLICT OF INTEREST STATEMENT

The all authors declare that they have no competing interests.

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