# Necrotizing Fasciitis of the Abdominal Wall after Laparoscopic Roux-en-Y Gastric Bypass

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### Abstract

Introduction: Necrotizing fasciitis is a devastating infectious process with a mortality rate of greater than 20 percent. Rapid recognition of this disease process is critical, as mortality is positively correlated with increased time to intervention. This case report describes the presentation and successful management of a patient with severe, life-threatening necrotizing fasciitis. Case presentation: The patient, a 42-year-old woman with a body mass index (BMI) of 47kg/m,2 had undergone laparoscopic Roux-en-Y gastric bypass (RYGB) prior to presentation. Her past medical history has not got. Her surgical historyhas not got. She is not took medications. She had no allergies, did not smoke, and did not drink alcohol. Conclusion: Necrotizing fasciitis is an infectious process with a high mortality rate, and mortality is positively correlated with increased time to intervention. In light of this, rapid detection and diagnosis of this disease process is critical. Our case demonstrates that for correct diagnosis we need to a high index of suspicion.

Keywords: Necrotizing fasciitis, gastric bypass, Bariatric surgery, sepsis

#### INTRODUCTION

Necrotic fascia is a type of soft tissue infection characterized by the rapid and widespread development of soft tissue necrosis. This infection usually affects the muscle and subcutaneous tissue but may spread to the skin or muscle <sup>[1]</sup>. The progress of this infection is related to the thickness of the subcutaneous layer and moves along the facial plate. The bacteria that cause necrotic fascia can be airborne, notairborne or mixed flora. Accordingly, the three main categories of infection causes are type 1: polymicrobial, type 2: streptococci group A and type three: clostridial myonecrosis, or gas gangrene <sup>[2, 3]</sup>

Although necrotic fascia is a relatively rare complication, it is associated with high mortality, especially when it is diagnosed late. The mortality rate reported in different studies varied from 20 to 80% <sup>[4, 5]</sup>.

Common areas of necrotic fascia include the lower limbs, the external genitalia, and the pericardial areas <sup>[2]</sup>. In less than 25% of patients, necrotic fascia occurs in the anterior abdominal wall, which is usually caused by penetrating wounds of iatrogenic or traumatic origin <sup>[6]</sup>. We present a rare case report of abdominal wall necrotizing fasciitis after classic gastric bypass surgery.

#### **Case of Presentation**

A 42-year-old woman with a BMI = 47 underwent laparoscopic Roux-en-Y gastric bypass (RYGB) to treat

morbid obesity. The patient had no underlying disease, including diabetes, smoking or alcohol abuse. There were no specific cases of cardiopulmonary and preoperative nutrition. She had no previous surgery. She did not take any particular medication. The patient went undergone anti-gastric anticolic RYGB. Gastrogeogenostomy anastomosis and the rest of the anastomoses were performed with a linear stapler. Antibiotic prophylaxis was pre-injected. There was a 10 mm port for the camera, a 12 mm port for LUQ and 3 other 5mm ports. The operation was done in about 1 hour and 20 min. Gastrogeogenostomy anastomoses leak test was performed with methylene blue and air which was normal. Intraoperative bleeding was estimated to be 30 cc. At the end of the operation, 12 mm port was closed with a fascias clavier. The patient was easily extubated in the operating room and transferred to the ICU at 8 o'clock in the evening. The day after the operation, the patient complained of slight

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LUQ pain without fever, tachycardia and tachypnea. The drain had a slight discharge. The UPPER GI was performed to check for the leak, which was normal and there was no leak. By the evening of the same day, the patient gets gradually ill, complaining of abdominal pain that the pain was greater than in the morning visit. Drainage was still minimal and serocandino. The patient was diagnosed as a candidate for laparoscopy and was transferred to the operating room that night. Findings during diagnostic laparoscopy were the presence of bile and fibrin in the left abdomen and pelvis and the right abdomen were clean. Fibrin levels were significant.

In the studies, there were possibly a few millimeters iatrogenic perforation in a distal one centimeter of anastomosis jejunojejunostomy. Due to the significant fibrin in the left hip of the patient, laparotomy was performed. Perforated bowel repair was also performed and the abdomen was washed and cleaned thoroughly. The only abnormal point was a slight inflammation around the 12 mm port site but no pus or discoloration, only edema. At that moment, it was thought to be due to inflammation, intra-abdominal fibrin and peritonitis. However, after the wound was washed, the former site of port 12 was left open and slightly enlarged. The day after the operation, the patient went undergone heart AF arrhythmia which was controlled by medical treatment but the patient had tachycardia and had tachypnea and was still ill. In leukocytosis tests, 20,000 with 90% neutrophils had Urea: 50 cr: 1.1, despite these tests, the patient became oliguric. In the afternoon visit, the patient had more edema of the left abdominal soft tissue and severe abdominal pain. Due to conditions with possible diagnosis of necrotizing fasciitis in the abdominal wall, the patient was re-transferred to the operating room. Due to the patient's oliguric condition, preoperative cv line was embedded and reanimation was performed and antibiotics were changed to meropenem, vancomycin and penicillin g. The patient was transferred to the operating room the same night the debridement was made and parallel abdominal incisions were made and tissue culture and smear were sent to the laboratory (no clear tissue necrosis was observed and only very severe edema was present). The highest inflammation was around the 12mm port in the left abdomen. The patient was transferred to ICU again.



The next morning the patient was completely anuric despite the aggressive reanimation treatment with cvp control. The laboratory test results were as following: plt: 70000, WBC: 17000, cr: 4.5, Urea: 100. The dose of antibiotics was adjusted. The appearance of the wound was similar to the night before. The patient had symptoms of systemic sepsis and had recurrent AF cardiac arrhythmia and tachypnea but no fever. In the absence of intra-abdominal problems, the infection could be transmitted with laparotomy to the inside. The patient underwent computed tomography without intravenous contrast and oral contrast. In the abdomen, there was no fluid or evidence of intraperitoneal problems. At the time of CT and the second visit, the wounds had drastically changed and deteriorated within a few hours. The patient was transferred back to the operating room on the same night. The patient was still anuric and the sepsis evidence was worse.



Reproductive debridement was performed and because of suspicion of spreading the infection to the thigh and perineum, additional cuts and aggressive debridement was performed in these areas as well. In the operating room, the cv line was replaced with a Shaldon catheter. After surgery, the patient was dialyzed. The day after surgery, the patient was dialyzed. The day after surgery, the patient's clinical status remained unchanged. The examination results were as follows: HB: 7, INR: 4, WBS: 2000 and Pit: 30000. Peripheral blood smears were sent for DIC examination. The patient was transferred back to the operating room after dialysis and receiving the product. Aggressive debridement was performed and all necrotic areas were removed, the patient gradually developed delirium. Biochemical tests and electrolytes were normal. The culture was diagnosed as

Acinetobacter and the antibiotic treatment was continued based on the culture result of the wound secretion.



After this stage and removing all the necrotic tissue, the patient was transferred back to the ICU, but the patient could not be extubated. The next day after the debridement, the patient had sepsis symptoms. Gradually she developed hypotension and septic shock. The condition of the wound was appropriate as it did not require debridement in the operating room and other investigations of the origin of systemic sepsis such as urinary tract and pulmonary system were normal. The conservative treatment and the washing of the debridement of the wound were done at the bed site.



Photo of wound condition 2 days after last debridement in operating room and in ICU

Two days after the last debridement, the patient's sepsis status was still undesirable. The patient was not conscious and had

systemic sepsis symptoms. The CT has performed again with no evidence of free fluid or intra-abdominal problems. The wound's status was desirable. 7 days after surgery, the patient was passed away due to sepsis and DIC. After the death of the patient, the autopsy was performed; the abdomen was clean and the cause of systemic sepsis was reported as probable abdominal wall sepsis.

# **DISCUSSION:**

Early diagnosis and extensive debridement of dead tissues are the most important measures in the treatment of necrotizing fasciitis, a condition usually associated with diabetes, local trauma, surgery, or radiotherapy. Patients with immune deficiency or poor tissue perfusion are also at higher risk for necrotizing fasciitis. As noted, less than 25% of patients with necrotizing fascia also involve anterior abdominal wall, which is usually caused by penetrating wounds of iatrogenic or traumatic origin <sup>[6]</sup>. Necrotic fascia is a severe infectious disease characterized by a rapid rate of infection spread in soft tissue. Despite all the advances in medical science, surgery and antibiotic therapy, the mortality rate of the disease has not changed much in recent decades. Mortality rates are clearly proportional to the level of involvement and the rate at which treatment is initiated <sup>[7]</sup>. The most common microbial mass responsible for necrotizing fasciitis are Streptococcuci and Staphylococci and are mostly multibacterial<sup>[8]</sup>.

A 2012 study in Taiwan reported monoclonal necrotizing fasciitis with Klebsiella pneumonia in 15 patients. 10 monobacterial involvement with Acinetobacter is a rare case in the abdominal wall necrotizing fasciitis and only one case was reported weeks after the surgery <sup>[9]</sup>.

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