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Case Study

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SUCCESSFUL EXTRA ANATOMIC BYPASS GRAFT ANASTOMOSIS TREATS SUPERIOR MESENTERIC ARTERY OBSTRUCTION IN 40 YEAR OLD FEMALE: A CASE REPORT

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ABSTRACT

The occurrence of mesentery occlusion, a highly dangerous condition, has been rising over time. Barely clear symptoms delay diagnosis which is crucial because of the high risk of mortality. Superior mesenteric artery obstruction caused by atherosclerosis in a 40 year old female who previously underwent an anastomosis by extra anatomic bypass grafting. The inflow is via the right iliac artery. To effectively provide reperfusion, a supported Polytetraflouroethylene (PTFE) prosthetic graft was bypassed from the right common iliac artery to the superior mesenteric artery. Since they frequently develop as an extension of plaque from the aorta, the majority of atherosclerotic lesions are found close to the origin of the mesenteric arteries and can extend 2 to 3 cm into the branches. Non-atherosclerotic lesions can also result in chronic mesenteric ischemia (CMI), and patients in this category are often younger.

KEYWORDS: Extra-anatomic bypass, Superior mesenteric artery obstruction, Atherosclerosis.

INTRODUCTION

Although uncommon, mesentery occlusion is a potentially fatal disorder, and its prevalence has been increasing over time. Due to the high death rate, early diagnosis is essential. Delays are often attributable to unclear symptomatology, non-specific clinical findings, and the limits of available diagnostic procedures. Visceral atherosclerosis frequently manifests as mesenteric ischemia, and mesenteric artery thrombosis has the highest death rate of all mesenteric ischemia causes.[1]

Patients with CMI frequently go through a thorough evaluation to rule out alternative explanations of their chronic stomach pain and weight loss. A wide range of diseases, such as infectious, malignant, and inflammatory ones, are included in the differential diagnosis. Cross-sectional investigations of the abdomen and upper- and lower-gastrointestinal endoscopy are frequently performed as part of the study. The first hint to the diagnosis is frequently the discovery of mesenteric artery stenosis in an imaging investigation. We may use for diagnosis: Mesenteric Duplex Ultrasound, Multidetector Computed Tomography, Magnetic Resonance Angiography, Contrast Arteriography.[2]

For revascularization in mesenteric thrombosis, a numeral of surgical procedures are used, including thromboendarterectomy, re-implantation of mesenteric vessels into the proximal aorta, transaortic thromboendarterectomy, and aortovasceral bypass with venous or prosthetic grafts, or extra anatomic bypass grafting.[1]

In this case, a patient who had previously undergone a superior mesenteric artery thrombectomy underwent bypass grafting from the right common iliac to the superior mesenteric artery (SMA).

CASE REPORT

A 40-year-old female presented to the vascular surgery department with complaints of abdominal pain over the preceding 2 years. Pain usually starts 15 - 30 minutes after having meals, and persists for as long as 2 – 3 hours. It typically is situated in the middle of the abdomen, characterized as a cramping in the umbilical area and its neighborhood. With food fear and intolerance of food, she experienced weight losing. She doesn't have any chronic diseases or taking any medicines, but she is a smoker having 15 pack/year. She underwent 2 operations for inguinal hernia and cholecystectomy as other doctors thought that those issues were the cause of her pain, but there were no improvement.

On clinical examination, all her vital signs were normal, Blood pressure was 110/80 mm Hg and pulse rate was 85 beats per minute, with normal peripheral pulse, and no evidence for any peripheral vascular disease, also all her laboratories were normal, Hemoglobin was 13 g/DL, Creatinine 0.65 mg/DL and CRP 7 mg/L. Ultrasonography was normal except findings refers to SMA stenosis such : PSV>300/sec and EDV>45/sec, (PSV is peak systolic velocity – EDV is end-diastolic velocity). Then she was prepared to MCTA of chest abdominal and pelvic. MCTA shows abruption in the origin of SMA and revealed again after around 12 mm (Fig. 1). With also dilates of IMA for compensation.

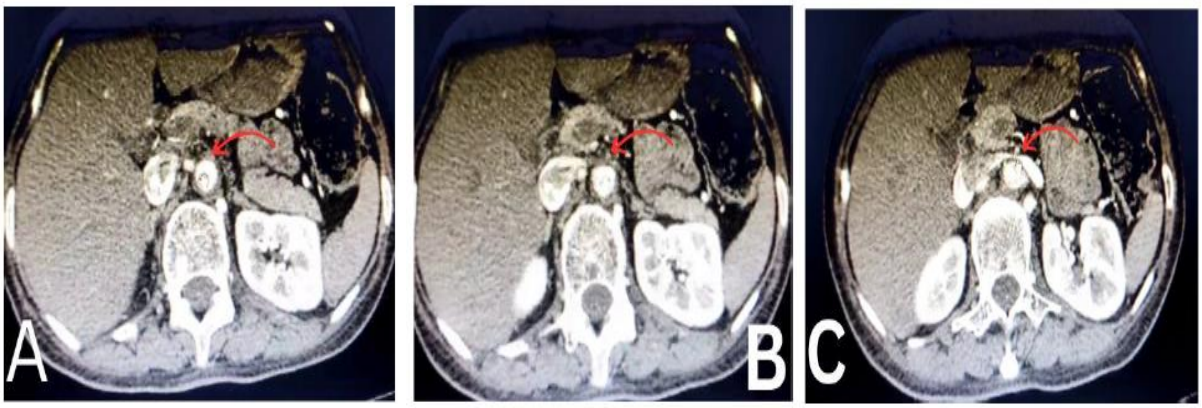

Fig. 1: MCTA shows the abruption in the SMA in A and B, and revealing of SMA in C.

The patient was brought in for a scheduled procedure. The right iliac artery and SMA were isolated and placed a distal and proximal control, and an end-to-side anastomosis was performed in both arteries using a prosthetic graft made of supported PTFE that was size 6. The SMA had a strong pulse and showed post-graft flush. She made a full recovery and the post-operative time was uncomplicated. She had another MCTA after 5 days of the surgery with all normal findings. Seven days following the operation, she was discharged with no additional problems. (Fig. 2 & Fig. 3). Two months after surgery the patient's condition was stable without any symptoms, and her food habits back normal again. With weight gain(her weight was 50 kg while it was 40 Kg before surgery)

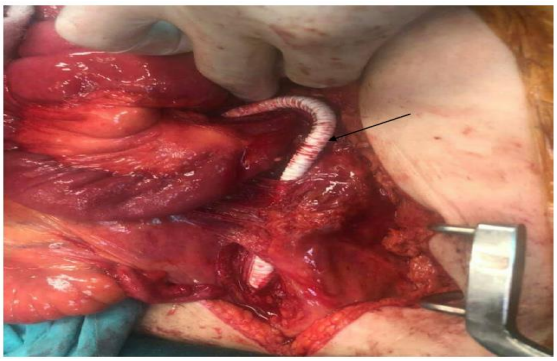

Fig. 2: Intra-operative photograph showing the supported PTFE graft (Black arrow).

Fig. 3: MCTA after surgery showing the supported PTFE graft (Blue arrow).

DISCUSSION

About 90% of instances of symptomatic Chronic mesenteric ischemia are caused by arterial obstruction from atherosclerotic disease, which is the most frequent cause. The majority of atherosclerotic lesions are seen near the origin of the mesenteric arteries and can extend 2 to 3 cm into the branches because they often form as an extension of plaque from the aorta. CMI can also be caused by non-atherosclerotic lesions, and the patients in this group are typically younger than those with atherosclerotic disease. Vasculitis, systemic lupus, Buerger disease, spontaneous dissections, fibromuscular dysplasia, neurofibromatosis, radiation arteritis, aortic coarctation, mesenteric venous stenosis or occlusion, and drug-induced arteriopathy from cocaine or ergot use are among the non-atherosclerotic pathologies that can affect the mesenteric arteries.[2]

According to Cunningham et al. study's of the cumulative experience in the surgical care of prolonged visceral ischemia, 74 patients had transaortic endarterectomy or antegrade bypass as their primary reconstruction. Both approaches had the same incidence of complications and perioperative death (12.2%).[3]

When the occluded segment was bypassed in the retrospective review by Patel et al.[4] on single vascular bypass surgery performed for symptomatic chronic mesenteric ischemia in six patients, all six patients experienced a disappearance of symptoms and an increase in weight. They emphasized that immediate revascularization is necessary in all symptomatic patients in order to avoid consequences like intestinal infarction and reported no serious problems or deaths.

48 patients were identified in a study by Cho et al.[5] Who had mesenteric artery reconstruction for atherosclerotic mesenteric ischaemia using either bypass grafting or endarterectomy (local and transaortic). Only patients with acute mesenteric ischaemia had a 52% perioperative death rate compared to patients with chronic mesenteric ischaemia. At five years, the possibility of long-term survival was 77%. They came to the conclusion that after successful reconstruction, long-term patency and symptom-free survival can be assumed.

CONCLUSION

Through this diversity of treatment methods it remains the appropriate choice of an operation depends not only on the distinct clinical conditions but also on the judgment and expertise of the operating surgeon.

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