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Case report on adhesive intestinal obstruction secondary to aortofemoral bypass

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ABSTRACT

Introduction: *Aorto-iliac occlusive disease is frequently treated by endovascular approach as a first option. But due to failure of revascularization or recurrence, aorto-femoral bypass surgery remains another therapeutic alternative; however, adhesive bowel obstruction may be one of its infrequent complications.*

Case presentation: *A 51 year old patient, operated for aorto-iliac occlusive disease one year ago, having benefited from aorto-bifemoral bypass surgery, then put on anticoagulants and anti-platelet aggregants, presented to the emergency room for an occlusive syndrome that had appeared for 3 days, The abdominal CT scan showed a bowel obstruction with a closed loop mechanism upstream of a stenosing digestive parietal thickening without any sign of suffering, presence of an effusion, presence of a sub-renal aorto-femoral birth: He was admitted to our hospital and underwent an exploratory laparotomy.*

Discussion: *Adhesive bowel obstruction secondary to aorto-bifemoral bypass surgery is a rare complication. The possible mechanism may be caused by damage to the peritoneum and its microvasculature resulting in the release of a serosanguineous exudate that forms a fibrinous band connecting adjacent organs or injured serous membranes. A multidisciplinary approach is needed to manage laparotomy complications; however, identification of patients at high risk of these complications is essential at the time of the initial evaluation by the vascular surgeon.*

Conclusion: *A high index of suspicion for adhesive bowel obstruction is key to prompt diagnosis and treatment.*

Keywords: Laparotomy, Aortofemoral bypass, Small bowel Obstruction, Adhesive bands.

INTRODUCTION:

Aorto-iliac revascularisation surgery almost always uses endovascular techniques as a first-line procedure. When lesions are too complex or endovascular treatments have failed, surgical treatment by midline

laparotomy, usually bypass surgery, is required (1-2).Small bowel obstruction is a common reason for admission to surgical wards. About 65-75% of small bowel obstructions are due to peritoneal adhesions (3-4-5-6-7) and More than 93% of transperitoneal surgery patients develop intra-abdominal adhesions. These adhesions are due to injuries sustained during surgery, the others being often attributed to peritonitis, inflammation, trauma or they are due to a congenital formation(6)

The work has been reported in line with the SCARE criteria (8).

CASE REPORT:

Patient aged 51 years, followed for cardiopathy on anticoagulants and antiplatelet aggregants, operated for aorto-iliac occlusive disease one year ago having benefited from a aorto-bifemoral bypass surgery approached by median laparotomy, he has presented for 3 days an occlusive syndrome made of vomiting and cessation of feces and gases evolving in a context of conservation of the general state, On clinical examination the patient had a blood pressure of 132/65 mmHg, a normal temperature, a heart rate of 86 bpm and a respiratory rate of 20 breaths/min with a fold of dehydration, on abdominal examination he had a median laparotomy scar above and below the umbilical, a distended and tympanic abdomen, on rectal examination an empty rectal ampulla

without a palpable mass was found. An unprepared abdomen showed hydro-aeric levels in the bowel. An abdominal CT scan showed a bowel obstruction with a closed loop mechanism upstream of a stenosing digestive parietal thickening without any sign of distress, presence of a small peritoneal effusion, presence of a sub-renal aortofemoral birth: aortofemoral bypass? biological workup: Hb :11.3g/dl, WBC :6460/mm, PLQ: 170000/mm, PT :75%, INR: 2.3.

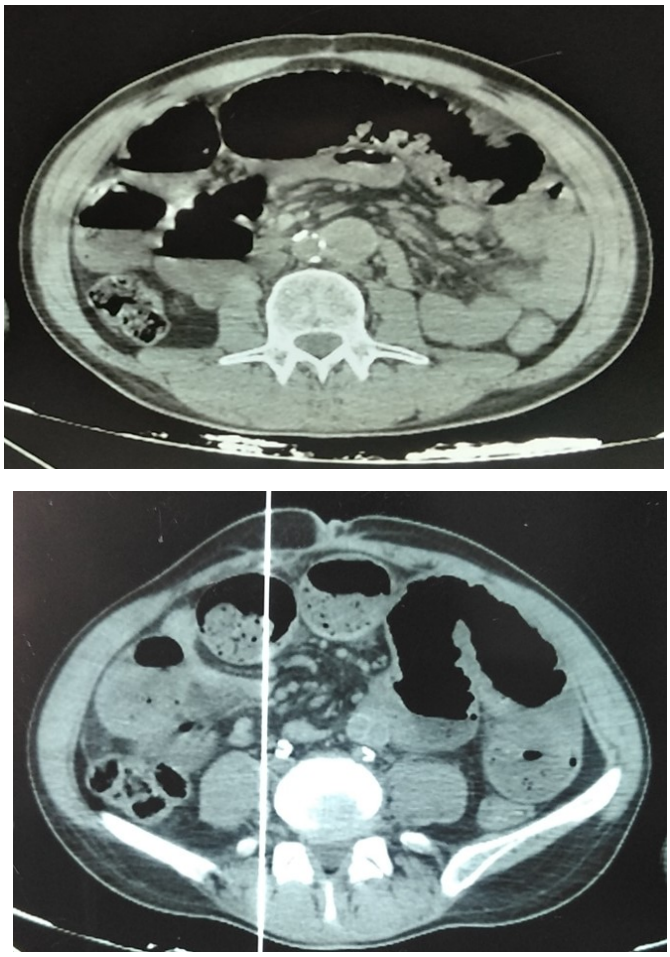

Fig 1 A et B: Abdominal CT scan showing distended small bowel loops with adhesion of the small bowel to the aortobifemoral bypass

After conditioning of the patient's general condition by nasogastric tube aspiration and intravenous rehydration, it was decided to operate on the patient urgently, under general anaesthesia and endotracheal intubation. Preoperative prophylactic antibiotics were administered (*Amoxicillin/clavulanic acid)* . The patient was approached by a median laparotomy with exploration found multiple adhesions grelo-greaves, and grelo-parietal and between the small and the aorto-bifemoral bypass prosthesis a laborious adhesiolysis was done, presence of a flange between the small intestine and the prosthesis at 1.60 m from the duodenojejunal angle re-

sponsible for a 4 cm distension of the small intestine without signs of digestive distress, the rest of the small intestine, the cecum, the ascending colon, the transverse colon, the descending colon and the sigmoid colon did not present any anomalies. No peritoneal effusion or false membranes were found.The procedure consisted of cutting a flange between the small bowel and the bifemoral bypass graft. The postoperative course was simple and the patient was declared discharged on postoperative day 3. The operation was performed as an emergency with a correct pre-anaesthetic evaluation. The operation was performed in the operating room of the digestive surgery department by an assistant professor of general surgery and two residents of the same specialty. The patient was satisfied with the procedure and the improvement of his health in the short and long term.

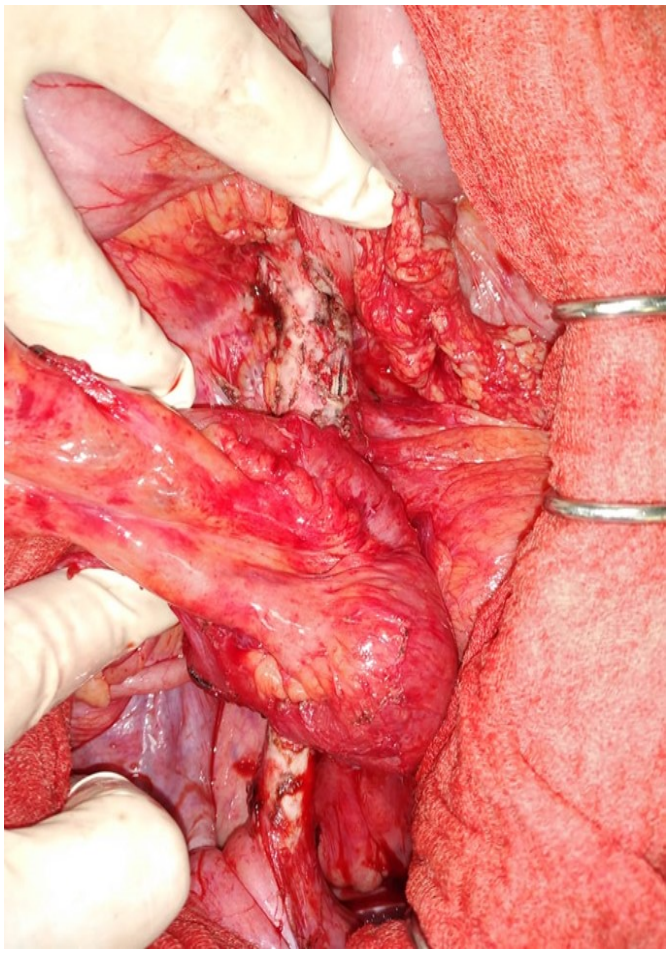

Fig 2 : Adhesion between the small bowel and the aortobifemoral bypass

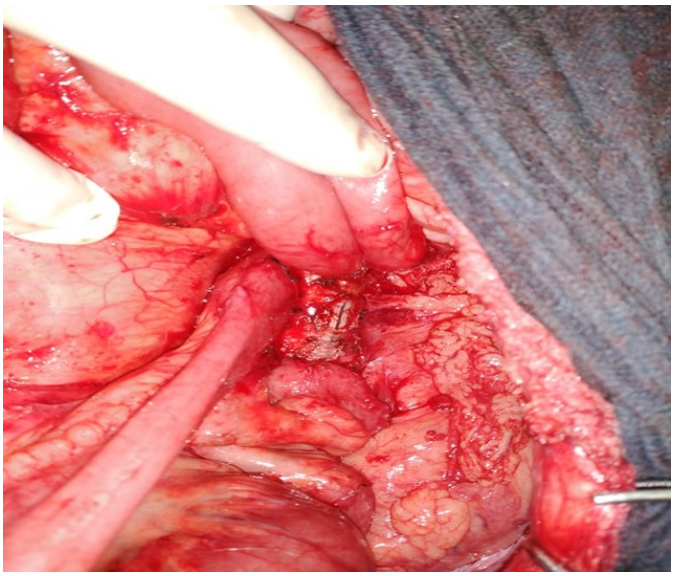

Fig 3 : careful dissection between the aortofemoral bypass prosthesis and the small bowel

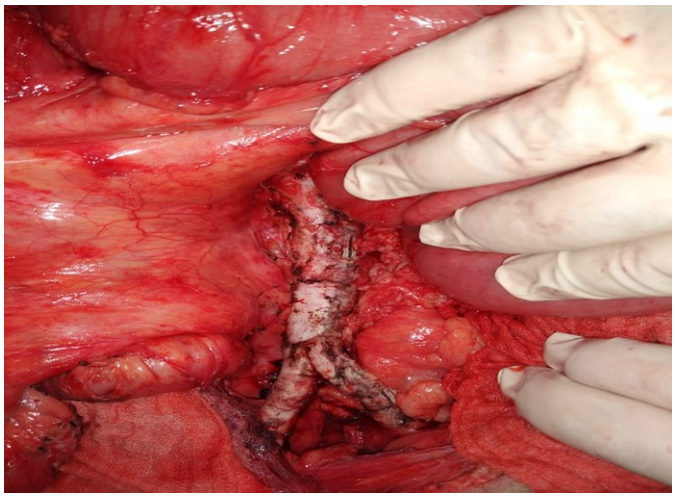

Fig 4: Aortobifemoral bypass surgery after release of adhesions

DISCUSSION:

Aorto-iliac occlusive disease is usually treated endovascularly as a first option. However, due to failure of revascularisation or recurrence (9-10), aorto-femoral bypass surgery remains the "gold standard" of revascularisation(11-12-13), with good long-term results. However, the major drawback is the cumbersome technique, with significant risks; and this is due to the aortic clamping, vascular suturing, and wide abdominal approach (9). Adhesive disease is a frequent complication after any abdominal surgery and is a common complication

that is usually not managed by cardiovascular surgeons (11). It may be caused by damage to the peritoneum and its microvasculature resulting in the release of a serosanguineous exudate that forms a fibrinous band connecting adjacent organs or injured serous membranes. Although adhesions normally disintegrate within 72 hours, injury-induced ischaemia may decrease fibrinolysis and allow the band to persist (6-14-15-7-16).In our patient we believe that this mechanism was probably associated with the development of adhesive bowel obstruction. In the case of adhesive bowel obstruction secondary to the VP shunt catheter reported by Xue.Y; the mechanism of the obstruction was probably associated with the repeated frictional movements between the greater omentum and the catheter, promoting local inflammation. In addition, CSF components may stimulate abdominal organs (inflammatory reaction) and form abdominal adhesions. In addition, immunological rejection may occur between the catheter and the intestine, causing adhesion.(17)

The diagnosis of small bowel obstruction is based on questioning, physical examination and imaging (18). Without prompt diagnosis and treatment, complications such as intestinal ischaemia and necrosis or perforation leading to a picture of peritonitis can occur (17-19-6). In the majority of cases, a plain abdominal X-ray provides most of the information needed to make the diagnosis. In cases where the diagnosis is unclear, further imaging may be required. CT scanning is sensitive and specific and has been recommended by some. It can detect the cause and location of the obstruction as well as the presence of the "feces sign", the pathognomonic sign of flange obstruction (3-19-20). Our patient's clinical picture was consistent with small bowel obstruction, with symptoms of nausea, vomiting and abdominal distension with signs of deshydration, we performed an emergency exploratory laparotomy, which showed that our patient had a closed loop small bowel obstruction that threatened intestinal necrosis (17). In a retrospective review of patients requiring reoperation after CABG and aorto-femoral bypass surgery between 2000 and 2017, DeCarlo reported that 7.5% of patients had at least one episode of small bowel obstruction and 4.6% of patients underwent surgery for small bowel obstruction. However, identification of patients at high risk of complications is essential during the initial assessment by the vascular surgeon (11).

Conclusion:

Adhesive bowel obstruction is a common life-threatening surgical emergency associated with high morbidity and mortality; a high index of suspicion for adhesive bowel obstruction is essential in all patients undergoing abdominal surgery.

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