

CASE REPORT

MULTIDISCIPLINARY APPROACH FOR ACUTE MESENTERIC ISCHAEMIA

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ABSTRACT

Introduction. Acute mesenteric ischaemia is often an undiagnosed pathology with an approximatively incidence of 1:1000 hospital admissions. Early diagnosis and prompt treatment are the aims of modern management of this pathology.

Case presentation. We present the case of a 65 years old male patient, recently diagnosed with low rate atrial fibrillation for which he received double antiplatelet therapy, who presented at the emergency room for continuous severe abdominal pain in the past hours. Computed tomography showed almost complete obstruction of superior mesenteric artery 4 cm from aortic origin. Due to lack of angiography during weekend, classic surgery was performed with extensive ileal resection and terminal-lateral jejunal-transverse anastomosis and closure of terminal ileum. After extensive small bowel resection, only 1 meter of jejunum remained. Postoperatively, a superior mesenteric artery catheter was mounted for continuous administration of heparin, that lead to an improvement of jejunal arterial blood supply. Postoperative outcome was favourable and the patient was discharged. The patient did not develop symptoms for Short Bowel Syndrome. Coumarin therapy was administered for both cardiac and surgical pathology with a therapeutic INR between 2 and

RÉSUMÉ

Approche multidisciplinaire pour l'ischémie mésentérique aiguë

Introduction. L'infarctus entéro-mésentérique est une pathologie souvent non diagnostiquée avec une incidence d'environ 1: 1000 d'hospitalisations. Le diagnostic précoce et le traitement rapide sont l'objectif du traitement moderne de cette affection.

Présentation de cas. Nous présentons le cas d'un patient âgé de 65 ans, récemment diagnostiqué avec une fibrillation auriculaire tardive, avec double traitement anti-plaquettaire, se présentant à l'hôpital avec des douleurs abdominales sévères installées depuis plusieurs heures. L'examen tomographique révèle une obstruction presque complète de l'artère mésentérique supérieure à 4 cm de l'origine de l'aorte. En l'absence d'un service d'angiographie pendant le weekend, une entérologie segmentaire avec une anastomose endo-latérale du jejunum transverse est pratiquée, ainsi qu'une fermeture iléale distale. Une résection extensive de l'intestin dans les limites de sécurité a entraîné 1 m du jejunum restant. En post-opératoire, un cathéter artériel a été monté sur l'artère mésentérique supérieure sur laquelle l'Héparine a été administrée en infusion continue, avec une amélioration de la perfusion de l'intestin

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3. Computed tomography, 9 months after the initial surgery, showed complete re-permeability of superior mesenteric artery.

Conclusions. Diagnosis and treatment of this pathology must be prompt due to severe prognosis of these patients. Surgical treatment is the method of choice in case angiography is unavailable. Local administration of heparin may increase survival rates of these patients.

Keywords: acute mesenteric ischaemia, surgical management, angiography.

INTRODUCTION

Acute mesenteric ischaemia (AMI) is often an undiagnosed pathology with an approximatively incidence of 1:1000 hospital admissions in Europe and USA¹.

The diagnosis of AMI is difficult and it will often go unrecognized as a cause of death². The incidence increases exponentially with age³ with the mean age of 70 in most studies⁴⁻⁸.

Four different aetiological forms of acute mesenteric ischaemia were identified: arterial embolism (EAMI), arterial thrombosis (TAMI), venous thrombosis (VAMI) and non-occlusive mesenteric ischaemia (NOMI)².

CASE PRESENTATION

We present the case of a 65 years old man who presented to the Emergency Department for sudden onset abdominal pain, several hours prior to his arrival. The pain was severe, continuous and reluctant to usual painkillers and even morphine.

The patient was recently diagnosed with low rate atrial fibrillation and cardiac failure, for which the cardiologist prescribed clopidogrel and acetylsalicylic acid. There were no other co-morbidities.

Blood samples revealed: leucocytes 13230/mm³, haemoglobin 15.7 g/dL, thrombocytes 107 000/mm³, BUN 46 mg/dL, creatinine 0.77 mg/dL, ALT 47 U/L, AST 53 U/L, serum glucose 159 mg/dL, Na⁺ 138 mmol/L, K⁺ 4.9 mmol/L, Cl⁻ 103 mmol/L, PT 13.1 s, INR 1.18, PT 82%, APTT 22.5 s, D-Dimer 0.772 ug/mL, NTproBNP 7781 pg/mL, lactate 3.69 mmol/L, pH 7.527, AnGap 31.5 mmol/L.

restant. L'évolution post-opératoire a été favorable et le patient est sorti guéri de l'hôpital. Le patient n'a pas développé de symptômes d'un syndrome de l'intestin chirurgical court. La thérapie à la coumarine a été instituée pour les conditions cardiaques et chirurgicales tout en maintenant un INR thérapeutique entre 2 et 3. L'examen tomographique après environ 9 mois de la chirurgie révèle la disparition du thrombus de l'artère mésentérique supérieure.

Conclusions. Le diagnostic et le traitement de cette maladie devraient être rapides, en tenant compte de la gravité du pronostic de ces patients. En l'absence d'un service d'angiographie permanente, le traitement chirurgical reste le choix. L'administration locale de l'héparine améliore le pronostic de ces patients.

Mots-clés: infarctus entéro-mésentérique, approche chirurgicale, angiographie.

Computed tomography scan revealed almost complete superior mesenteric artery thrombosis, at 4.5 cm from aortic origin, with a 46 mm length, and a left renal cyst (Figure 1).

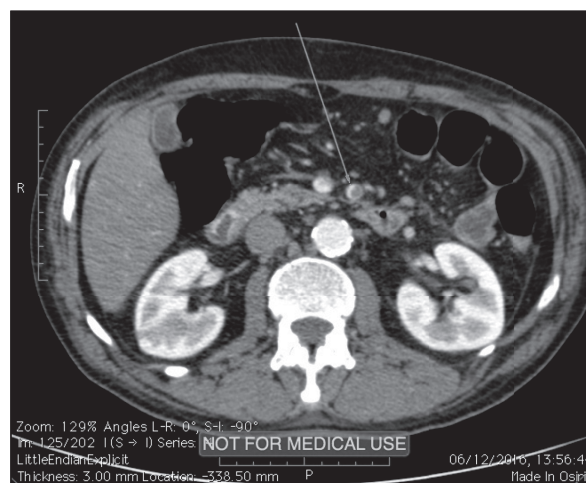


Figure 1. Computed tomography scan with contrast enhanced substance. The arrow indicates the homogenous superior mesenteric artery.

Due to unavailable angiography during weekend, open surgery was performed, that revealed extensive ischaemia of small bowel. An extensive resection of small bowel was performed, with a remaining 110 cm of jejunum. A primary terminal-lateral jejunal-transverse anastomosis was performed, with closure of mesenteric breach, closure of terminal ileum and drainage of peritoneal cavity.

Postoperatively, enoxaparin and continuous intravenous heparin were administered. On postoperative day 3, a new computed tomography scan was

performed, that showed a slightly improvement of remaining small bowel blood supply.

On postoperative day 4, a catheter was placed in the superior mesenteric artery for continuous Heparin administration on site – 1000 U/h (Figure 2).

The peritoneal drainage tube was removed on postoperative day 8.

Cardiology exam recommended coumarin drugs administration prior to discharge, with a therapeutic INR between 2 and 3.

The patient was discharged on postoperative day 23 on coumarin with an INR of 2.65.

Blood samples were normal at 1 week, 1 month, 2 months after discharge.

Computed tomography scan at 9 months after surgery revealed complete disappearance of the superior mesenteric artery clot (Figure 3).

DISCUSSION

AMI often remains an undiagnosed pathology, with a high mortality rate up to 69% despite medical progress in the past 50 years^{2, 5, 9-11}.

Continuous abdominal pain reluctant to usual painkillers and morphine should raise the suspicion of AMI.

Increased lactate levels also may indicate vascular bowel involvement, although its level does not correlate with intestinal infarction due to high liver clearance.

Metabolic acidosis with high anion gap can be found in patients with AMI^{12,13}, but our patient had metabolic alkalosis with normal anion gap.

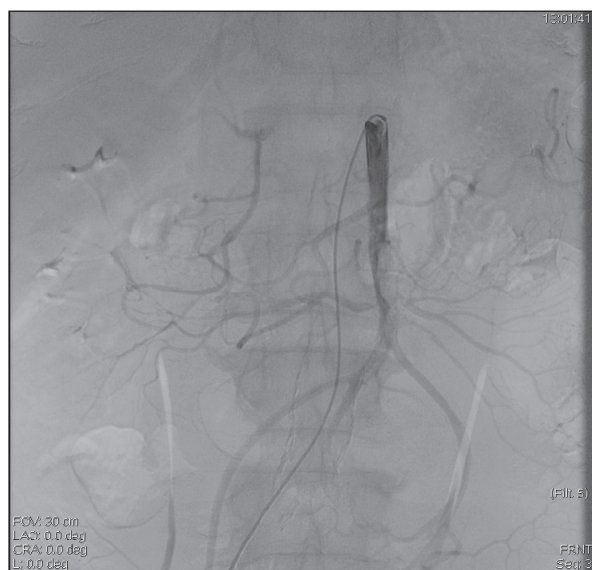


Figure 2. Angiography of superior mesenteric artery, that shows its severe narrowing a few centimetres from aortic origin.

AMI secondary to arterial embolism (EAMI) should be suspected in patients with atrial fibrillation who have a sudden onset of abdominal pain² even if they are under anticoagulants or antiplatelet therapy.

Early surgery for AMI has a mortality rate of 10.6% (operated within 24 hours from abdominal pain onset) compared to a mortality rate of 72.9 if operated later than 24 hours^{2,14}.

CONCLUSIONS

Angiography is a very useful minimal invasive procedure that can treat an arterial embolism (EAMI) or an arterial thrombosis (TAMI) in the first six hours when the bowel changes due to ischaemia are reversible. Despite its advantages, it is not always available even in a primary care centre.

Open surgery often remains the main option in treating AMI despite the advantages of angiography. Angiography can have an important role and complete the surgical treatment by improving bowel blood supply.

Early surgery, within 24 hours from abdominal pain onset, may increase the survival rate of these patients.



Figure 3. Computed tomography reconstruction showing complete repermeability of superior mesenteric artery.

Extensive bowel resection may lead to short bowel syndrome that requires further hospitalization, complex health care and probably further surgeries.

Early diagnosis and prompt treatment are the goals of modern treatment for this pathology.

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