

## Mesenteric panniculitis, rare cause of abdominal pain associated with electrolyte imbalance

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### Abstract

*Objectives:* We report a case of mesenteric panniculitis (MP). MP is a rare cause of abdominal pain whose origin is unknown.

*Materials and methods:* A 83-year-old woman was admitted due to abdominal pain, bradycardia and ionic alterations.

*Results:* After laboratory data and imaging techniques the diagnosis was defined. A corticosteroid and ionic therapy were performed.

*Conclusion:* MP is a rare condition of abdominal pain with a difficult diagnosis that can be established by imaging techniques. The association with hydroelectrolytic alterations is an entity that is not defined in the literature.

### Keywords

mesenteric panniculitis; ionic alterations; abdominal pain; arrhythmia

### Abbreviations

MP: mesenteric panniculitis; ESR: erythrocyte sedimentation; CRP: C-reactive protein; CT: computed tomography; MRI: magnetic resonance imaging

### Introduction

MP is a rare entity with a prevalence of 0.2%-7.8% [1], representing a nonspecific inflammation of the adipose tissue of the mesentery. Clinical manifestations are abdominal pain, diarrhea, or weight loss [1]. Although the etiology of MP has yet to be determined [1], recent papers have reported that 84% of patients had a history of abdominal trauma or surgery [2]. Laboratory parameters are usually normal; however, an increased erythrocyte sedimentation rate has been observed. Abdominal CT is the most sensitive imaging modality for detecting MP, but the definite diagnosis of MP is established by biopsy [3]. Only symptomatic patients may be treated by corticosteroids or immunosuppressive agents but spontaneous regression of symptoms is possible [4].

### Case Presentation

A 83-year-old woman with history of hypertension and a recent hospitalization due to a knee prosthetic replacement for infection (10 days ago), whose regular medications included: Lisinopril 20 mg

once a day, was admitted to the Emergency Department with abdominal pain associated with nausea and vomiting with 1 day of evolution.

The physical examination revealed: a tympanic temperature of 36 degrees Celsius, blood pressure 123/70 mmHg, bradycardia of 51 beats per minute, a saturation of 97%, diuresis of 250ml in the first 4 hours and abdominal pain with deep palpation in the epigastric region with rebound tenderness, without masses or hepatosplenomegaly. Initially, the complementary exams showed a sinus bradycardia in the electrocardiogram; pH 7.591, pCO<sub>2</sub> 44.6 mmHg, pO<sub>2</sub> 77.3 mmHg, HCO<sub>3</sub><sup>-</sup> 42.7 mEq/L, saturation 97,8%, lactate 1.9 in the gasometry and the laboratory data revealed: 11.200/L leukocytes 81.1% neutrophils, ESR 102 mm/hr, CRP 3.31 mg/dL lipase 122 U/L and amylase 261 U/L and an acute kidney injury (creatinine 2.8 mg/d L and urea nitrogen 128.9mg/dL), with a severe hypocalcemia (0,72 mmol/L) and hypokalemia (1.8 mmol/L). The surgical team discarded acute abdomen and pancreatitis as a possible diagnosis, for the patient's clinic; attributing the elevated values of lipase and amylase to the acute renal failure. The patient was hospitalized for further investigations.

During the hospital admission, the patient maintained the epigastric pain radiating to the back with a severe hypocalcemia and hypokalemia with normal magnesium levels, despite the supportive care. A thorax abdominal and pelvic CT showed a densification of the intra-abdominal fat in the mesenteric area suggesting a panniculitis (figs.1 and 2). Furthermore, there was a node of about 17 mm in the right adrenal gland and a node of about 2 cm suggesting a complicated renal cyst in the inferior pole of the left kidney.

A hormonal study (plasma aldosterone concentration, plasma renin activity, dexamethasone suppression test, levels of plasma catecholamines and urinary metanephrines) was performed to exclude the functionality of the node, as responsible for ionic disorders; as well as, a urinary ionogram (urinary calcium 194.7 mg/day and potassium 65 mmol/day), but the overall result was normal.

Despite the etiological study, after 14 days, our main concern started to be the correction of the ionic alterations (hypocalcemia and hypokalemia). Even though a potassium and calcium oral and intravenous treatment was established, we could not reach the normal levels and the patient started to have several episodes of arrhythmias (figs.3 and 4).

After discussing the case in a multidisciplinary team, to avoid the performance of a biopsy, taking into account the clinical stage of the patient, an abdominal and pelvic MRI was requested. The MRI demonstrated a slight increase of the vascularization level in the mesentery fat, suggestive of a mesenteric panniculitis.

Given the radiologic findings, we started a therapeutic trial with Prednisolone (60mg once a day) for 6 weeks. In the fourth week there was a significant improvement in the reduction of abdominal pain and ESR value (31 mm/hr), as well as the normalization of ionic alterations. After six weeks she was weaned off corticosteroids. The patient was followed in the hospital outpatient clinic and remained symptom free after discontinuation of steroid therapy (fig.5).

## Discussion

MP is a rare inflammatory disorder, characterized by chronic and nonspecific inflammation of the adipose tissue of the intestinal mesentery. There are about 200 cases reported in the literature.

We can consider a pathological classification, where depending on the predominance of: inflammation (mesenteric panniculitis), fat necrosis (mesenteric lipodystrophy) or fibrosis (retractile mesenteritis), we will have different entities [5].

The etiology remains unknown, although there are several cases associated with history of surgery or trauma [1,2,4], in our case we consider relevant the recent orthopedic surgery (knee prosthetic replacement) as the trigger of the disease. In the differential diagnosis of MP we must consider: tumors, mesenteric edema, pancreatitis, as epiploic appendagitis, omental infarction and diverticulitis [3,6].

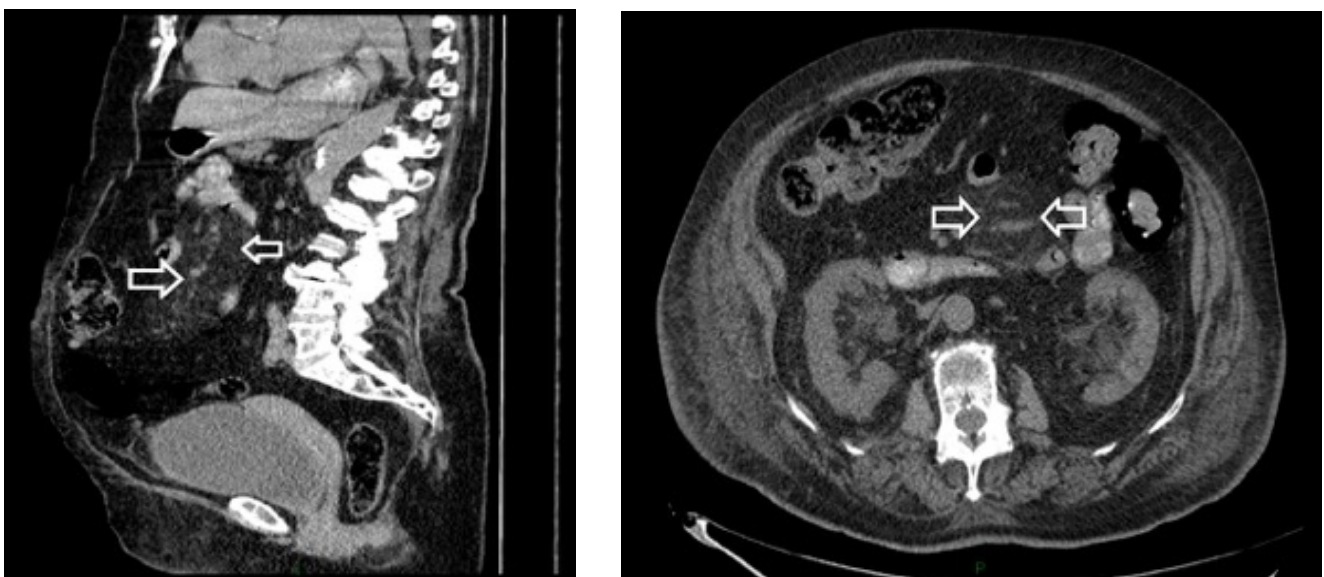
The MP is often asymptomatic, even though the clinical presentation of MP with an acute abdomen is widely described in the literature [3], but none of the them were associated with ionic alterations such as hypocalcemia and hypokalemia.

The diagnosis of the MP is established by histology features [3,4]. It is often difficult since a biopsy cannot be performed in all patients and should be discussed in a multidisciplinary team [2]. The best option in cases where the biopsy is contraindicated is the association with CT-scan and MRI [3].

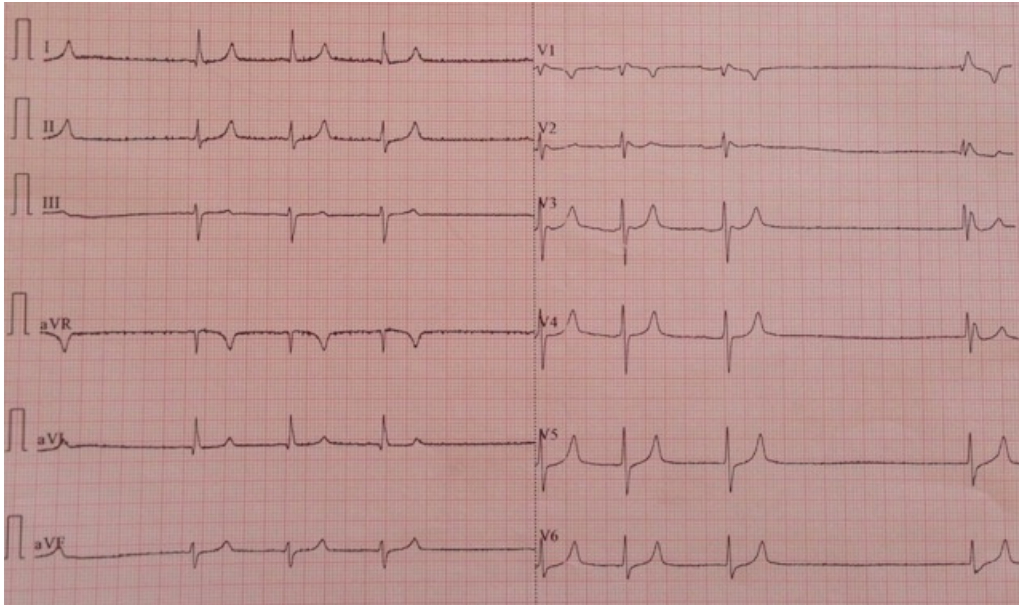
Most of the MP cases do not need any treatment. In symptomatic cases there are several treatments that have been proposed: steroids, thalidomide, cyclophosphamide, progesterone, colchicine, azathioprine, tamoxifen or antibiotics. Other options could be radiotherapy or surgery if medical therapy fails [3]. Since it is a rare entity, there are no well-established guidelines in the treatment. However, with severe, life-threatening ionic alterations, hospitalization should be considered in order to provide intravenous electrolyte replacement.

This case reports a MP with ionic alterations, confirmed by radiological features and all the symptoms and laboratory findings were reversed by the use of steroids [1,3]; it serves as a valuable contribution to the literature of a condition with an unknown etiology and a poor description. The diagnostic is arduous and an invasive diagnostic procedure is not always possible. The lack of guidelines forces us to have a multidisciplinary approach and to individualize the treatment.

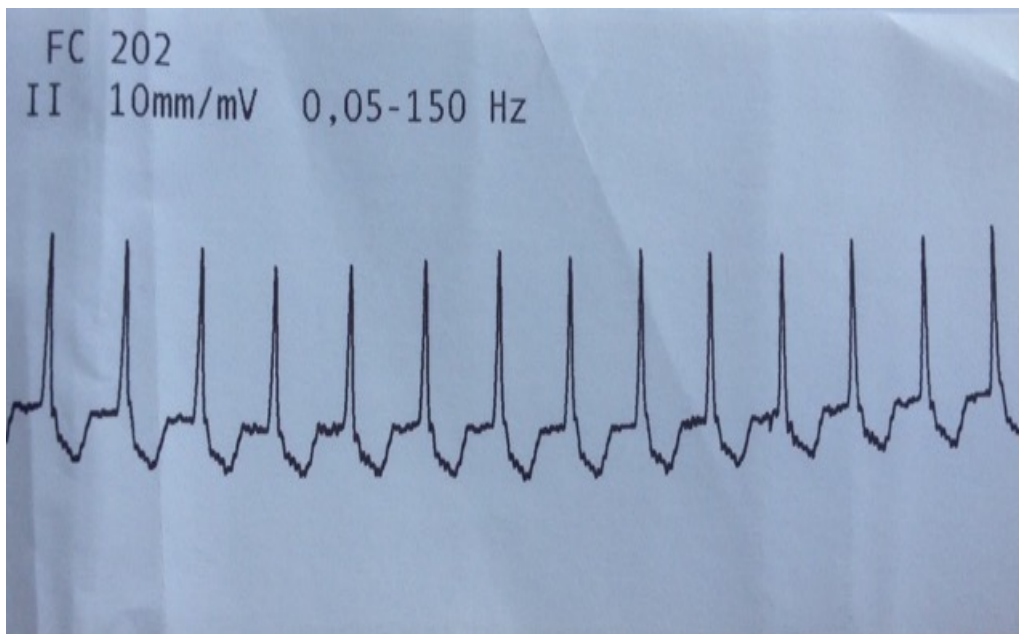
## Figures



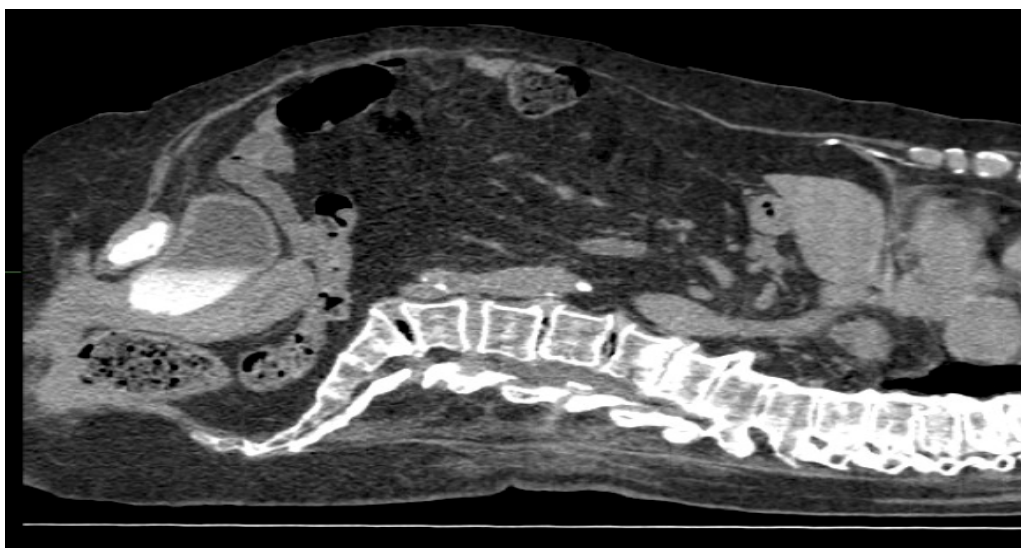
**Figure 1 & 2:** Abdominal and pelvic CT. Densification of the intra-abdominal fat in the mesenteric area.



**Figure 3:** Electrocardiogram. Junctional escape rhythm



**Figure 4:** Electrocardiogram. Supraventricular tachycardia



**Figure 5:** Abdominal and pelvic CT. Post-treatment

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