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# PANICULITIS MESENTÉRICA: ¿UN DIAGNÓSTICO TRIVIAL?

## *MESENTERIC PANNICULITIS: A TRIVIAL DIAGNOSIS?*

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## RESUMEN

**Introducción**: la paniculitis mesentérica (PM) es una enfermedad inflamatoria crónica del tejido adiposo mesentérico. Aunque su etiología es desconocida, se ha relacionado con múltiples factores que incluyen las neoplasias. Este estudio descriptivo examina las características de los pacientes diagnosticados de PM en nuestro hospital.

**Métodos**: se trata de un estudio retrospectivo de los datos obtenidos a partir de las historias clínicas de los pacientes diagnosticados de PM desde enero de 1994 hasta diciembre de 2014. Se describió la enfermedad e intentamos identificar los factores que se asociaban con malignidad.

**Resultados**: 103 pacientes fueron diagnosticados de PM. La media de edad fue 66 años con un pequeño predominio de varones. 36% fueron asintomáticos al diagnóstico. Entre los que presentaron síntomas, el dolor abdominal fue el más frecuente. Las neoplasias fueron detectadas en 26 pacientes (25%), siendo el linfoma y el cáncer colorrectal las más frecuentes (11 y 8 pacientes respectivamente). Otras enfermedades asociadas fueron condiciones que asocian inflamación abdominal (17,4%), cirugía abdominal previa (17,4%) y enfermedades reumatológicas (5,8%). 35 casos (34%) fueron idiopáticos. Ninguna variable se asoció con malignidad.

**Conclusión**: la PM se relacionó con malignidad en un 25% de los casos, siendo el linfoma y el cáncer colorrectal los más frecuentes. Se consideró idiopática en un 34% de los casos. Son necesarias series más largas y estudios prospectivos para esclarecer la relevancia de la PM y su asociación con malignidad. Lejos de ser un diagnóstico trivial, el hallazgo de la PM debe alertar al médico de su potencial naturaleza paraneoplásica.

**Palabras clave**: paniculitis mesentérica, cáncer colorrectal, tumores hematológicos.

## ABSTRACT

**Background**: mesenteric panniculitis (MP) is a chronic inflammatory disease of the adipose tissue of the intestinal mesentery. Although its etiology remains unclear, MP has been related to many factors including malignant diseases. This descriptive study examines the characteristics of patients diagnosed with MP at our hospital.

**Methods**: this was a retrospective study of epidemiological and clinical data obtained from the medical records of all patients diagnosed with MP from January 1994 to December 2014. Based on these data, we describe the disease and try to identify factors linked to malignancy through multivariate analysis.

**Results**: over the study period, 103 patients were diagnosed with MP. Mean patient age was 66 years and there was a slight predominance of men. 36% were asymptomatic at the time of diagnosis. Among those with symptoms, abdominal pain was the most frequent. Malignancies were detected in 26 patients (25%), lymphoma and colorectal cancer appearing with greatest frequency (in 11 and 8 patients respectively). Other associated diseases were abdominal inflammatory conditions (17,4%), previous abdominal surgery (17,4%), and rheumatic diseases (5,8%).

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35 cases (34%) were considered idiopathic. No variable could be linked to a diagnosis of malignancy.

**Conclusion**: in 25% of the study population, MP was related to malignancy, mostly lymphoma and colorectal cancer. In 34%, it was idiopathic. Descriptions in larger patient series and prospective studies are required to clarify the significance of MP and its relationship with malignancy. Far from being trivial, a diagnosis of MP should alert physicians of its potential paraneoplastic nature.

**Keywords**: mesenteric panniculitis, colorectal cancer, hematological malignancies.

## INTRODUCTION

Mesenteric panniculitis (MP) is a rare, chronic inflammatory disease that affects the adipose tissue of the intestinal mesentery. According to the different histopathological patterns it presents, other terms such as mesenteric lipodystrophy, sclerosing or retractile mesenteritis are used to describe MP[1]. Its prevalence has been estimated at 0,6%, though its specific etiology and clinical significance remain unknown[2,3]. MP has been related to many factors such as abdominal trauma (including surgery), rheumatic diseases or abdominal inflammatory diseases (pancreatitis, diverticulitis, inflammatory bowel disease), and a strong relationship has been reported with malignant disorders[2-6]. Presentation symptoms vary widely from no symptoms to abdominal pain, abdominal mass, constitutional symptoms, or obstruction signs, among many others. Its diagnosis is usually based on imaging studies and is often incidental. Several treatments have been proposed with no established consensus including no treatment, pharmacological treatment or surgery[6].

This study sought to describe a cohort of patients diagnosed with MP at our center over a 20 year period (1994-2014) and to identify any possible variables associated with malignancy.

## METHODS

The setting for our study was the Gastroenterology Unit of the teaching hospital Hospital Universitario Ramón y Cajal, which serves approximately 650.000 inhabitants of Madrid. Data were retrieved from the hospital database corresponding to all patients diagnosed with MP from january 1994 to december 2014.

The diagnosis of MP was based on computerized tomography (CT), magnetic resonance (MR) or on histological findings after surgery. The CT or MR diagnosis of MP required that patients met 3 out of 5 criteria: (a) a well-defined fatty mass at the root of the intestinal mesentery displacing neighboring structures; (b) higher attenuation of this mass than that of retroperitoneal or subcutaneous fat tissue; (c) lymph nodes within this fatty mass; (d) hypodense halo surrounding blood vessels and nodes; (e) hyperdense pseudocapsule enveloping mesenteric fat and lymph nodes within it. Images for each patient were reviewed by a radiologist to confirm the presence of MP. Clinical data were compiled from the patients' clinical records.

Standard statistical tests were used to describe qualitative and quantitative variables. Possible relationships between patient variables and a diagnosis of malignancy were assessed through uni- and multivariate analysis. Significance was set at 0,05. All statistical tests were performed using the software package SPSSv 15.0. (SPSS Inc., Chicago, IL, USA).

## RESULTS

Over the 20-year study period, 103 patients were diagnosed with MP at our hospital. Mean patient age at diagnosis was 66 years (range, 17-88 years). There was a slight predominance of affected men (55%). The different departments where the diagnoses were made were Internal Medicine (38%), Gastroenterology Unit (34%), Surgery (21%), and other (7%).

As many as 37 patients (36%) showed no symptoms at the time of diagnosis. Among those with symptoms, abdominal pain was the most frequently reported (44,6%).

The characteristics of the patients, symptoms and the different treatment strategies employed are shown in **Table 1**.

CT was the most frequent diagnostic method (93 patients, 90%). In 6 patients, the diagnosis of MP was based on MR observations (5,8%). Among all these patients diagnosed by imaging techniques, the *"fat ring sign"* was only described in 26 (26,2%). Of all 103 patients diagnosed

**Table 1**
Characteristics of the patients & treatments schedules

| Variable | (n) (%) |
|---|---|
| **Sex** | |
| Man | 57 (55,3%) |
| Woman | 46 (44,6%) |
| **Age at diagnosis** | 66 (15,4%)* |
| **Symptoms** | |
| Asymptomatic | 37 (36%) |
| Abdominal pain | 46 (44,6%) |
| Constitutional syndrome | 13 (12,6%) |
| Fever | 5 (4,8%) |
| Intestinal Obstruction | 2 (1,9%) |
| **Treatment strategies** | |
| No treatment | 33 (32%) |
| Underlying disease | 40 (38,8%) |
| Analgesics | 15 (14,6%) |
| Corticosteroids | 8 (7,8%) |
| Surgery | 4 (3,9%) |
| Tamoxifen | 3 (2,9%) |

** Age is the only variable expressed with mean (SD).*

with MP, in only 14 (13,6%) was this diagnosis histologically confirmed. In 4 patients (3,8%) the diagnosis was based on histological findings in the surgical specimen without an imaging study suggesting MP before.

Diagnosed cases were examined per 5 year period **(Table 2)**. The number of patients diagnosed with MP has increased over the time.

**Table 2**
Diagnosis rate through ages

| Periods of recruitment | (n) (%) |
|---|---|
| **1994-1999** | 3 (2,9%) |
| **2000-2004** | 3 (2,9%) |
| **2005-2009** | 24 (23,3%) |
| **2010-2014** | 73 (70,9%) |
| **Total** | 103 |

A factor related to MP was identified in 68 patients (66%). A malignant disease was identified in 26 patients (25,2%). In 35 cases (34%), no associated conditions were detected and MP in these patients was considered of idiopathic origin. Among the malignancies observed, the most common were lymphoma (11 patients, 10,7%) and colorectal cancer (8 patients, 7,8%). Complete results are shown in **table 3**. These malignancies were all detected at around the same time as the MP: in 66% they were diagnosed almost simultaneously (mean 8 days; range -19 to 43) and all were detected within a period of under 90 days (mean: 47 days; SD: 21 days).

Most patients required no treatment (33 patients, 32%) or treatment was targeted at the underlying disease (50 patients, 48,5%). Specific treatments for MP are included in **table 1**. Only 3 patients (2,9%) needed surgery to alleviate symptoms. As many as 78% of patients given specific treatment showed improved symptoms.

Factors related with the presence of malignancies including fat ring sign and maximum lymph node side and the presence of abdominal pain weren´t found in the univariate analysis in this study, so a multivariate analysis could not be performed.

**Table 3**
Diseases associated with MP diagnosis

| | (n) (%) |
|---|---|
| **Previous abdominal surgical procedures** | **18 (17,4%)** |
| Intestinal resection due to previous diagnosis of malignancy | 6 (33,3%) |
| Intestinal resection due to benign disease | 6 (33,3%) |
| Gastric resection due to benign disease | 2 (11,1%) |
| Endometrial adenocarcinoma | 2 (11,1%) |
| Incarcerated hernia | 1 (5,5%) |
| Horseshoe kidney | 1 (5,5%) |
| **Abdominal diseases** | **18 (17,4%)** |
| Acute pancreatitis | 4 (22,2%) |
| Diverticulitis | 3 (16,6%) |
| Apendicitis | 3 (16,6%) |
| Acute cholangitis | 3 (16,6%) |
| Chronic pancreatitis | 2 (11,1%) |
| Inflammatory bowel disease | 2 (11,1%) |
| Cholecystitis | 1 (5,5%) |
| **Rheumatologic diseases** | **6 (5,8%)** |
| Vasculitis | 2 (33,3%) |
| Idiophatic polymiositis | 2 (33,3%) |
| Sarcoidosis | 1 (16,6%) |
| Sjögren's syndrome | 1 (16,6%) |
| **Malignant conditions** | **26 (25,2%)** |
| Lymphoma | 11 (42,3%) |
| Colorectal cancer | 8 (30,7%) |
| Pancreatic adenocarcinoma | 3 (11,5%) |
| Gastric adenocarcinoma | 2 (7,6%) |
| Gynecological (ovarian) | 1 (3,8%) |
| Ampulloma | 1 (3,8%) |
| **No associated conditions: idiophatic** | **35 (34%)** |

## DISCUSSION

Mesenteric panniculitis is a rare disease of unknown origin. Studies have related MP to many conditions such as abdominal trauma and a wide spectrum of inflammatory disorders though a particularly strong association with numerous malignant diseases has been reported[2-6]. In our series, 25% of patients had a neoplasm associated with MP.

The first known series of MP comprising 34 cases was described in 1924[7]. Subsequent retrospective reports have had variable sample sizes; clinical studies usually including under 100 patients[3,6], and epidemiological studies over 100 patients[4,5,8]. In recent years there have been few prospective studies[3,9,10].

MP is usually described as a rare disease. Studies including different population sizes (between 613 and 13.485 patients) have addressed its prevalence in radiological examinations. The smallest of these studies indicated a prevalence of 7,8%[9]. However, in the two largest studies a much lower prevalence of 0,6% was detected[2,3]. Explanations for these discrepancies could be: 1) heterogeneity between the different study populations, 2) the use of different non-

standardized diagnostic criteria, or 3) different diagnosis rates over time due to improved imaging technology[11] (as clearly seen in our study, **table 2**).

In our series, mean age at diagnosis was 66 years. This age is consistent with reports in which MP is most common in the fifth to seventh decades[5]. Most studies have revealed a predominance of men[9]. We detected a less pronounced male predominance than described by others, the male/female ratio being 1,3:1.

MP can be asymptomatic but is frequently associated with abdominal pain. Pain has been attributed to a direct mass effect on the bowel or on the vascular/lymphatic vessels. Similar to the figures reported for other patient series, 34% of our patients were asymptomatic and 64% had symptoms. The most common symptom observed was abdominal pain (44,6%), and this has been also described by other authors[6,12].

Various predisposing factors for MP have been described such as abdominal trauma, rheumatic and abdominal inflammatory diseases, and malignancies[2,3,5]. In our series, 26 patients (25%) suffered from a neoplasm that was detected just before or after the diagnosis of MP (all within 90 days of diagnosis). Other studies have indicated similar rates of malignancies (10-23%)[6,8,9] while some authors have reported incidences of 38-70%[2-5,10] though all but one of these studies detected rates <50%. This discrepancy in the incidence of malignancy among the different studies cannot be easily explained. Possible causes could be: i) a different frequency of abdominal imaging among the clinical settings; ii) differences in study period, study design, target population or geographical variations; iii) different radiological criteria used to diagnose MP since these have not been fully established or validated; iv) in the case of a clear diagnosis of MP, the radiologist could miss any mesenteric abnormality.

Despite such differences, reported rates of the main malignancies associated with MP have been similar. In our patients, the most frequent malignancies were lymphoma (11%) and colorectal cancer (8%), consistent with the findings of others. Cited figures have been 8%-12%[2,3,5] for lymphoma and 10-16% for colorectal cancer[2,3,5]. Apart from hematological or gastrointestinal tumors, other malignancies have been described practically case by case including non-uniform frequencies of ovarian, breast, prostate, lung and renal cancers, melanoma etc.

Some studies have addressed possible factors able to predict malignant disease. Wilkes *et al.*[5] related the radiological findings of lymph node size and fat ring sign to the detection of a neoplasm. However, as mentioned by these authors, given their small sample size and that these findings were only significant in the univariate analysis, the results could reflect a type 2 error. In effect, these radiological findings have not been linked to MP in other series. Indeed, we detected no variables predictive of malignancy including *"fat ring sign"*. Furthermore, in a recent case-controlled study neither did the authors identify any variable that could predict the presence of malignancy[3]. More recently, Van Putte-Katieret *et al.*[10] detected similar proportions of malignant disease in cases and controls, finding no variable able to predict a malignancy. However, it should be noted that the findings of this last study did indicate an increased incidence of cancer in the MP patients over 5 years of follow up (14,6% MP vs 6,9% controls). This is a novel feature of the clinical significance of MP[10].

Our study has several limitations: 1) MP was histologically confirmed in only 13,6% of patients; 2) it was a unicenter, retrospective study; 3) its small sample size could mean underreporting of MP by the radiologist, who may consider it a finding rather than a diagnosis and also only focus on the more evident radiological signs of its associated diseases; and 4) the heterogeneity of this disease (many presentations, many associated diseases) makes it difficult to identify significant univariate or multivariate correlations.

There is no consensus as to the best treatment option for MP[6,13,14]. The first approach is treating the underlying disease, which may resolve the problem and improve symptoms. In asymptomatic patients, no treatment is a good option. The treatment options used in our patients were similar to those recommended by others and included corticosteroids, tamoxifen, hormone treatment, thalidomide, analgesics and colchicines[6,12-17)] Surgery is only indicated if there are symptoms arising from the presence of a mass such as obstruction signs or intractable pain[12].

## CONCLUSIONS

In 25% of our study population, MP was related to malignancy. The tumors most frequently detected were lymphoma and colorectal cancer. Treating physicians might consider complementary exams to assess these tumors. No associated disease (idiopathic) was seen in 34% of our patients and no epidemiological, clinical or radiological factors could be linked to malignant disease. Larger series and prospective studies are required to clarify the significance of MP and its relationship with malignancy. However, a diagnosis of MP should alert the treating physician about the possible paraneoplastic nature of this disease.

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