

## Unicentric localization of Castleman's disease treated with laparoscopic and traditional approach. Report of two cases

F. TARTAGLIA, S. BLASI, A. BERNI, M. SGUEGLIA, P. POLICHETTI, A. MATURO,  
G. PALAZZINI, L. TROMBA, F.P. CAMPANA

**SUMMARY:** Unicentric localization of Castleman's disease treated with laparoscopic and traditional approach. Report of two cases.

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*Castleman's disease (CD) is a rare lymphoproliferative disorder. Clinically CD has been subdivided in two forms: unicentric and multicentric. The unicentric type is limited to a single anatomic lymph-node-bearing region. The present report describes two cases of unicentric CD: the first was an abdominal localization treated with a laparoscopic approach; the second was a submaxillary localization treated with a classical approach. In case 1 the laparoscopic approach permitted to reach diagnosis, not clear after diagnostic imaging procedures, and enabled a total and excellent resolution of the pathology because our patient, after eight months of follow up, has had no evidence of recurrence of the disease. In case 2 we want to highlight that CD should be considered in the differential diagnosis of a solitary neck mass and that the surgical treatment is diagnostic and curative at the same time.*

**RIASSUNTO:** Due casi di malattia di Castleman a localizzazione unicentrica trattati con tecnica laparoscopica e tradizionale.

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*La malattia di Castleman è una patologia rara a carattere linfoproliferativo. Clinicamente può assumere due forme: unicentrica e multicentrica. La forma unicentrica è caratterizzata dall'interessamento di una singola stazione linfonodale. Nel presente lavoro sono riportati due casi di malattia di Castleman unicentrica: il primo a localizzazione addominale trattato con approccio laparoscopico; il secondo a localizzazione sottomascellare trattato con approccio tradizionale. Nel primo caso l'approccio laparoscopico ha permesso di definire la diagnosi, non chiara dopo le procedure diagnostiche strumentali e la totale ed eccellente risoluzione della patologia. La paziente, infatti, dopo otto mesi di follow up, non presenta recidiva. Il secondo caso conferma che la malattia di Castleman deve essere considerata nella diagnosi differenziale di una formazione solitaria del collo e che il trattamento chirurgico può essere diagnostico e terapeutico allo stesso tempo.*

KEY WORDS: Unicentric Castleman's disease - Lymphoproliferative disease - Laparoscopy.  
Malattia di Castelman unicentrica - Malattia linfoproliferativa - Laparoscopia.

### Introduction

Castleman's disease (CD) is a rare lymphoproliferative disorder, first described as a pathologic entity in 1954 and defined by Castleman et al. in 1956 (1). Flendrig and Schillings distinguished two basic pathologic types and one mixed variant (2), while Keller et al. designated hyaline-vascular, plasma cell and hyaline vascular plasma cell type (3).

Clinically CD has been subdivided in two forms:

unicentric and multicentric. The unicentric type is limited to a single anatomic lymph-node-bearing region and is rarely associated with systemic symptoms. The multicentric type is characterized by a more extensive lymph node involvement, severe systemic symptoms and a progressive clinical course with potential for malignancy.

The disease may occur anywhere along the lymphatic chain most commonly in the thorax. It is relatively rare in the neck, abdomen, retroperitoneum and pelvis.

We present two cases of unicentric CD. The first was localized between the lesser curve of the stomach and the left hepatic lobe. It was treated with a laparoscopic approach. The second was a submaxillary localization treated with a classical approach.

## Case reports

### Case n. 1

A 36 years old woman, with a history of increasing fatigue, visited her family physician to execute a general check up. The blood investigations showed an increase of alanine amino transferase (ALT) and aspartate amino transferase (AST) serum levels.

The abdominal ultrasound (Fig. 1) and the CT scan (Fig. 2) revealed the presence of a roundish mass of 3 centimeters in diameter with well-defined margins behind the left hepatic lobe near to the second and the third segment. The nuclear magnetic resonance (Fig. 3) confirmed the presence of a solid contrast enhanced mass with a poorly vascularized central area, heterogenous surface, regular margins, behind the second and third hepatic segment. Moreover the abdominal magnetic resonance showed two lesions with the same characteristics of 15 and 4 centimeters in diameter behind the hepatogastric ligament. One of the two lesions seemed to be next to the superior margin of the pancreatic body. The FDG PET-TC total-body scan (Fig. 4) highlighted an increased activity in correspondence of the solid tissue in the hepatogastric ligament,

behind the liver. It also demonstrated a slight raised activity in correspondence of the gastric antrum without morphological and structural changes.

The imaging findings were sufficient to hypothesize a lymphadenopathy but were not enough to establish the diagnosis definitely. In fact the close contiguity of the main mass to the liver didn't allow to exclude the hepatic nature of the lesion. So she was admitted to our hospital for further investigations.

Laboratory tests showed sierological evidence of past Epstein-Barr virus (EBV) and Cytomegalovirus infections. On physical examination no superficial lymphadenopathy was found.

Gastrointestinal endoscopy revealed hiatus hernia while colonoscopy was negative for endoluminal lesions. Pelvic ultrasound (US) didn't show any ovarian or uterine abnormalities. A needle biopsy of the lesion under US guidance was performed but it was not sufficient to establish an histological diagnosis, because it just revealed breeding grounds of hepatic steatosis.

Then the patient was referred for surgical evaluation by the laparoscopic approach.

The patient was placed in supine straddle position and a general anaesthesia was administered. Two trocars were introduced to

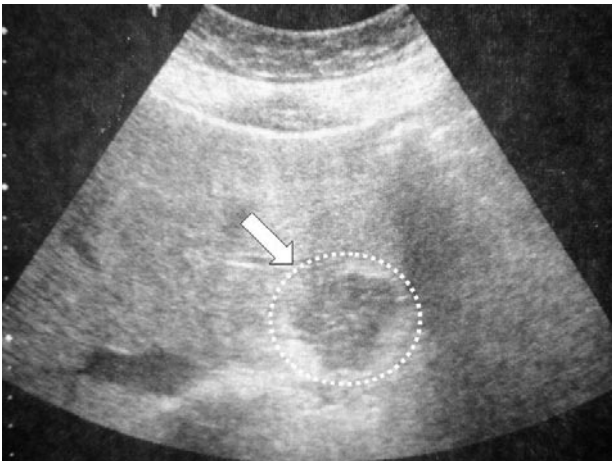


Fig. 1 - The US exam reveals an hypo-echogenic mass between the stomach and the left hepatic lobe.

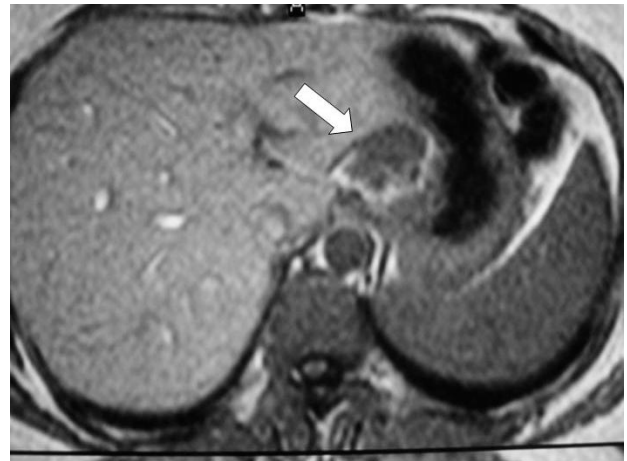


Fig. 3 - The MR shows a solid contrast-enhanced mass with a poorly vascularized central area.

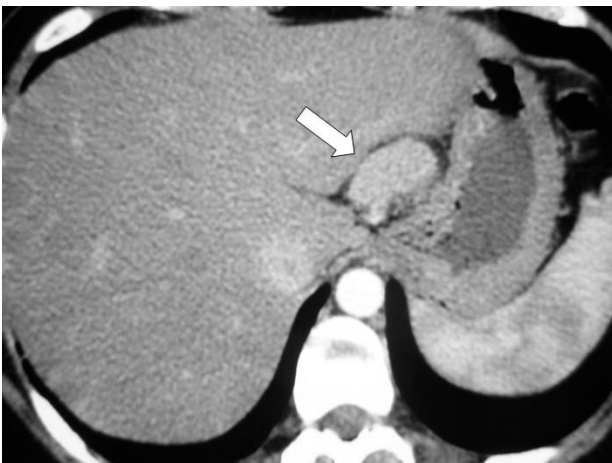


Fig. 2 - The CT scan shows a mass of 3 centimeters in diameter with well-defined margins behind the left hepatic lobe near to the second and the third segment.

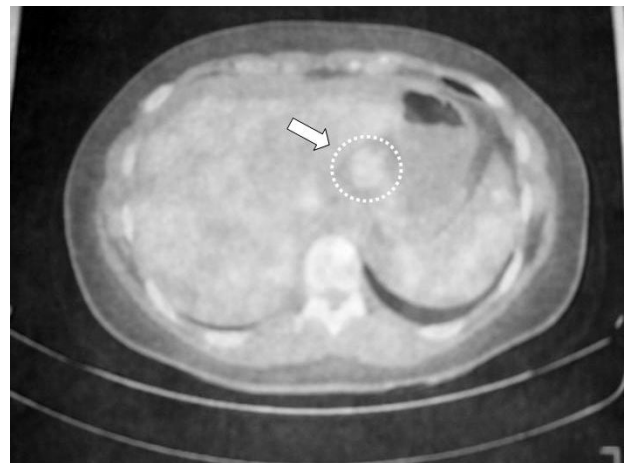


Fig. 4 - The FDG PET-TC total-body scan highlighted an increased activity in correspondence of the solid tissue in the hepatogastric ligament described by the previous exams.

perform a diagnostic laparoscopy. The inspection of abdominal cavity revealed the presence of voluminous lymph nodes that covered the lesser gastric curvature. The liver, taken up with a fan retractor, didn't barely adhere to lymph nodes. Therefore, with the aid of other two trocars, lymph nodes were dissected and removed by means of an endo-bag.

The histologic examination of lymph nodes showed irregular germinal centres with prominent hyalinized vascular proliferation. The hypervascular mantle zones were surrounded by small lymphocytes in a concentric onionskin pattern with focal hyaline deposits. Even if immunohistochemical findings revealed negative expression for CD68R and HHV8, the morphological aspects were typical for hyaline-vascular type of Castleman's disease (HVCD).

The patient's postoperative course was without complications and she was discharged in third postoperative day and referred to the hematologists for the follow-up.

No recurrence has occurred after eight months follow up period and she is leading pregnancy without difficulties being to seventh month of gestation at the moment of the drawing up of the present report.

#### *Case n. 2*

A 45 years old woman came to us because of the appearance seven months before of a mass localized in the left submandibular region. The lesion was asymptomatic and was discovered during self-examination. She had no family history of malignancy or inherited history. She didn't have systemic symptoms such as fever, fatigue, sweats and weight loss.

The physical examination revealed the presence of a painless roundish mass of two centimeters in diameter, with a smooth surface and sclerotic consistence in the left submandibular region.

Blood exams were normal and didn't show serological evidence of Epstein-Barr, HIV and cytomegalovirus infections.

Radiographs of the chest showed no abnormalities.

An ultrasound of the region highlighted the presence of a cluster of hypoechoic lymph nodes of two centimeters in diameter with an high grade of vascularization. Therefore it was decided to proceed to a surgical removal of the mass.

In the left submandibular compartment a cluster of voluminous and sclerotic lymph nodes tightly adherent to an enlarged and scirrhous submandibular gland was removed. The frozen section exam revealed signs of chronic lymphadenopathy of uncertain nature therefore it was decided to remove also the submandibular gland.

Definitive histological examination of the lymph nodes showed an increased number of withering hyalinized germinal centres surrounded by concentric layered mantle zones and an extensive angiogenesis in the form of radially penetrating capillaries and venules with high endothelium. Immunohistochemical examination demonstrated the presence of B lymphocytes (CD20+ and CD79+) and of T cells (CD3+) and the permanence of dendritic follicular cells (CD21+) in the germinal centres which were also negative for the expression of Bcl-2. Immunohistological diagnosis was consistent with hyaline-vascular Castleman's disease. Instead histological examination of submandibular gland was consistent with chronic sialoadenitis.

The patient was referred to the hematologists and no recurrence has occurred after an year follow up period.

## **Discussion**

Castleman's disease is a rare lymphoproliferative disorder that is uncommon, atypical and of unknown

etiology. It is characterized by two distinct entities with similar histology but different course and therapeutic response. The pathogenesis is still unknown but human Herpes virus-8 (HHV-8) and EBV play a role especially in immunocompromised hosts.

Multicentric Castleman's disease is a systemic disorder with generalized peripheral lymphadenopathy, fever, night sweats, anemia, weight loss and it can be associated with polyneuropathy, organomegaly, endocrinopathy, M protein and skin change (POEMS syndrome). This type of CD is progressive and has a poor prognosis.

The unicentric type of CD is rarely reported in association with systemic symptoms and it interests younger age as in our patients. The hyaline-vascular (HV) subtype is more common in the localized forms. Virtually it can occur in any anatomical site where lymphoid tissue is found but it is more frequent in the thorax (mediastinum, lung hilum) in proportion with various series ranging from 38.5% to 86% (4). It can involve neck (5), retroperitoneum, pelvis, mesentery, chest wall.

In the English literature we found some reports of unicentric CD. Few cases during pregnancy have been reported. Hernandez reports the case of a pregnant patient who developed a localized axillary hyaline-type CD (6). Hata et al. describe the case of a 52 years old male with asymptomatic rectal polyp, which was diagnosed as Castleman's disease concomitant with gastric adenocarcinoma (7). Przkora et al. report the case of a locoregional HVCD with infiltration of the bile duct wall, localized infiltration of the liver and lymphadenopathy including suprapancreatic lymph nodes causing obstructive jaundice (8). A lymphadenopathy in porta hepatis, along the common bile duct and the lesser curvature of the stomach causing obstructive jaundice is reported by Al-Salamah et al. (9). It was classified as an expression of HVCD.

In our case n. 1 the preoperative diagnosis was problematic because of the absence of considerable symptomatology and of undisputed diagnostic investigations. In fact, the abdominal ultrasound, the MRI and the FDG PET-TC total body scan didn't supply enough informations to define the nature and the exact pertinence of the lesion. On the contrary it was necessary to perform further exams such as the colonoscopy and the gastroscopy to exclude that the lymphadenopathy could be a metastasis of an unknown primary. Therefore in order to formulate a definitive diagnosis it was decided to proceed to an exploratory laparoscopy, that it allowed to identify with precision the location of the lesion, its relationships with the surrounding organs and to perform its removal with consequent histological diagnosis. Furthermore the laparoscopic approach enabled a total and excellent resolution of the

patology and our patient, after eight months of follow up, has had no evidence of recurrence of the disease.

In English literature few cases of a laparoscopic treatment of abdominal unicentric Castleman's disease have been reported (10, 11). Nevertheless in our case this approach has allowed to unfold the diagnosis and it has been curative with the advantages derived from a mini-invasive approach.

Our second case does not introduce any specific ele-

ment of discussion because the lymph nodal nature of the mass was already demonstrated in the preoperative time. However we want to report it for completeness and to highlight that Castelman's disease should be considered in the differential diagnosis of a solitary neck mass. The choice of treatment was the complete removal of the mass en-bloc with the submaxillary gland obviously performed by a traditional surgical approach that was diagnostic and at the same time curative.

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