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LETTER TO THE EDITOR

Erdheim Chester disease presenting as sclerosing mesenteritis

Pieter J. Westenend[1] · Robert C. Akkers[1] · Nienke Katier[2] · Eric F. H. van Bommel[3]

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To the Editor,

Sclerosing mesenteritis (SM) is a disorder of the mesentery of the small bowel that is often an incidental finding on abdominal computed tomography scanning [1, 2]. It is a rare condition that is also known as mesenteric panniculitis, mesenteric lipodystrophy, mesenteric Weber-Christian disease and retractile or fibrosing mesenteritis. In one study of 3820 consecutive CT scans, the prevalence was 2.5%, and there was an association with malignancies [3]. A range of etiologic factors have been identified including (surgical) trauma, autoimmune diseases, infections and malignancies [1, 2]. SM is often described as an idiopathic chronic inflammation; however, SM is rarely biopsied, and therefore, the histogenesis of this condition has not been fully elucidated. In a limited number of cases, SM has been diagnosed as IgG4-related [4]. We report a case which was biopsied and diagnosed as Erdheim Chester disease (ECD).

A 82-year-old woman presented at the outpatient department of gynecology with abdominal discomfort and fatigue. She had a history of a mucinous tumor of low malignant potential (MTLMP) of the right ovary 4 years before. Local recurrence of this tumor was suspected and an abdominal CT scan was performed which demonstrated a peritoneal mass. During laparoscopic surgery, the mass turned out to be in the mesentery of the small bowel and a biopsy was taken.

Upon histologic examination, the lesion was cellular and contained numerous histiocytic cells, partly with foamy cytoplasm, small lymphocytes and Touton giant cells (Fig. 1). There was no sign of recurrence of the MTLMP. The histiocytic cells were positive for CD68 and Factor 13a, and negative for CD1a, langerin and S100, a profile compatible with but not specific for ECD. There was only a limited number of plasma cells present which rarely stained for IgG4. Upon revision of a CT scan prior to her ovarian surgery, there was already a mentioning of SM which was radiologically unchanged 6 months after surgery. To assess the extent of suspected ECD disease, ^{18}F-fluorodeoxyglucose (^{18}F-FDG) positron emission tomography scanning was performed which showed no pathologic ^{18}F-FDG uptake. Next-generation sequencing (Qiagen Genereader NGS platform) of the mesenterial biopsy was performed with a gene panel covering regions of interest in the genes that have been associated with ECD: BRAF, PIK3ca, KRAS, NRAS [5], and this revealed a KRAS G12D mutation. Histopathological revision of the staging procedure 4 years before showed in one of the peritoneal biopsies an unremarkable proliferation of histiocytic cells without foamy cytoplasm or Touton giant cells. We could demonstrate the KRAS G12D mutation in this material as well. It was concluded that this patient had ECD with solitary involvement of the mesentery. The patient declined further examination and treatment.

As in other patients, SM in our patient had an indolent course and she had a coexisting malignancy. Unlike many patients, she had a biopsy since a recurrence of her malignancy was suspected and this gave us the unique opportunity to study the lesion more closely. ECD has recently been recognized as a systemic clonal proliferation of histocytes often containing Touton giant cells [5, 6]. Because many organs may be involved, ECD can present with a wide range of symptoms which often leads to a delay in the diagnosis [5, 6]. In a review of the literature, we could find only one case of ECD presenting as SM [7]. This patient presented with fatigue and an ‘omental cake’. The diagnosis ECD was supported by a biopsy and typical radiologic findings of sclerosis of long bones; analysis for the presence of mutations was not performed. Involvement of the mesentery by ECD is also not mentioned in recent reviews of ECD and SM [1–3, 5]. We

✉ Pieter J. Westenend
pwestenend@paldordrecht.nl

[1] Laboratory of Pathology, Dordrecht, The Netherlands

[2] Department of Radiology, Albert Schweitzer Hospital, Dordrecht, The Netherlands

[3] Department of Internal Medicine, Albert Schweitzer Hospital, Dordrecht, The Netherlands

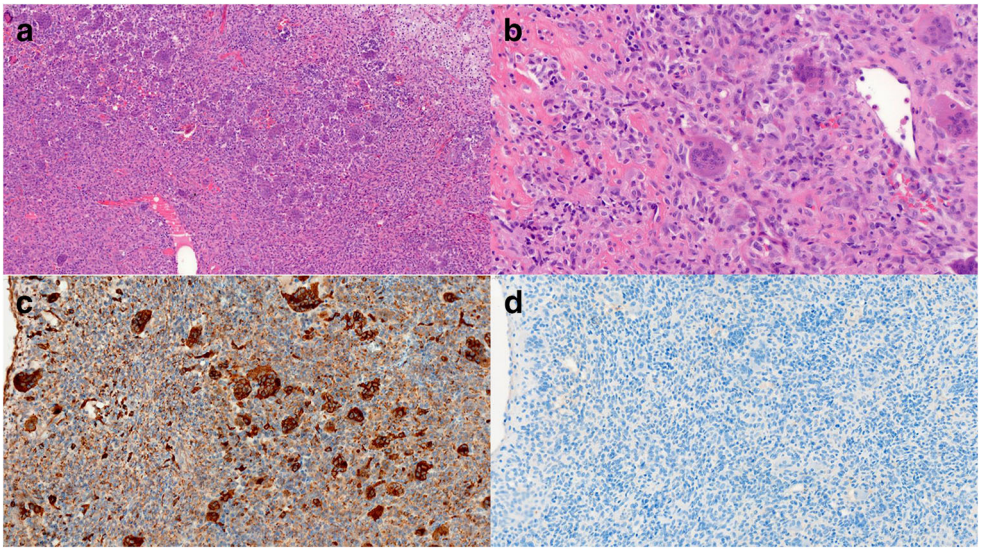

Fig. 1 **a** Overview of the mesenterial biopsy (H&E). **b** Detail of the mesenterial biopsy demonstrating histiocytic cells and Touton giant cells (H&E). **c** CD68 of the mesenterial biopsy highlighting histiocytic cells and Touton giant cells. **d** CD1a staining demonstrating lack of staining in histiocytic cells and Touton giant cells

did not find an association of ECD and ovarian tumors in the English literature. This case also demonstrates the sometimes indolent nature of ECD and the paucity of symptoms causing a considerable delay in the diagnosis: we were able to demonstrate that the KRAS G12D mutation was already present in a biopsy 4 years before and all this time the patient received no treatment. In hindsight, we do not think that we could have made the diagnosis of ECD at an earlier time given the lack of 'typical' symptoms and the nonspecific aspect of the first biopsy. It was the classical histological aspect of the second biopsy that raised the possibility of ECD. In recent years, the presence of gene mutations and the expression of mTOR by the histocytes has been explored as a possible target for personalized medicine [5, 8]

Our case demonstrates that the differential diagnosis of SM should be expanded with ECD and it also highlights the value of molecular diagnostics in supporting this diagnosis.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Statement of informed consent The patient provided written informed consent for using these data.

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