Oncology Case Reports Journal

Case Report
Published: 13 Nov, 2020

A Rare Cause of Bowel Obstruction with Hypereosinophilia - Case Report and Literature Review

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Abstract

We report a case of a 74 year-old female presenting a picture of intestinal sub-occlusion with major weight loss. An abdominal mass was detected on physical exam. A uterine origin of the mass was suspected, based on the abdominal MRI. The histology and the immunochemistry confirmed the diagnosis of PEComa. The laparotomy let to discover a vascular mass adhering to the mesentery, the small intestine and to the transverse colon. The mass has been entirely resected. The patient presented a paraneoplastic eosinophilia. The patient has left the hospital after 3 weeks and gained 6 kg.

PEComa constitute a rare family of Mesenchymal tumors expressing both melanocytic and myoid immunomarkers.

Most of the cases benefit exclusively from a surgery and show no recurrence thereafter.

For metastatic disease, a variety of chemotherapy regimens has been described and appears to bring some favorable results. There are some encouraging data showing the advantage of targeted therapies, especially with mTOR inhibitors. A paraneoplastic hypereosinophilia hasn't been mentioned in any former PEComa related articles.

We report a rare case of PEComa, which could be treated by surgery when the patient was considered as palliative situation.

Keywords: PEComa; Eosinophilia; Hypereosinophilia

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Received Date: *19 Oct 2020*
Accepted Date: *09 Nov 2020*
Published Date: *13 Nov 2020*

Citation:
Szklarzewska S, Simon A. A Rare Cause of Bowel Obstruction with Hypereosinophilia - Case Report and Literature Review. Oncol Case Report J. 2020; 3(3): 1028.

Introduction

Perivascular Epithelioid cell tumors (PEComas) are a family of mesenchymal tumors in relation with blood vessel walls, which share similar histopathologic features and immunohistochemistry. They are characterized by an epithelioid cytomorphology with a clear to eosinophilic cytoplasm and expression of both melanocytic and myoid immunomarkers [1].

PEComas may occur at any anatomic sites. The most common site is the kidney (called angiomyolipoma), followed by the gynaecological tract.

The aggressive potential of these tumors is not well understood due to the paucity of the described cases in the literature. However, most of them seem to act in a benign way [2].

Case Presentation

We report a case of a 74 year-old female admitted for increasing asthenia and a 30 kg weight loss in two months. Lately, she was complaining of abdominal pain with constipation. There was no relevant medical history and no medication was taken.

On physical examination, a deep-seated round mass with hard consistency was detected in the lower abdomen.

A major inflammation and eosinophilia were found in the blood test results (Table 1).

A thoraco-abdominal CT-scan revealed a peritoneal carcinomatosis and an abdominal mass with a necrotic centre of 19 cm × 19 cm × 11 cm.

A pelvic-MRI was performed showing an enhanced gadolinium lesion starting in the endometrium, infiltrating the myometrium and the serosa. There was an 18 cm abdomino pelvic

Table 1: Laboratory analysis.

Parameter	Value	Units	Reference value
C-Reactive protein	215.20	mg/L	<10
White cells count	13.04	$10^3/mm^3$	3.9-9.5
Hemoglobin	9.6	g/dL	12.0-16.0
Mean Cell Volume	90.5	fL	79-99
Platelets	797	$10^3/mm^3$	150-400
Neutrophil granulocytes	9.39	$10^3/mm^3$	1.8-7.0
Eosinophils	1.34	$10^3/mm^3$	0.00-0.50
Urea	37	mg/dL	10.0-50.0
Creatinine	0.51	mg/dL	0.5-0.9
Bilirubin (total)	0.32	mg/dL	<1.20
Sodium	137	mmol/L	135-145
Potassium	3.74	mmol/L	3.5-5.10
Albumin	32.2	g/L	35.0-52.0
Lactate dehydrogenase	943	UI/L	135-225
Alkaline phosphatase	109	UI/L	35-105
Alanine transaminase	13	UI/L	<33
Aspartate transaminase	11	UI/L	<32
Gamma-glutamyltranspeptidase	37	UI/L	6–42

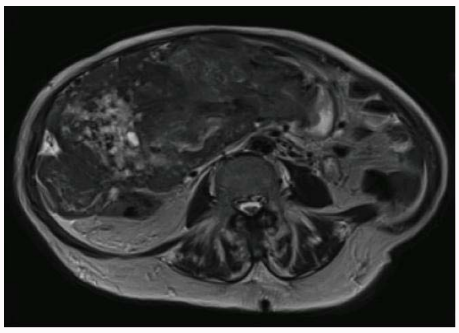

Figure 1: T2-weighted MR image of the tumor.

mass also enhanced by the contrast with a strongly heterogeneous signal which may correspond to a uterine origin.

No other suspicious lesion was noticed (Figure 1).

All tumor markers were negative (CEA, Ca-125, CA19-9, HE-4).

There was no lesion detected on the bone scan.

The CT-guided biopsy of the mass illustrated cells with an eosinophilic cytoplasm. Hypercellularity, a moderate nuclear pleomorphism and tumor necrosis were noted. The cells were immunoreactive for human melanoma black 45, actin and desmine. Protein S100 and cytokeratin were negative (Table 2). Based on the histology and the immunohistochemistry, a PEComa was diagnosed.

The Karnofsky performance Status of the patient was estimated to 40%. She had a confirmed malnutrition with an MNA-short form score of 7. The albumin serum level went down until 15 g/L. She lost 5 kg more during the hospitalization.

A persistent moderate hypereosinophilia was noted, which wasn't explained neither by an atopic, infectious nor a drug origin. A paraneoplastic side effect was suspected.

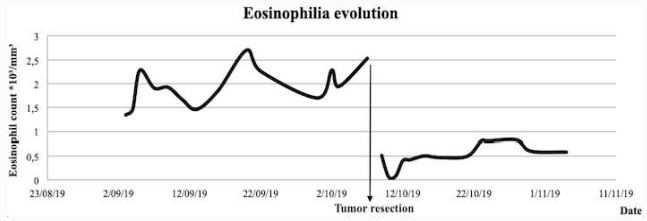

Figure 2: Eosinophilia evolution.

Table 2: Immunomarkers.

HMB-45	Positive
Caldesmone	Positive
Actine	Positive
Desmine	Positive
Vimentin	Discrete
Oestrogen-R	8
Progesterone-R	3
P53	Discrete
WT	Discrete
MART-1	Discrete
BerEP4	Negative
Calretinin	Negative
Prot S100	Negative
Inhibine	Negative
Cytokeratin 7-19-20	Negative
CD117	Negative

After a cancer multidisciplinary team meeting, the decision to operate the patient has been made.

The patient was put under parenteral nutrition one week before the intervention.

The laparotomy let to discover a very vascular mass adhering to the mesentery, the small intestine and to the transverse colon. There was no connection between the mass and the gynecological organs. In order to remove the entirety of the mass, a 70 cm resection of the small intestine has been performed. There were some subcentimeter metastases left in the pouch of Douglas.

The eosinophil count went back to normal rate immediately after the surgery, which confirmed the paraneoplastic origin for the hypereosinophilia (Figure 2). The patient left the hospital 3 weeks later and had gained 6 kg.

Unfortunately, the patient died 4 months later of pulmonary sepsis. There was no evidence for PEComa relapse.

Discussion

PEComa constitute a rare family of neoplasm. Among all cases of Gastro-Intestinal (GI) tract PEComa that have been reported so far (about 50 cases), the colon was the most affected anatomic site (26%), followed by the mesentery (20%). The ileum was affected in 8% of the described cases [2].

The tumor is generally asymptomatic at early stages. We didn't find any previously reported case of PEComa that caused such a deterioration of general condition, although, those tumors appear

mostly among middle-aged woman [2].

Another interesting point in this case report is the paraneoplastic hypereosinophilia, which hasn't been mentioned, in any former PEComa related articles.

Eosinophilia is defined as an eosinophil count higher than 0.5×10^9/L in the peripheral blood. There is a distinction made between mild (0.5×10^9/L to 1.5×10^9/L), moderate (1.5×10^9/L to 5×10^9/L) and severe ($>5 \times 10^9$/L) eosinophilia.

The most common causes of hypereosinophilia in our country are drug allergies and atopia. Parasite infections, usually helminths, usually occur after a stay in endemic countries. However, some of them may be contracted in Europe and be asymptomatic [3].

About 1% of hypereosinophilia is due to a malignancy, most of the time, a hematological one. Eosinophilia in solid tumors has rarely been reported and has been associated with metastatic diseases [4].

The natural history of many tumors, including PEComas, leads to necrosis, which is realizing Damage Associated Molecular Patterns (DAMPS) [5]. Those DAMPS will activate a chemotactic movement in eosinophils. DAMPS play a crucial role in tumor tissue proliferation and avoiding apoptosis. The eosinophil recruitment allows an "oxidative burst" [5], causing an eosinophil degranulation and release of enzymes contributing to generation of Reactive Oxygen Species (ROS) [6]. The oxidation of ROS degrades DAMPS [5]. Additionally, there are some data showing that eosinophils might be implicated in tissue restoring [6].

This way, tumor associated blood eosinophilia shows a better prognosis mainly thanks to cytotoxicity [5].

PEComa usually present a homogeneous contrast-enhancement on CT and MRI images due to their hypervascularity. They have typically well defined margins and high signal intensity in T2-weighted images. However, those imaging features are not specific enough to make a PEComa diagnosis [7].

There is a broad differential diagnosis of PEComa based on the histological findings including carcinoma, melanoma, paraganglioma, GIST, smooth muscle tumors, CCS-like tumor of the GI tract, and ASPS, which can lead to a wrong diagnosis [8].

The immunochemistry results are always required to put the diagnosis. The most sensitive reagent is the melanocytic marker HMB-45, which is positive among almost all the cases (96%) [3].

There are no unanimously accepted criteria to determine the prognosis of PEComa. Doyle et al. [8] pointed out factors strongly associated with malignant behavior based on the largest series of cases published to date, which occurred in the GI tract. They found a statistically significant association between the development of a metastatic disease and a marked nuclear atypical, diffuse pleomorphism and >22 mitoses per 10 HPF.

Based on the analysis of 234 reported cases of PEComa-NOS (not specified site) by Bleeker et al. [9], only size ≥ 5 cm and high mitotic grade were associated factors with high risk of recurrence.

There is an overall agreement about the fact that a complete surgical resection of the tumor should be the main treatment of PEComa. Yet, there is no settlement about the adjuvant therapy in malignant cases.

Most of the PEComas benefit exclusively from a surgery and show no recurrence thereafter. A variety of chemotherapy regimens have been described in malignant cases [9]. Unfortunately, the majority showed a beneficial outcome just on a small amount of PEComas [10]. Cytotoxic chemotherapy appears to bring some favorable results [11].

During the past ten years, there have been some encouraging data showing the advantage of targeted therapies, especially with mTOR inhibitors [6]. Indeed, several studies revealed that the loss of tumor suppressor gene TSC2 (and rarely TSC1) appears frequently in sporadic PEComa [12]. This depletion leads to a cell growth and proliferation by the overactivation of the mTOR pathway [13]. The use of Sirolimus or Tacrolimus should be considered among patients with metastatic PEComa with evidence of mTOR pathway overactivation [14]. An important advantage of these drugs is that they are well tolerated and can be administrated orally [8].

Since the patient of our case had a metastatic disease at the presentation, her prognosis was poor. Moreover, we had to take in to consideration her fragility with severe malnutrition and low performance index.

Despite her miserable general condition, a decision to treat the patient has been made in order to improve the patient comfort and to prevent an occlusion. The patient didn't receive any adjuvant therapy because we wanted first to improve her nutritional state.

Conclusion

We report a rare case of PEComa, which could be treated by surgery when the patient was considered as palliative situation. Hypereosinophilia should be considered as a potential paraneoplastic syndrome in PEComas.

References

1. Acosta AM, Adley BP. Predicting the behavior of perivascular epithelioid cell tumors of the uterine corpus. Arch Pathol Lab Med. 2017;141(3):463-9.
2. Chen Z, Han S, Wu J, Xiong M, Huang Y, Chen J, et al. A systematic review: Perivascular epithelioid cell tumor of gastrointestinal tract. Medicine (Baltimore). 2016;95(28):e3890.
3. Roufosse F, Cogan E. Practical approach to eosinophilia. Revue Médicale de Bruxelles. 2008;29:400-8.
4. Inoue M, Kadono J, Sugita H, Nakazono T, Motoi S, Kitazono I, et al. Impact of chemotherapy on eosinophilia-associated advanced rectal cancer: A case report and review of the literature. Oncology Letters. 2016;12(6):5269-74.
5. Lotfi R, Herzog GI, DeMarco RA, Beer-Stolz D, Lee JJ, Rubartelli A, et al. Eosinophils oxidize damage-associated molecular pattern molecules derived from stressed cells. J Immunol. 2009;183(8):5023-31.
6. Stenfeldt AL, Wennerås C. Danger signals derived from stressed and necrotic epithelial cells activate human eosinophils. Immunology. 2004;112(4):605-14.
7. Tirumani SH, Shinagare AB, Hargreaves J, Jagannathan JP, Hornick JL, Wagner AJ, et al. Imaging features of primary and metastatic malignant perivascular epithelioid cell tumors. AJR Am J Roentgenol. 2014;202(2):252-8.
8. Doyle LA, Hornick JL, Fletcher CDM. PEComa of the gastrointestinal tract: clinicopathologic study of 35 cases with evaluation of prognostic parameters. Am J Surg Pathol. 2013;37(12):1769-82.
9. Bleeker JS, Quevedo JF, Folpe AL. "Malignant" perivascular epithelioid cell neoplasm: risk stratification and treatment strategies. Sarcoma.

2012;2012:541626.

10. Sanfilippo R, Jones RL, Blay J-Y, Cesne AL, Provenzano S, Antoniou G, et al. Role of chemotherapy, VEGFR inhibitors and mTOR inhibitors in advanced perivascular epithelioid cell tumors (PEComas). Clin Cancer Res. 2019;25(17):5295-300.

11. Scheppach W, Reissmann N, Sprinz T, Schippers E, Schoettker B, Mueller JG. PEComa of the colon resistant to sirolimus but responsive to doxorubicin/ifosfamide. World J Gastroenterol. 2013;19(10):1657-60.

12. Dickson MA, Schwartz GK, Antonescu CR, Kwiatkowski DJ, Malinowska IA. Extrarenal Perivascular Epithelioid cell tumors (PEComas) respond to mTOR inhibition: Clinical and molecular correlates. Int J Cancer. 2013;132(7):1711-7.

13. Liu C-H, Chao W-T, Lin S-C, Lau H-Y, Wu H-H, Wang P-H. Malignant perivascular epithelioid cell tumor in the female genital tract. Medicine (Baltimore). 2019;98(2):e14072.

14. Wagner AJ, Malinowska-Kolodziej I, Morgan JA, Qin W, Fletcher CDM, Vena N, et al. Clinical activity of mTOR inhibition with sirolimus in malignant perivascular epithelioid cell tumors: targeting the pathogenic activation of mTORC1 in tumors. J Clin Oncol. 2010;28(5):835-40.