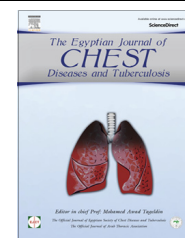




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## SHORT COMMUNICATION

# Anterior myeloid sarcoma revealing acute myeloid leukemia: Case report



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### KEYWORDS

Myeloid sarcoma;  
 Mediastinal;  
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**Abstract** Myeloid sarcoma (MS) is a tumor mass of myeloblasts or immature myeloid cells occurring in an extramedullary site or in the bone and generally precedes or reveals myeloid leukemia. It rarely occurs in the mediastinum.

Clinical diagnosis and histology is generally difficult, the treatment is based on chemotherapy-type acute myeloid leukemia.

We report the case of a patient diagnosed with anterior mediastinal myeloid sarcoma that revealed acute myeloid leukemia.

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## Introduction

Myeloid sarcoma (MS) is a tumor mass of myeloblasts or immature myeloid cells occurring in an extramedullary site or in the bone and generally precedes or reveals myeloid leukemia. It rarely occurs in the mediastinum.

Clinical diagnosis and histology are generally difficult.

We report the case of a patient diagnosed with anterior mediastinal myeloid sarcoma that revealed acute myeloid leukemia.

## Observation

The 36 year old patient, occasional smoking, weaned without particular medical history, who had the following symptoms six months before admission: installation of a stage II MMRC dyspnea with swelling of the face and neck without other associated signs, all in a context of apyrexia and conservation condition.

The examination found a conscious patient, eupnéique break with edema in cape, the pleuropulmonary review noted the presence of a discrete thoracic venous circulation, with a percussion effusion fluid syndromes at the lower half the right hemothorax. The remaining physical examination was normal.

The chest X-ray tests showed a tumor process latero-tracheal right, filling the Baret lodge and extending down to the hilum of about 16 × 9.5 cm, causing a compression of the superior vena cava, associated with right pleural effusion of average abundance and a fine blade left pleural effusion (Fig. 1).

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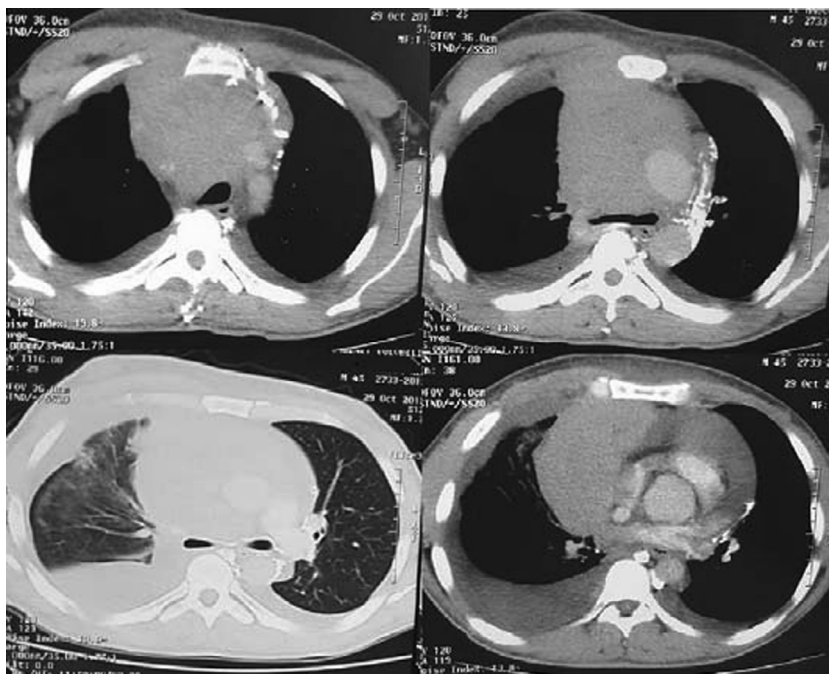
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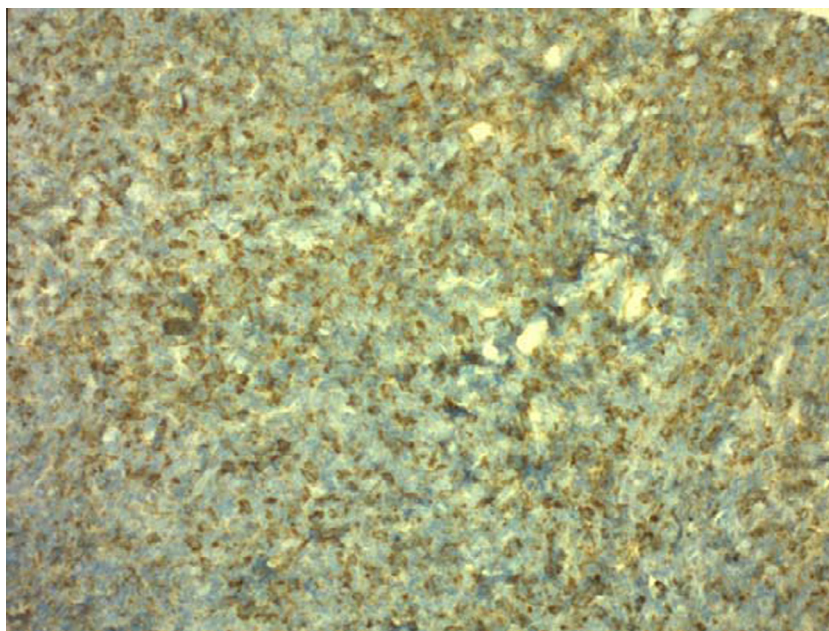
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**Figure 1** Cuts chest CT showing anterior and middle mediastinal mass with compression of the superior vena box and bilateral pleural effusion greater right.



**Figure 2** Myeloid sarcoma: neoplastic cells are positive for myeloperoxidase.

Thoracentesis showed an aspect of chylothorax.

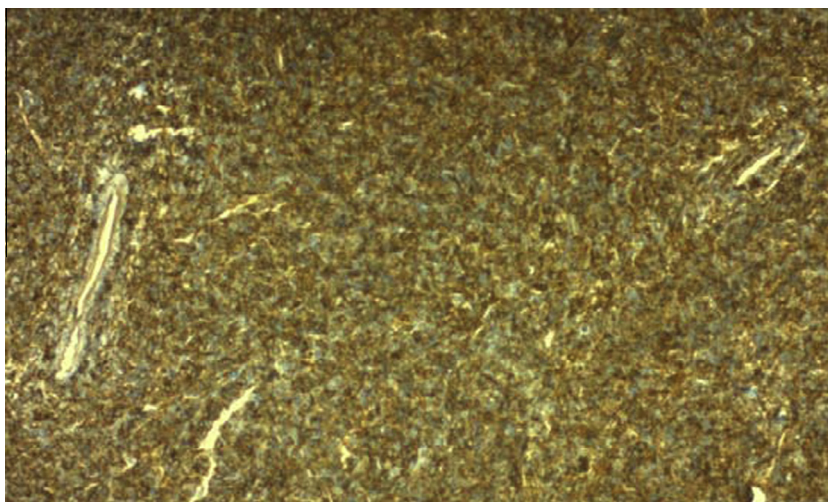
The ultrasound-guided biopsy of mediastinal mass came back in favor of an myeloid sarcoma expressing anti myeloperoxidase antibody (Fig. 2), AC anti CD99, anti CD117, anti CD34 (Fig. 3) and anti CD 68 which is focally positive with a proliferation index assessed by Ki67 estimated at 90%.

Given these histological data, the assessment was completed by bone marrow aspiration that showed leukemia appearance with acute myeloid maturation classified LAM 2

according to FAB classification. Karyotype of marrow was asked have not objectified anomaly.

Thus the balance was supplemented by a bone scan, abdominal ultrasound returning without anomaly. Cardiac MRI for its part objectified compression of the OD with pericardial effusion of low abundance in lower.

Following the results of these assessments, diagnosis of mediastinal myeloid sarcoma associated with acute myeloid leukemia was confirmed, and it was decided to treat the patient



**Figure 3** Myeloid sarcoma: neoplastic cells are positive for CD34.

according to the Moroccan protocol AML-MA 2003 (Acute Myeloid Leukemia) including chemotherapy of induction base Daunorubicin 50 mg/m<sup>2</sup> on D1, D2, D3, and Aracytine 200 mg/m<sup>2</sup> D1 to D7.

The evolution was rapidly unfavorable causing death days after confirmation of the diagnosis in an array of respiratory distress.

### Discussion

Granulocytic sarcoma was described for the first time by Burns in 1811 [1]. In 1873, the King dubbed “chloroma” because of its green color to the cut [2]. The link with acute leukemia, initially credited to Van Recklinghausen by Dock in 1904 [3], was confirmed on a series of 21 cases in 1904 by Dock [4]. The myeloid nature was confirmed by marking the myeloperoxidases in 1912 [5]. It took until 1996 then designate this “granulocytic sarcoma” tumor or “extramedullary tumor myeloid cells,” 30% “chloromas” is not green because of the presence of monocyte tumor cells and non-myeloid [6,7]. Finally in 2001, the WHO classified the tumor as “myeloid sarcoma” [8].

It corresponds to the migration out of the bone marrow of myeloid cells that proliferate in their turn. It occurs in acute myeloid proliferations, either during acute myelogenous leukemia, or when acutization a myeloproliferative disorder on myeloid fashion [9].

Rarely, this tumor can be observed before the diagnosis of all hematologic malignancy. In such cases, granulocytic sarcoma may be misdiagnosed as a lymphoma [10].

It represents 2–8% of acute myeloid leukemia, and most often affects children under 10 years (75% of cases), and especially infants (52% of cases). In children, it is often indicative of leukemia [11].

This tumor may develop in lymphoid organs, bone, skin, soft tissues and other organs [12].

It rarely occurs in the mediastinum. And clinically it can resemble a mediastinal lymphoma.

The superior diagnostic error rate is probably a reflection of the rarity of this lesion and low index of suspicion [10].

The myeloid sarcoma is often confused with lymphoma, particularly in its pre-leukemic form, sometimes even

immunohistochemical step because they express certain common leukocyte antigens. Careful morphological study in search of signs of myeloid differentiation and an immunohistochemical study (anti-myeloperoxidase, anti-lysozyme, anti-CD15, anti-CD68) well directed, will eliminate the diagnosis of lymphoma and retain myeloid nature of proliferation, treatment is completely different [13].

From a genetic perspective, myeloid sarcoma most often appears associated with acute myeloid leukemia with t (8; 21) (q22; q22) or with inv (16). The chemotherapy is same as a classic acute myeloid leukemia, even when the patient does not have leukemia [14].

### Conclusion

Consider myeloid sarcoma in the diagnosis for any mention of anterior mediastinal mass even in the absence of hematological abnormalities.

### Conflict of interest

There is no conflict of interest.

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### References

- [1] H. Rappoort, *Tumors of the Hematopoietic System. Atlas of Tumor Pathology, Armed Forces Institute of Pathology, Washington, 1966, pp. 239–285.*
- [2] A.M. Burgess, Chloroma, *J. Med. Res.* 27 (1912) 133–155.
- [3] A. King, Case of chloroma, *Monthly J. Med. Sci.* 17 (1853) 97.

- [4] G. Dock, Chloroma and its relation to leukaemia, *Am. J. Med. Sci.* 106 (1893) 152–185.
- [5] S. Blanchard, P. Labalette, D. Jourdel, V. Dédès, X. Leleu, A.F. Dillie, P. Fenaux, J.F. Rouland, Sarcome grabyloctyrique orbitaire révélant l'acutisation d'un syndrome myélodysplasique, à propos d'un cas, *J. Fr. Ophtalmol.* 27 (2004) 184–187.
- [6] M. Kobayashi, M. Imamura, R. Soga, Y. Tsuda, S. Maeda, H. Iwasaki, et al, Establishment of a novel granulocytic sarcoma cell line which can adhere to dermal fibroblast from a patient with granulocytic sarcoma in dermal tissues and myelofibrosis, *Br. J. Haematol.* 82 (1992) 26–31.
- [7] A. Burns, *Observance on the Surgical Anatomy of the Head and Neck*, Thomas Bryce and Co, Edinburgh, 1811, pp. 364–366.
- [8] M.Y. Yip, P. Sharma, L. White, Acute myelomonocytic leukaemia with bone marrow eosinophilia and inv (16)(p13;q22), t(1;16)(q32;p22), *Cancer Genet. Cytogenet.* 41 (1991) 235–238.
- [9] J. Rosai, *Granulocytic sarcoma (chloroma)*. *Surgical Pathology*, vol. 2, eighth ed., 2004, pp. 1821–1828.
- [10] Bahar Akkaya, Esin Özel, İhsan Karadoğan, Hüseyin Beköz, Gülten Karpuzoğlu, Mediastinal granulocytic sarcoma, *Turk. J. Pathol.* 24 (3) (2008) 183–185.
- [11] T. Adenis, F. Labrousse, J.-P. Sauvage, P.-Y. Robert, Sarcome granulocyttaire (chlorome) chez un patient âgé de 90 ans, *J. Fr. Ophtalmol.* 29 (8) (2006) 961–964.
- [12] W. Makis, M. Hickeson, V. Derbekyan, Sarcome myéloïde présentant comme une masse médiastinale antérieure envahir le péricarde: Imaging serial Avec F-18 FDG PET/CT, *Clin. Nucl. Med.* 35 (9) (2010) 706–709.
- [13] Jabri Lamia, Karkouri Mehdi, Zamiati Soumaya, Sqalli Saïda, Iraqi Ahmed, Sarcome myéloïde cérébral préleucémique. À propos d'un cas, *Ann. Pathol.* 23 (1) (2003) 59–61.
- [14] Muriel Hourseau, Elie Serge Zafrani, Laurent Bienvenu, Elias Habib, Daniel Lusina, Laurence Choudat, Sarcome myéloïde de la voie biliaire principale simulant un cholangiocarcinome. A propos d'un cas, *Gastroenterol. Clin. Biol.* 30 (1) (2006) 159.