

綠色瘤 (粒性細胞樣肉瘤)

— 病例報告暨文獻回顧 —

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Cutaneous Chloroma (Granulocytic Sarcoma)

— A Case Report and Review of the Literature —

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Chloroma is a rare green tumor that occurs in extramedullary sites. It is composed of myeloid series cells and may present in patients with acute or chronic leukemia and myelodysplastic syndromes, and in aleukemic patient as well. Chloroma is usually misdiagnosed as malignant lymphoma. Histopathology and immunohistochemistry help provide an accurate diagnosis. We present a case of a 51-year-old woman who noted a progressive enlargement of a green plaque over the left nasal ala. Skin biopsy showed a picture of chloroma. Herein we report this case and review the related literature. (*Dermatol Sinica* 22 : 64-68, 2004)

Key words: Chloroma, Granulocytic sarcoma

綠色瘤 (chloroma) 是一種罕見綠色腫瘤，它是由顆粒性前驅細胞所組成。常常發生在白血病或骨髓增生不良病人身上，非白血病的病人有時也會見到。臨床上綠色瘤常會被誤診為惡性淋巴瘤。組織病理學及免疫螢光染色幫助我們做更正確診斷。我們再此報告一個綠色瘤 (chloroma) 的病人並回顧相關文獻。(中華皮誌 22 : 64-68, 2004)

INTRODUCTION

The term chloroma, indicating green mass in Greek, was first coined by King in 1853,¹ but the clinical appearance was first described by Burns in 1811.² The characteristic green color of this type of tumor is thought to be caused by

myeloperoxidase. Because of the variety in clinical settings, Rappaport³ preferred the term granulocytic sarcoma. Granulocytic sarcoma is an uncommon localized tumor composed of mature and immature myeloid cells. It can occur in ovary, uterus, breast, GI tract, lung, prostate,

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Fig. 1
A green plaque over the left nasal ala.

skin, bone and lymph nodes.⁴⁻¹⁰ Cutaneous granulocytic sarcoma may appear as firm nodules, papules, ecchymosis, purpura, plaques, macules, ulcers, urticaria or bullae.^{9, 10} Association between granulocytic sarcoma, and acute and chronic myeloid leukemia or myelodysplastic syndrome is frequently noted,¹¹ although cases of chloroma have been reported in aleukemic patients as well.¹² Histopathology and immunohistochemistry can help provide an accurate diagnosis. We describe a case of chloroma and review the related literature about this rare tumor.

CASE REPORT

A 51-year-old woman presented with progressive enlargement of green plaque over the left nasal ala (Fig. 1) for more than one month. This plaque began as three matchhead-sized dull red macules over the left nasal ala and evolved into three nodules and turned in green

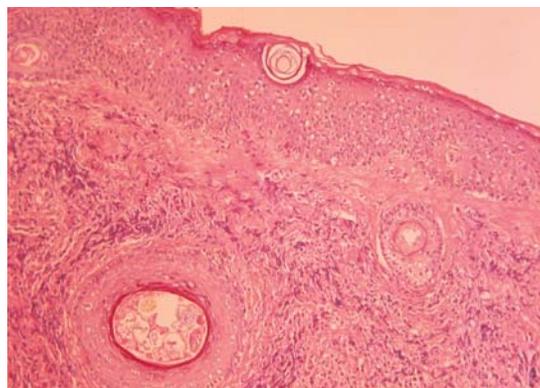


Fig. 2
Diffuse perivascular, periadnexal and interstitial infiltration of mature and immature myeloid cells with indistinct tumor cell exocytosis in H-E stain.(40x)

color. These three nodules coalesced to form a 1.5 X 2.0 cm. ill defined plaque. Dermatologic examination revealed that the lesion was firm and fixed. The surface was smooth with some prominent follicular orifices. There was neither ulceration, scaling, nor hyperkeratosis. Telangiectasia or flush in the adjacent skin was not noted. Diascopy test showed no color change. Physical examination revealed unremarkable conjunctiva, and there were no significant petechia or purpura over limbs, nor hepatosplenomegaly, lymphadenopathy, or gingival hypertrophy identified. The liver function tests, renal function profiles, electrolytes studies, and albumin level were within normal range. The WBC count was 11600/ μ l, and the differential cell counts were as the followings: 69.4% segmented neutrophils, 19.1% lymphocytes, 5.3% monocytes, 4.6% eosinophils and 0.7% basophils. The immature myeloid cells were not seen in the peripheral blood.

Tracing back the past history, episode of generalized ecchymosis was noted 5 months earlier and she was admitted to our hospital for further hematological workup. Bone marrow aspiration and peripheral blood smear revealed acute myelocytic leukemia (AML-M2). She received chemotherapy with Ara-C and Idarubicin. Subsequent bone marrow aspiration

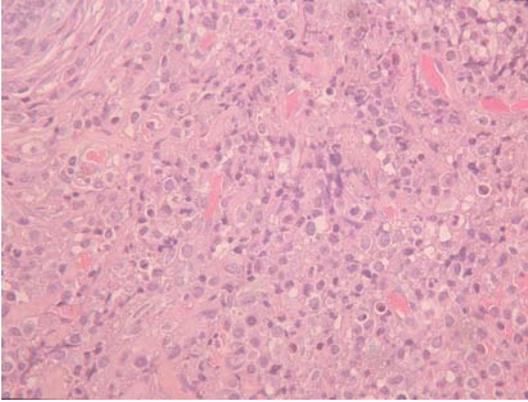


Fig. 3
Diffused infiltration of mature and immature myeloid cells in variable maturational stages in H-E stain.(100x)

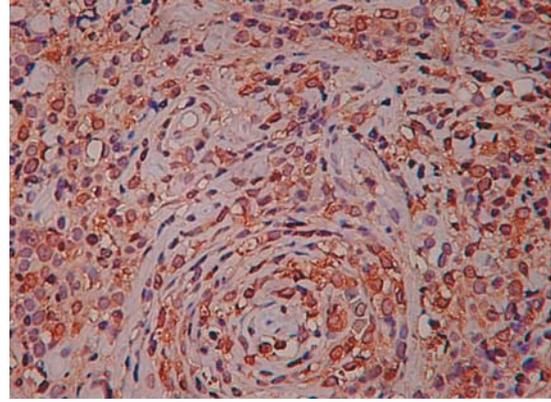


Fig. 4
Positive staining of tumor cells for myeloperoxidase.(100x)

showed complete remission after chemotherapy. She was discharged and followed up at OPD. Five months later, the patient visited our hospital again because of the skin lesion over her left nasal ala. A skin biopsy was taken and the histopathologic evaluation showed a picture of chloroma. Under microscopy, it showed diffuse perivascular, periadnexal and interstitial infiltration of mature and immature myeloid cells in different states of maturation in the whole dermis (Fig. 2). These mature and immature myeloid cells disclosed medium to large, round or slightly indented, or focally convoluted nuclei (Fig. 3) with discernible pale cytoplasm. Immunohistochemistry demonstrated positive reaction of the tumor cells for myeloperoxidase (Fig. 4), lysozyme (Fig. 5), CD68, CD117, and CD45RO.

After reinitiated chemotherapy with Ara-C and Metocantrene, the nasal tumor subsided but a bone marrow study still revealed leukemic involvement three months later. The condition of this patient deteriorated rapidly after the third course of chemotherapy, and she received only supportive treatment right now.

DISCUSSION

Chloroma is characterized as a green tumor in extramedullary sites composed of leukemic cells and was first reported in 1853 by King.¹

Because the tumor may have different colors, granulocytic sarcoma is the preferred term.³ In 1893, Dock first reported the association between chloroma and leukemia.¹¹ Granulocytic sarcoma is not only a rare complication of acute and chronic myelogenous leukemia but also has been reported in other myeloproliferative disorders, such as myelodysplastic syndrome.¹³⁻¹⁶

Most granulocytic sarcomas are composed of myeloid or monocytic series cells. The tumor cells contain large amount of myeloperoxidase, while oxidized or peroxidized, may present as green hue (verdoperoxidase) in the tumor.¹⁷ The

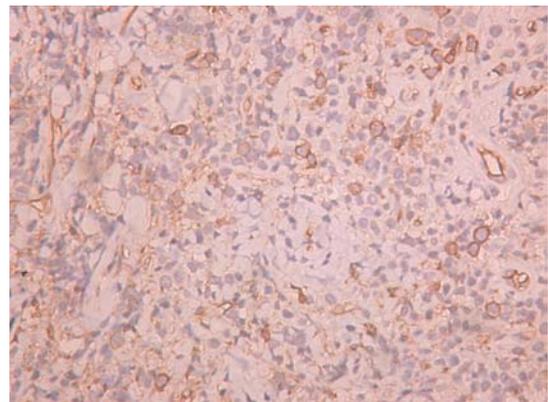


Fig. 5
Positive staining of tumor cells for lysozyme.(100X)

green color of this kind of tumor turns to a dirty yellow color when exposed to air. The fresh tumor tissue may produce a strong red fluorescence under ultraviolet light.¹⁸ Immunostaining for myeloperoxidase and lysozyme may help to establish the myeloid or monocytic origin of this tumor.

The cell morphology of chloroma varies from well-differentiated to poorly differentiated cells which can closely mimic cells of other tumors. The tumor is misdiagnosed as malignant lymphoma in 47% of patients.¹⁹ Large B-cell lymphoma, immunoblastic lymphoma, and peripheral T cell lymphoma can be very difficult to distinguish from chloroma. The diagnosis of chloroma highly depends on the recognition of immature myeloid cells in the tumor. Besides, the progenitor cell antigen, CD34, is expressed by several forms of leukemia, but not by the cells of most malignant lymphoma. In our case, the presence of immature myeloid cells was suggestive of granulocytic sarcomas. The myelogenic origin was obvious because of the positive immunoreaction of CD34, CD45Ro, CD68, myeloperoxidase and lysozyme.

The main differential diagnostic considerations in this case includes malignant lymphoma and granuloma faciale. Malignant lymphoma shows atypical lymphoid infiltrate with no expression of CD34. The pathology of granuloma faciale consists of a dense polymorphous infiltrate confined mostly in the upper dermis. In this case, the tumor tissue is composed of numerous mature and immature myeloid cells in variable maturational stages, a condition compatible with granulocytic sarcoma or leukemia cutis.

Most chloromas occur in children. About 75% of the reported cases were under 18 years of age with a male-to-female ratio of about 2:1. The affected locations included ovary, vagina, breast, testis, stomach, small intestine, liver, pancreas, brain, heart, lungs, urinary bladder, skin, bone and adipose tissue.^{19, 20} Kruse observed 28 cases of granulocytic sarcoma in 950 patients with AML and 6 of these cases occurred prior to the development of acute

leukemia.²² Granulocytic sarcoma may present at the time of initial diagnosis of leukemia and may develop after one month to four years later.¹⁹ In rare cases, it presents before the onset of leukemia and is usually misdiagnosed as malignant lymphoma.¹⁹ The prognosis of granulocytic sarcoma in patients with leukemia is poor, often strongly suggesting a blastic crisis. In most cases, death occurs within 8-12 months.²³

If the tumor is very aggressive, with invasion or destruction of the surrounding tissues, surgery or radiation therapy may be needed. It is important to note that although granulocytic sarcoma is usually responsive to radiotherapy, both local and systemic relapses are expected to occur in all patients within a mean of 10 months, unless systemic chemotherapy is used.^{14, 24, 25} Chemotherapy can be effective. Most doctors therefore recommend the use of systemic chemotherapy for all cases of isolated granulocytic sarcoma.^{26, 27}

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