

## Case Report

# Mastocytosis: the other great mimicker in dermatology

## 肥大細胞增多症：皮膚科中的另一模仿能手

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Mastocytosis represents a disease spectrum characterised by mast cell hyperplasia in one or more organs, with the skin being the most commonly affected organ. Due to its highly variable cutaneous manifestations, it is not uncommon for mastocytosis to closely resemble certain dermatological diseases and therefore, may be easily misdiagnosed. Here we report two extraordinary cases of mastocytosis with variable cutaneous lesions mimicking two common dermatological diseases. We also hope that by highlighting these cases, mastocytosis would be considered as an important differential diagnosis when encountering dermatological diseases with diagnostic dilemmas.

肥大細胞增多症代表著一個疾病譜系，其特徵是一個或多個器官中的肥大細胞增生，皮膚為最常受影響的器官。由於它千變萬化的皮膚表現，肥大細胞增多症常表面上看似其他皮膚病，容易地被誤診。我們在此報告兩宗肥大細胞增多症的特殊病例，各有疑似其他兩種常見皮膚病的皮膚損變化。通過這兩宗病例的啟示，我們亦寄望當醫生遇到一些困難的皮膚疾病診斷時，會把肥大細胞增多症納入其中一個重要的鑑別診斷考慮。

**Keywords:** Cutaneous lymphoma, leprosy, Malaysia, mastocytosis

**關鍵詞：**皮膚淋巴瘤、麻瘋病、馬來西亞、肥大細胞增多症

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## Introduction

Mastocytosis represents a spectrum characterised by mast cell hyperproliferation in one or more organs, with the skin being the most commonly affected organ. The disease is often accompanied by local and systemic features of mast cell degranulation.

The most common forms are cutaneous mastocytosis (CM) and indolent systemic mastocytosis, both of which have a good prognosis. The prognosis in patients with other variants of systemic mastocytosis (SM) is less optimistic.<sup>1</sup> Herein, we report two cases of

mastocytosis with cutaneous lesions mimicking leprosy and cutaneous lymphoma.

## Case 1

A 31-year-old male Myanmar factory worker presented with acute upper gastrointestinal haemorrhage. He was noted to have generalised nodules and plaques which had been present for 26 years. These lesions were asymptomatic and he was never treated for his condition. He gave no prior history of gastrointestinal or constitutional symptoms, and denied ever having come into contact with anyone suffering from leprosy.

Physical examination revealed a normotensive and pale individual with multiple tan to yellow plaques with a thickened and coarse surface appearance sparing his palms, soles, scalp and mucosal surfaces (Figure 1a). Nodules were also noted over his ears (Figure 1b). Closer inspection of the individual lesions showed a peau d'orange appearance (Figure 1c). These lesions were not hypoaesthetic.

### Clinical features (Figures 1 a-c)

He also had hepatosplenomegaly with generalised lymphadenopathy. Both ulnar nerves were palpable but non-tender.

At this juncture, several possible diagnoses were considered, lepromatous leprosy being our provisional diagnosis, given the endemicity of the disease in this region. Other differential diagnoses included mycosis fungoides, sarcoidosis and Langerhans cell histiocytosis.

Gastroscopy revealed a bleeding Forrest II gastric ulcer which was promptly arrested. A chest radiograph did not show any infiltrates or hilar lymphadenopathy. Apart from mild normochromic normocytic anaemia (haemoglobin level of 9.9 g/dL), all other blood counts and peripheral blood film were normal. He had elevated alanine aminotransferase (177 IU/L), alkaline

phosphatase (248 IU/L) and serum lactate dehydrogenase (459 U/L) levels. All other biochemical parameters were normal. Slit skin smear was negative. Serum tryptase was not checked as the test was not offered at the hospital.

Skin biopsy from a plaque revealed dense aggregates of mast cells (Figure 2a) with toluidine blue highlighting the intracytoplasmic granules (Figure 2b). CD117 immunohistochemical stain confirmed the presence of mast cells (Figure 2c).



**Figure 1.** (a) Generalised tan to yellow plaques with a thickened, coarse and non-scaly surface. The palms, soles, scalp and mucosal surfaces were spared. These lesions were not hypoaesthetic or anaesthetic. (b) Multiple discrete skin-coloured nodules were seen over his ears, including the helices and earlobes. The nodules were non-tender. (c) Closer appearance of an individual plaque, highlighting the coarse and uneven peau d'orange surface.

**Histopathology (Figures 2 a-c)**

He was diagnosed with SM in view of the systemic involvement. Further imaging studies as well as a bone marrow examination could not be done as he opted to return to Myanmar for further management. He was prescribed a proton pump inhibitor and a regular long-acting H1 antihistamine upon discharge.

**Case 2**

A 67-year-old Chinese male presented with progressively enlarging soft tissue swellings over his lower limbs for seven years. The lesions were not painful or pruritic and there were no constitutional symptoms.

Physical examination revealed confluent purpuric and non-scaly patches over his trunk and limbs (Figure 3a-b). There were also multiple hyperpigmented nodules on his lower limbs (Figure 3c). Large, purplish keloidal plaques with a warty surface were present on both calves and feet (Figure 3d). There were no lesions seen on the oral mucosa, scalp, face, palms and soles.

**Clinical features (Figures 3 a-d)**

There was no lymphadenopathy or hepatosplenomegaly noted. Examination of other systems, including the peripheral nervous system, were unremarkable.

The differential diagnoses at this point in time included vascular tumours like Kaposi's sarcoma, cutaneous lymphomas such as mycosis fungoides and cutaneous B-cell lymphoma, as well as lymphostasis verrucosa cutis.

A chest radiograph showed no infiltrates or hilar lymphadenopathy. Blood counts and peripheral blood film were normal. All other biochemical parameters including serum lactate dehydrogenase level were also normal. Serum tryptase was markedly elevated (144 µg/L).

Skin biopsies from multiple sites showed masses of mast cells in the dermis (Figure 4a) whose intracytoplasmic granules stained with toluidine blue stain (Figure 4b). CD117 was positive (Figure 4c).

**Histopathology (Figures 4 a-c)**

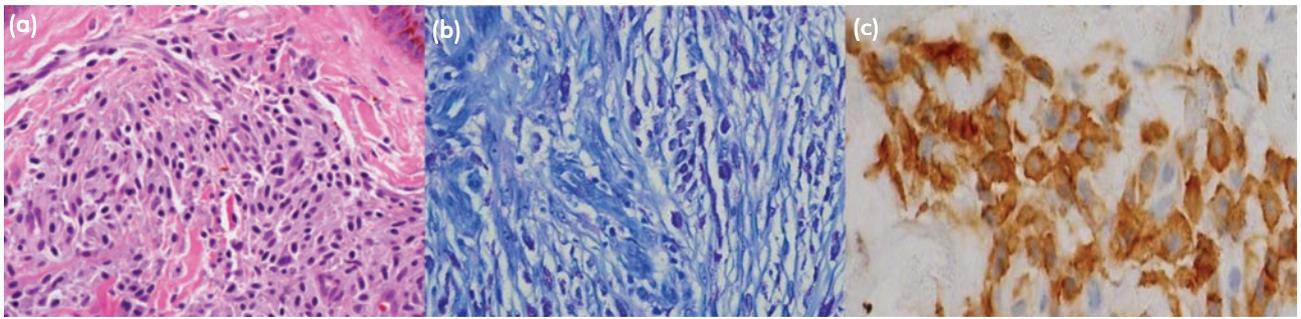
He was diagnosed with extensive CM. Imaging studies and bone marrow examination showed no organomegaly or mast cell leukaemic transformation, respectively. He was prescribed a potent topical corticosteroid, emollients, oral prednisolone of 0.5 mg/kg/day and twice-daily loratadine.

**Discussion**

Mastocytosis is a heterogeneous group of disorders characterised by hyperproliferation of mast cells in a variety of organs, most often the skin. The clinical features depend on both the infiltration of mast cells in these organs, as well as the local and systemic effects of mast cell degranulation.

CM can take several forms, including solitary mastocytoma, maculopapular cutaneous mastocytosis (previously called urticaria pigmentosa), diffuse cutaneous mastocytosis, telangiectatic cutaneous mastocytosis (telangiectasia macularis eruptiva perstans), plaque-type mastocytoma, solitary and multiple nodular mastocytoma.<sup>2,3</sup> Our second patient uniquely demonstrated the co-existence of various cutaneous subtypes in a single patient. To our knowledge, there have been no similar reports, and we hypothesise that the various morphologies of the disease in our second patient could very well demonstrate the cutaneous progression of an underlying systemic mastocytosis.

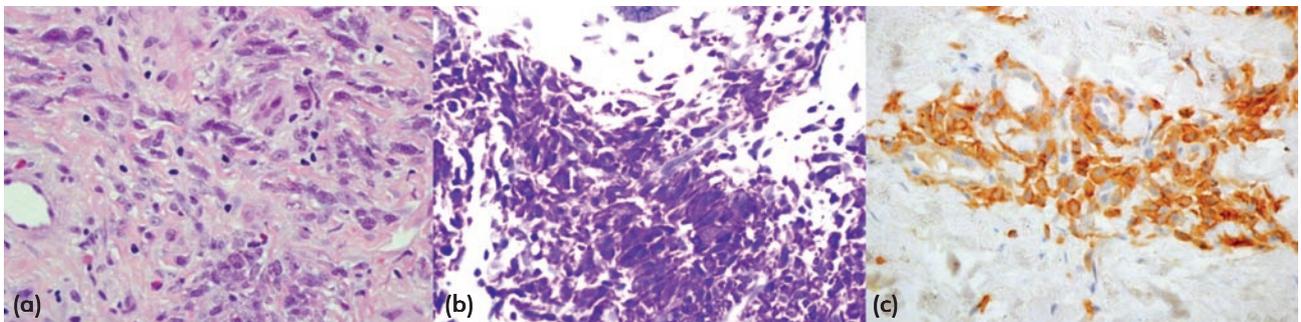
Gastrointestinal involvement is the most frequent non-cutaneous feature. Gastric hypersecretion caused by elevated plasma histamine with



**Figure 2.** (a) A skin biopsy specimen on haematoxylin and eosin stain, showing dense aggregates of mast cells. There were no multinucleated giant cells seen. (b) On toluidine blue staining, the intracytoplasmic granules within the mast cells are highlighted. (c) A CD117 immunohistochemical stain was also performed which confirmed that the aggregates of cells were indeed mast cells.



**Figure 3.** (a) Diffuse and confluent non-scaly, dark-red patches were seen over his anterior trunk and limbs. The anterior abdominal skin creases appeared to be spared. (b) Similar diffuse non-scaly purpuric patches were seen over his posterior trunk, appearing to spare the upper posterior trunk and lower mid-back. The distribution of skin involvement does not appear to be photo-related. (c) Multiple hyperpigmented nodules can be appreciated involving the circumferential surface of both his lower limbs. These nodules were non-tender and appeared to coalesce more distally. (d) Over his distal legs and feet, large purplish keloidal plaques were seen. These plaques had a verrucous surface. There were no lesions seen on his palms, soles, scalp, face and oral mucosa.



**Figure 4.** Skin biopsies from multiple sites, including the patches, nodules and keloidal plaques all demonstrated masses of mast cells on hematoxylin and eosin stain, especially in the dermis. No other abnormalities were seen.

resultant gastritis and peptic ulcer disease is the most common problem in both children and adults,<sup>4</sup> and this was the case in our first patient. In SM, 50% of patients, as in our first patient, have splenomegaly,<sup>5,6</sup> 41% hepatomegaly and 26% peripheral lymphadenopathy.

Apart from potent topical corticosteroids, systemic corticosteroids can also be administered for severe CM not responsive to antihistamines alone,<sup>7</sup> as in our second patient in view of the extensive involvement. Another option for our second patient is phototherapy using either narrow-band ultraviolet B or methoxypsoralen with ultraviolet A.<sup>8</sup> From the literature, we know that both ultraviolet B and ultraviolet A stabilise mast cells and suppress degranulation.<sup>9</sup>

Despite the extensive and variable morphology of the lesions in our second patient, his prognosis is fairer compared to our first, which is guarded at best, given the presence of splenomegaly, and elevated alkaline phosphatase and serum lactate dehydrogenase levels. Other poor prognostic factors reported in the literature include bone marrow hypercellularity, the presence of circulating mast cells, the presence of associated haematological disorders including anaemia and thrombocytopenia, as well as a lack of cutaneous lesions.<sup>10,11</sup>

## Conclusion

Mastocytosis is a heterogeneous group of diseases with a wide spectrum of cutaneous manifestations that can often mimic other dermatological diseases, as illustrated in the cases above. We

hope that clinicians will entertain the possibility of mastocytosis when encountering clinically challenging cases.

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