

# **Systemic Mastocytosis: a Rare Entity**

Naveen Naz Syed, Bushra Moiz

Section of Haematology, Department of Pathology and Microbiology, Aga Khan University Hospital, Karachi.

### **Abstract**

An 18 year old female presented with generalized maculopapular rash and headaches. The skin and bone marrow biopsy revealed numerous mast cells which stained metachromatically with giemsa and toluidine blue stains and showed positivity with CD68 and CD117 on immuno-histochemistry. Her clinical presentation and laboratory findings were consistent with the diagnosis of indolent systemic mastocytosis. Because of the benign course of the disease, patient was offered only anti-histamine drugs that were quite successful in alleviating her symptoms.

### **Introduction**

Mastocytosis is a heterogeneous group of diseases characterized by abnormal growth and accumulation of mast cells in one or more organ system.<sup>1</sup> The most frequently involved tissue is the skin (cutaneous mastocytosis) but bone marrow, gastrointestinal tract, liver, spleen and lymph nodes may be implicated to varying extent depending on the variant of the disease (systemic

mastocytosis).<sup>2</sup> Systemic mastocytosis may show either an indolent or an aggressive clinical course.

In indolent systemic mastocytosis, patients present with maculopapular skin lesions and a good prognosis.<sup>3</sup>

Systemic mastocytosis is a rare entity and its exact incidence is not known. However, it has been reported to be present in one of 1,000 to 8,000 patients evaluated at a dermatology clinic.<sup>4</sup> No case has ever been reported from Pakistan to the best of our knowledge. Here in, we report a case of indolent systemic mastocytosis who presented with skin lesions.

### **Case Report**

An 18 year old female presented with complaint of generalized maculopapular rash. Skin lesions started on her trunk at sixth day of her life, later involved whole body sparing her palms, sole and scalp. There was no complaint of itching. Since three years, she was suffering from periodic exacerbations in skin lesions especially on her face which was the main reason for consultation. Although she

did not experience gastritis, flushing, diarrhoea or syncope, yet she was having on and off complaints of headache since past few years. Her parents and the remaining six siblings were not affected. Besides her skin lesions, rest of the physical examination was normal.

Considering her presentation, she was diagnosed clinically to be suffering from urticaria pigmentosa. The histo-pathological studies of skin biopsy of lesions later showed diffuse infiltration of the dermis with mast cells therefore, a diagnosis of cutaneous mastocytosis was made. She was subsequently advised for bone marrow examination to rule out involvement. Her complete blood count was unremarkable. Bone marrow aspirate was a normo-cellular specimen with normal haemopoietic cells and prominent mast cells. The sections of bone marrow biopsy, stained with haematoxylin and eosin (H&E), showed loosely arranged mast cells that were difficult to recognize. However, subsequent staining with Giemsa (Figure 1) and toulidene-blue stained them metachromatically. Silver impregnation and trichrome

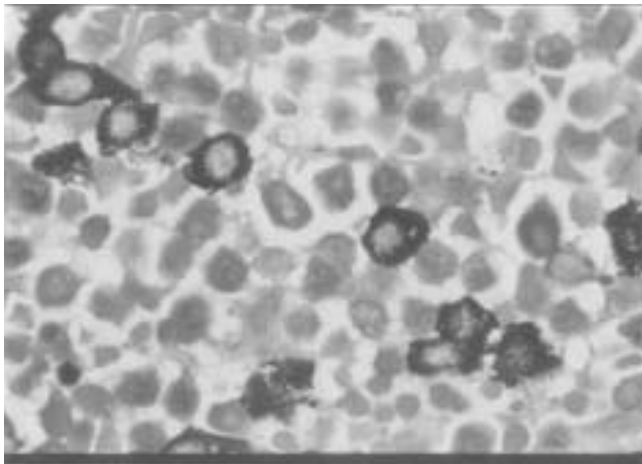


Figure 1: Bone marrow biopsy X100, demonstrating mast cells highlighted with giemsa stain.

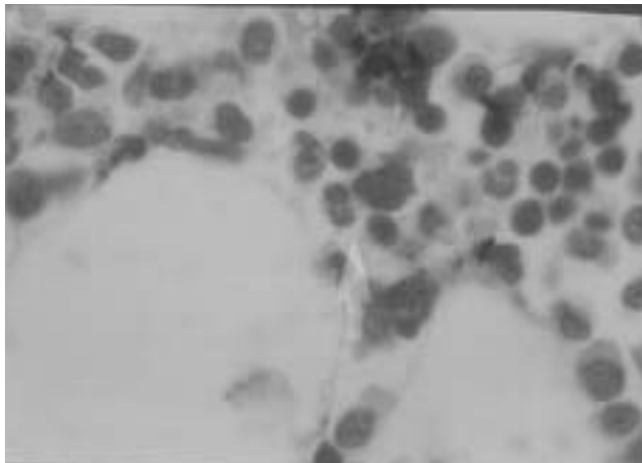


Figure 2: Bone marrow biopsy X100, immuno-histochemistry; mast cells showing positivity with CD68.

staining showed normal pattern of reticulin and collagen fibers. Immuno-histochemistry was done which showed positivity with CD117 and CD68 (Figure 2) in the mast cells.

On the basis of clinical presentation and laboratory investigations, we diagnosed our patient to be suffering from indolent systemic mastocytosis. She was started on anti-histamine drugs that were quite successful in alleviating her symptoms.

## Discussion

Mastocytosis is an infrequent condition, and although a number of classification schemes have been put forward for mast cell disease but none have been universally accepted. The WHO classification of mast cell disease seems to be more practical and useful for characterizing the disorder.<sup>5</sup>

Cutaneous mastocytosis has a relatively benign course and is seen more commonly in children. The systemic mastocytosis which usually affects adults has a clinical spectrum ranging from indolent course to aggressive and fatal mast cell leukaemia.<sup>6</sup> Therefore, symptoms in systemic mastocytosis are also very variable. They may result either from mast cell derived mediators (such as histamine, leukotrienes and prostaglandin) or from destructive infiltration of mast cells.<sup>7</sup> Our patient had suffered from prolonged indolent course of urticaria pigmentosa since her early childhood and only recently she had developed headaches, representing excess histamine release.

In indolent systemic mastocytosis, the mast cells may form loose aggregates in bone marrow and become difficult to recognize without special immunohistochemical stains.<sup>8</sup> They may be paratrabecular, perivascular or randomly distributed, with or without fibrosis.<sup>9</sup> In our case, bone marrow had loosely scattered mast cells which highlighted with giemsa stain and expressed CD 117 and CD68, along with normal haemopoietic tissue. This, confirmed the diagnosis of indolent systemic mastocytosis. However, tryptase, CD2 and CD25 which are considered to be reliable immunohistochemical markers in the diagnosis of systemic mastocytosis<sup>10</sup> were not utilized because of the non availability of these markers.

Although, the patient had relatively benign systemic mastocytosis, appropriate treatment should be sought due to great psychosocial concerns particularly in case of females. She was prescribed anti-histamine drugs that were quite effective in reducing her symptoms.

## References

1. Alto W.A, Clarcq I. Cutaneous and systemic manifestations of mastocytosis. *Am Fam Physician* 1999;59:3059-60.

2. Apter A.J, Rothe M.J. Referred for management of mastocytosis. *Ann Allergy Asthma Immunol* 1997;79:21-6.
  3. Marbello L, Anghileri M, Nosari A, Minda E, Cairol R, Ricei F, et al. Aggressive systemic mastocytosis mimicking sclerosing cholangitis. *Haematologica* 2004;89:ECR35.
  4. Longley J, Duffy TP, Kohn S: The mast cell and mast cell disease. *J Am Acad Dermatol* 1995;32:545-61.
  5. Vardiman JW, Harris NL, Brunning RD. The World Health Organization (WHO) classification of the myeloid neoplasms. *Blood* 2002;100:2292-302.
  6. Bain BJ, Clark DM, Lampert IA, Wilkins BS. Chronic myeloproliferative/myeloproliferative and myelodysplastic disorder. In: bone marrow pathology. 3rd edn. Italy: Blackwell Science, 2001, pp. 221-28.
  7. Valent P, Akin C, Matthias M, Sperr WR, Fodinger M, Fritsche-Polmz R, et al. Mastocytosis: pathology, genetics and current options for therapy. *Leuk Lymphoma* 2005;46:35-48.
  8. Martinez AE, Medina AM, Hyde JA, Krill-Jackson E, Balustein A, Schwartz M, et al. The faces of mast cell disease: bone marrow infiltrates in 3 patients with systemic mastocytosis. *Ann Diagn Pathol* 2005;9:81-5.
  9. Castells MC. Mastocytosis: classification, diagnosis and clinical presentation. *Allergy Asthma Proc* 2004;25:33-6.
  10. Webb TA, Chin-Yang L, Lung YT. Systemic mast cell disease: a clinical and haematopathologic study of 26 cases. *Cancer* 1982;49:927-38.
-