Telangiectasia Macularis Eruptiva Perstans Presenting as Gyrate Erythema in One Case of Liver Cirrhosis and Hepatoma

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Telangiectasia macularis eruptiva perstans (TMEP) is a rare form of cutaneous mastocytosis characterized by erythematous macules consisting of fine telangiectasia with little tendency to urticate or cause constitutional symptoms. It generally has a good prognosis. We report a 56-year-old man with liver cirrhosis and hepatoma who had a 2-year history of asymptomatic erythematous macules initially developing on bilateral arms. The macules spread to the upper trunk and bilateral forearms gradually, and the ones on the anterior chest even coalesced to form a polycyclic or whirled pattern. Skin biopsy was done which revealed mild perivascular infiltration of lymphocytes with increased mast cells and vascular ectasia in the papillary dermis. According to the clinical and pathological findings, TMEP was diagnosed. We herein report this case and review the literature. (Dermatol Sinica 23: 222-227, 2005)

Key words: Telangiectasia, Telangiectasia macularis eruptiva perstans, Liver cirrhosis, Gyrate erythema

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Accepted for publication: June 27, 2005
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INTRODUCTION
Mastocytosis represents a spectrum of disorders characterized by abnormal growth and accumulation of mast cells in various organs of the body. The most frequent site of organ involvement is the skin. The commonly accepted cutaneous mastocytoses include urticaria pigmentosa, mastocytoma (solitary/multiple), diffuse cutaneous mastocytosis, and telangiectasia macularis eruptiva perstans (TMEP).\(^1\) Cutaneous manifestations are often distinctive to lead to a certain diagnosis. TMEP is one of the rarer mastocytoses, which is characterized by telangiectatic macules with little tendency to urticate on rubbing or show constitutional symptoms.

CASE REPORT
A 56-year-old man visited our outpatient clinic in August 2004 with a 2-year history of numerous reddish macules that initially developed on bilateral arms. The rashes increased in number and extended to the upper trunk and bilateral forearms gradually. The lesions on the anterior chest even became confluent as a polycyclic pattern and grew outward slowly in the past one year. He also had a history of diabetes and hypertension for five years, hepatitis C infection and liver cirrhosis for four years, hepatoma for one year treated with TAE twice, and gastric ulcer for one year. He did not apply any topical medicament for the skin lesions in these two years. General malaise occurred at times, but there was no other constitutional symptom.

Physical examination revealed numerous varied-sized irregular-shaped erythematous macules and patches consisting of finely packed telangiectasia scattering over the upper trunk and upper limbs (Fig. 1, 2). The lesions on the anterior chest coalesced to form a polycyclic pattern. All lesions were partially blanchable on diascopy but did not urticate on stroking. Yellowish sclerae, distended abdomen, and bilateral palmar erythema were also found. The remainder of the physical examination was normal. Laboratory studies of blood showed: GOT 50 IU/L (8-35), GPT 37 IU/L (0-35), alkaline phosphatase 236 IU/L (60-205), total bilirubin 1.9 mg/dL (0.2-1.5), direct bilirubin 1.0 mg/dL (0.1-0.5), albumin 2.7 g/dL (3.5-5.5), platelet count 83,000/µL (130,000-400,000), prothrombin time 13.5 sec (12.4), aPTT 33.1 sec (30.6), and ß-FP 3725 ng/ml (0-20). Abdominal sonography showed liver cirrhosis with tumor masses over segments V, VI and VII and splenomegaly.

A skin biopsy specimen was obtained from the rim of the polycyclic lesion on the anterior chest. The specimen contained both the lesional and normal appearing skin. Hematoxylin and eosin-stained section showed mild perivascular infiltration of lymphocytes with increased mast cells and vascular ectasia in the papillary dermis.
of the lesional area (Fig. 3, 4). More spindle-shaped mast cells around these dilated venules and capillaries were demonstrated by toluidine blue stain (Fig. 5). The epidermis was relatively intact with basilar melanin pigmentation. According to the clinical and histopathological findings, the patient has a form of cutaneous mastocytosis as TMEP.

The patient refused any medical treatment for his hepatoma and skin lesions but sought for the use of Chinese herb. There was no obvious change of the lesions after half a year when he returned to our clinic again.

**DISCUSSION**

Cutaneous mastocytosis commonly is classified as: urticaria pigmentosa, solitary mastocytoma, diffuse cutaneous mastocytosis and TMEP. TMEP is one of the rarer mastocytosis which is characterized by corps of red macules consisting of telangiectasia. It appears most frequently in adults and only rarely affects young children or infants. The macules are often confluent and tend to persist. These lesions rarely urticate on rubbing. Most patients with TMEP have only skin lesions with a good prognosis. The diagnosis of TMEP is mainly established by characteristic clinical and histopathological findings.

The histopathology of TMEP shows an infiltrate of mast cells in the upper third of the dermis, usually loosely arranged around the dilated capillaries. The mast cells and their nuclei tend to be spindle-shaped and indistinguishable from dermal fibroblasts or histiocytes at times. Special stains, such as toluidine blue, Giemsa, labeled avidin and monoclonal antibodies to tryptase, are helpful for identifying tissue mast cells. In some cases, the increase of mast cells is subtle. It is often useful to have some normal skin at one end of the biopsy for comparison with the lesional area. A biopsy of normal regional skin is more suitable for com-
parison to evaluate the relative increase in mast cells. Biopsies of normal-appearing skin from patients with mastocytosis have normal concentrations of mast cells. The number of mast cells in our biopsy specimen was clearly increased in the lesional area in comparison with the normal skin end. Accordingly, the diagnosis of TMEP in our patient was definitive.

Cutaneous features of severe chronic liver disease such as liver cirrhosis include telangiectasia, spider angioma, palmar erythema, dilated abdominal wall veins, jaundice, gynecomastia, sparse pubic hair, and so on. Most are non-specific, as they may be present in other diseases. Diffusely scattered tiny telangiectatic vessels in patient with liver cirrhosis are also known as “dollar paper markings” after the small threads visible in paper money held up against the light. They fade on pressure with a glass slide and rarely pulsate. They are traditionally attributed to decreased hepatic metabolism of estrogen leading to hyperestrogenemia. Histopathologically, it is thought that there is no specific cellular infiltrate around the dermal perivascular space of these telangiectatic lesions. Since the diagnosis of “dollar paper markings” is always made straightforwardly according to history and clinical findings, clinicians seldom perform a biopsy of these lesions. Therefore, the quantitative range of mast cells in these telangiectatic lesions in patients with liver cirrhosis has not yet been well examined in the literature. Since our patients had a 4-year history of liver cirrhosis with decompensation, the telangiectatic macules over his trunk and upper limbs were firstly regarded as a secondary vascular change of the liver disease. Skin biopsy was done due to extensive involvement and revealed a mild perivascular infiltrate with mast cells in the upper third of dermis, consistent with the diagnosis of TMEP. There was no reported case of coexistence of liver cirrhosis and TMEP before. Since the clinical and histopathological findings supported the diagnosis of TMEP, we believe that TMEP coincided with liver cirrhosis in our patient.

Discussions of how to compare numbers of mast cells in skin biopsy specimen vary. Some authors counted the mast cells in a limited number of microscopic field per section. As

<table>
<thead>
<tr>
<th>Biopsy Specimen</th>
<th>Number of cases</th>
<th>Number of vessel units ≤ 55 μm</th>
<th>Number of vessel units &gt;55 μm</th>
<th>Mast Cells per Vessel Unit ≤ 55 μm</th>
<th>Mast Cells per Vessel Unit &gt;55 μm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal skin</td>
<td>11</td>
<td>15.1 (9-24)</td>
<td>8.1 (4-12)</td>
<td>1.5 (1.3-2.3)*</td>
<td>2.4 (1.1-4.7)*</td>
</tr>
<tr>
<td>Previously reported case of TMEP</td>
<td>1</td>
<td>Not presented</td>
<td>Not presented</td>
<td>3.3 (2.0-5.0)*</td>
<td>6.1 (4.0-9.0)*</td>
</tr>
<tr>
<td>Our case</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>4 (3-5)</td>
<td>10 (6-15)</td>
</tr>
<tr>
<td>Urticaria Pigmentosa: perivascular pattern</td>
<td>15</td>
<td>17.4 (12-28)</td>
<td>8.9 (5-15)</td>
<td>6.4 (4.0-9.8)*</td>
<td>22.8 (11.1-55.6)*</td>
</tr>
</tbody>
</table>

mast cells in skin clearly are not randomly distributed, some authors scored mast cells in terms of cells per unit area (mm²), unit volume or volume percent. Two references counted mast cells in the form of “cells per vessel unit” seemed to be most practical in comparing the subtle change of TMEP with normal skin, since the presence of perivascular mast cells in cutaneous mastocytosis is a well-recognized observation. A vessel unit was defined as a conglomerate of one or more vascular spaces with obvious endothelial-lined lumens which were located adjacent to each other and not separated by nonendothelial cells. In this case, the vessel units were divided into two groups: less than 55 μm and greater than 55 μm in greatest dimension. For each vessel unit, every mast cell within 20 μm of the outer vascular wall of the unit vessel was included. The average number of perivascular mast cells and the number of respective vessel units were determined. The results from the previous studies and our patient are listed in Table I. In normal skin, an average of 1.5 and 2.4 perivascular mast cells per vessel unit (MPV) of less than 55 μm and greater than 55 μm, respectively, was noted before. The average number in specimens from cases of urticaria pigmentosa with perivascular mast cell pattern was 6.4 MPV of ≤ 55 μm and 22.8 MPV of > 55 μm. The average number in one previously reported case of TMEP was 3.3 MPV of ≤ 55 μm and 6.1 MPV of > 55 μm. The average number in our biopsy specimen is 4 MPV of ≤ 55 μm and 10 MPV of > 55 μm. It is clearly larger than the reported average number of normal skin but smaller than that of urticaria pigmentosa.

The differential diagnosis of telangiectatic macules includes primary telangiectases, such as nevus flammeus, hereditary hemorrhagic telangiectasia, generalized essential telangiectasia and nevoid telangiectasia syndrome, as well as secondary phenomenon in a variety of situations, such as liver diseases, chronic use of steroid, heat injury, actinic damage, radiation, connective tissue diseases, parapsoriasis en plaque, mycosis fungoides, and so on. The most interesting finding in our patient was that large circles formed on the anterior chest by fusion of the outward lesions. They should be differentiated from other gyrate erythemas, such as erythema annulare centrifugum, erythema gyratum repens, erythema migrans, etc. TMEP seemed to be the most appropriate diagnosis in our patient based on the patient’s history, clinical presentation and histopathological findings.

Some authors regarded TMEP as a more benign form of cutaneous mastocytosis with the least possibility of internal organ involvement. However, isolated cases of TMEP with bone marrow involvement have been reported. Some patients with TMEP may develop an additional hematologic disorder, such as polycythemia rubra vera and multiple myeloma. Hence, all patients with TMEP should routinely have a complete blood count with peripheral smear. Also, a bone marrow biopsy should be performed in patients with prominent systemic symptoms or after demonstration of abnormal blood findings. An abdominal sonography is needed to rule out involvement of liver and spleen. Additional work-up should be tailored to individual specific symptoms.

Symptomatic complaints are related to the number of mast cells, the mediators produced and the specific organ system affected. Relief of symptoms is the main goal of therapy. Most patients with TMEP, like ours, have no systemic symptoms, and request no medical therapy. 585-nm flashlamp pumped dye laser has been reported to be effective in cosmetic improvement of TMEP.

We report this case of TMEP to emphasize the varied diagnosis that must be entertained when patients of chronic liver diseases present with progressive telangiectasia. Perhaps skin biopsy with special histochemical staining should be considered in those cirrhotic patients whose telangiectases appeared more rapidly or extensively.
REFERENCES