Cutaneous Mastocytosis in Thai Children

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Background: *Mastocytosis is a disorder of mast cells proliferation within various organs, most commonly in the skin. The disease more commonly appears during infancy than adult.*
Objective: *To characterize the clinical features, response to therapy and prognosis of cutaneous mastocytosis in children.*
Material and Method: *A retrospective study of cutaneous mastocytosis was performed at Queen Sirikit National Institute of Child Health during January 1994 to December 2007.All cases were confirmed by histological diagnosis.*
Results: *There were a total of 50 patients. The male to female ratio was 1:1.2. Age at onset of lesions ranged from birth to 7 years. Forty-seven patients (94%) developed skin lesions within the first year of life. There were 45 cases (90%) of urticaria pigmentosa, 3 cases (6%) of mastocytoma and 2 cases (4%) of diffuse cutaneous mastocytosis. None of the patient had a family history of cutaneous mastocytosis. Most of the children were healthy, except the one who had germ cell ovarian tumor. Skin biopsies were performed in all cases and revealed mast cells infiltrate in the dermis. Treatment included oral antihistamine in all cases. Oral mast cell stabilizers were given in 6 patients (12%) and topical corticosteroids in 15 patients (30%). Four patients (8%) were treated with oral prednisolone. The skin lesions resolved only in 1 patient (2%) at age 7.8 years, the others still had skin lesions without systemic symptoms.*
Conclusion: *Cutaneous mastocytosis is a benign disease in children without systemic involvement.*

Keywords: *Mastocytosis, Cutaneous, Thai children*

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Mastocytosis is a rare heterogenous group of disorders characterized by abnormal mast cells proliferation and accumulation within various organs, most commonly the skin. The exact etiology is not clearly understood. This disease is found in children more than adults[1,2]. Types of cutaneous mastocytosis include solitary mastocytoma, urticaria pigmentosa (UP), diffuse cutaneous mastocytosis and telangiectasia macularis eruptive perstan (TMEP). Darier's sign shows wheal and surrounding erythema after rubbing and is characteristic of the disease.

There have been few series of pediatric patients with cutaneous mastocytosis[1-7]. We present a retrospective study cases series of the clinical features and presentations of cutaneous mastocytosis in Thai children in a tertiary care referral hospital.

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Material and Method

A retrospective study of cutaneous mastocytosis was performed at Queen Sirikit National Institute of Child Health during January 1994 to December 2007. All cases were confirmed by histological diagnosis.

The clinical diagnostic criteria for cutaneous mastocytosis were:

Mastocytoma: One or two lesions of red to brown plaques or nodules on the trunk or extremities (Fig. 1).

*Urticaria pigmen*tosa (UP): Multiple reddish brown macules, papules or nodules at random distribution (Fig. 2).

Diffuse cutaneous mastocytosis: Diffuse skin infiltration, erythema or peau d orange in texture (Fig. 3).

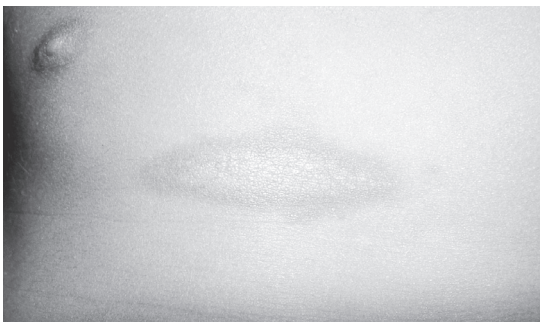

Fig. 1 Mastocytoma: single brown plaques on the trunk

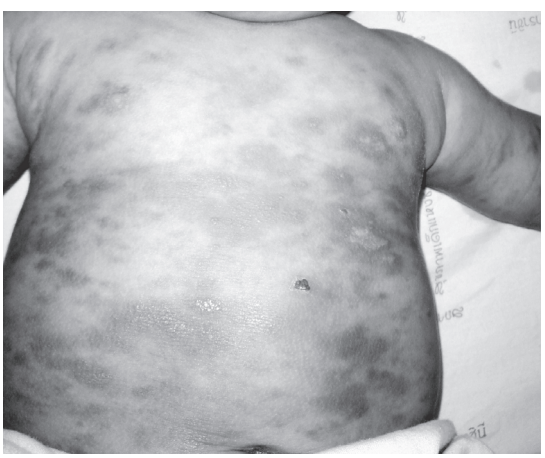

Fig. 2 Urticaria pigmentosa: multiple brownish macules on the trunk

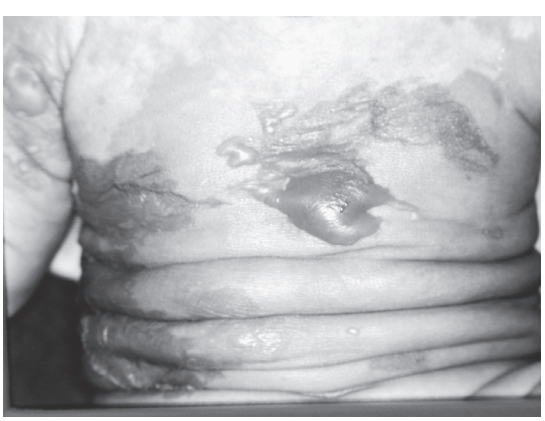

Fig. 3 Diffuse cutaneous mastocytosis with bulla

For all cases of cutaneous mastocytosis, a positive Darier's sign and compatible histopathology were required to confirm the diagnosis.

The following data were recorded: age of onset, personal and family history, type of mastocytosis, associated symptoms, histopathological findings, laboratory findings, treatment and follow up.

Results

There were 50 patients during a 13-year study. Male and female ratio was 1 to 1.2 . Age of onset of lesions ranged from birth to 7 years. Forty-seven patients (94%) developed skin lesions within the first year of life and fourteen cases (28%) within the first month of life. Congenital mastocytosis was presented in two cases (4%). Most of the patients were healthy except for 1 case who had associated germ cell ovarian tumor. None of the patients had a family history of cutaneous mastocytosis.

The common presenting symptoms were rash in all cases and flushing in 4 cases (8%). Pruritus in young infants was difficult to recognize. No other mast cells systemic symptoms such as headache, dyspnea, wheezing, vomiting, diarrhea or hypotension were found in any cases.

Types of cutaneous mastocytosis were as followings: urticaria pigmentosa 45 cases (90%), mastocytoma 3 cases (6%) and diffuse cutaneous mastocytosis 2 cases (4%). Bulla occurred in 8 cases (16%) of cutaneous mastocytosis, 1 case of solitary mastocytosis, 5 cases of urticaria pigmentosa and 2 cases of diffuse cutaneous mastocytosis.

Complete blood count, liver function test and bone marrow aspiration were performed in 5 cases of urticaria pigmentosa with severe bullous lesions and 2 cases of diffuse cutaneous mastocytosis and the results were within normal limit.

The treatment of cutaneous mastocytosis was mainly supportive and symptomatic. All patients were advised to avoid aggravating factors and drugs that precipitated mediator release.

All cases were treated with oral antihis tamines. Other treatment modalities were topical corticosteroids in 15 cases (30%), mast cell stabilizers in 6 cases (12%).Oral prednisolone was given in 2 cases of diffuse cutaneous mastocytosis and 2 cases of urticaria pigmentosa with severe bullous lesions.

Forty-one patients (82%) were followed up from 1 year to 13 years (mean 3 years). The cutaneous lesions resolved in 1case at 7.8 years. The others, showed improvement of skin lesions and did not develop any systemic symptoms.

Discussion

The present study was the first case series of cutaneous mastocytosis in Thailand. The onset of the

disease was similar to other reports from Asian and Western countries that more than 80% occurred in children under 1 year of age[1-8].In our series we found that congenital UP occurred in 2 cases (4%) while in other reports, it varied up to 25%[8,12]. Although mastocytosis is generally a sporadic disorder, familial cases have been reported[11].

We found that urticaria pigmentosa was the most common form (86%), followed by solitary mastocytosis(6%)and diffuse cutaneous mastocytosis (4%) which was similar to other studies[1-3,5-10]. Bullae can occur in all forms of cutaneous mastocytosis due to histamines or other chemical mediators that disrupt attachment between epidermis and dermis[13].In the present study, bullous lesions occurred in 16% which was similar to the 25% shown in Hannaford 's study[4].

Patients with urticaria pigmentosa had the typical cutaneous findings of generalized hyperpigmented lesions without systemic symptoms. The association of urticaria pigmentosa with malignancy has been reported in adults but is uncommon in children[14].We found one case of urticaria pigmentosa and germ cell ovarian tumor which was similar to Drut's report[15]. The postulated hypothesis of urticaria pigmentosa and ovarian tumor is that they may arise from common origin of the totipotential germ cells and non germ cells. Another hypothesis is that germ cells may stimulate mast cells proliferation[15].

Solitary mastocytoma is the second most common form, found in 10-15% of cutaneous mastocytosis. It usually appears in infancy as erythematous to yellow nodules and may occur on any part of the body but is noted most frequently on the arms, neck, and trunk. The course is generally benign and the lesions usually involute over several years[16] .

Diffuse cutaneous mastocytosis is uncommon. The patients have the highest frequency of systemic diseases such as gastrointestinal involvement, skeletal involvement or respiratory involvement[17,18]. Cutaneous symptoms due to release of mast cells mediators such as histamine, prostaglandin D2, heparin, tryptase, chymase and leukotrienes include flushing, blistering, itching. Systemic symptoms are nausea, abdominal pain, diarrhea, bone pain and hypotension. There were no systemic symptoms in the 2 cases of diffuse cutaneous mastocytosis in our study. Blood tests and bone marrow findings were within normal limit. However long-term follow-up should be performed.

The treatment for all forms of cutaneous mastocytosis is primarily supportive and symptomatic[19]. Patients should be informed about the natural history and possible immunologic and non-immunologic triggers of mast cell degranulation including certain foods and medications, such as aspirin or nonsteroid anti-inflammatory drugs (NSAID), procaine, morphine, D-tubocurarine, codeine, dextran, radiographic dyes, polymyxin B, alcohol and thiamine.

Drugs for treatment of all forms of cutaneous mastocytosis are antihistamines. H1 and H2 antihistamines decrease pruritus and flushing. Ketotifen, a mast cell stabilizers may be used in cases of urticaria pigmentosa that do not respond to oral antihistamines[20]. Topical corticosteroids may be used in extensive UP. In severe cases, short course systemic corticosteroids may control the clinical symptoms.

The course and prognosis of mastocytosis depend on the clinical subtype, severity of disease, and age of onset. In general, the prognosis for cutaneous childhood mastocytosis is favorable in most patients. Symptoms frequently improve by adolescence[21]. Children whose mastocytosis persists into adulthood has a 5-10% chance to have systemic involvement. All cases of diffuse cutaneous mastocytosis should be carefully followed up for systemic involvements.

Conclusion

We report 50 cases of cutaneous mastocytosis in Thai children. The most frequent form is urticaria pigmentosa. Cutaneous mastocytosis is a benign disease in children without systemic involvement. Management is mainly supportive.

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Mastocytosis ที่ผิวหนังในเด็กไทย

ศรีศุภลักษณ์ สิงคาลวณิช, วนิดา ลิ้มพงศานุรักษ์

ภูมิหลัง: *Mastocytosis ที่ผิวหนัง เป็นกลุ่มอาการผิดปกติที่มี mast cells เพิ่มขึ้นที่ผิวหนังหรืออวัยวะอื่น ๆ พบได้บ่อยในเด็กมากกว่าผู้ใหญ่*

วัตถุประสงค์: *เพื่อศึกษาอาการทางคลินิก การรักษา และการพยากรณ์โรค mastocytosis ที่ผิวหนัง*

วัสดุและวิธีการ: *ศึกษาย้อนหลังผู้ป่วย mastocytosis ที่ผิวหนัง ที่มารับการรักษาที่สถาบันสุขภาพเด็กแห่งชาติมหาราชินี ตั้งแต่เดือนมกราคม พ.ศ. 2527 ถึงเดือนธันวาคม พ.ศ.2550 ผู้ป่วยทุกรายยืนยันการวินิจฉัยโดยผลการตรวจทางพยาธิวิทยา*

ผลการศึกษา: *มีผู้ป่วยทั้งหมด 50 ราย อัตราส่วนเพศชาย: เพศหญิง เท่ากับ1:1.2 อายุที่เริ่มมีอาการตั้งแต่แรกเกิดถึง 7 ปี ผู้ป่วย 47 ราย (ร้อยละ 94) เริ่มมีรอยโรคภายในอายุ 1 ปี ไม่พบประวัติ mastocytosisในครอบครัว ลักษณะรอยโรคแบ่งเป็น urticaria pigmentosa 45 ราย (ร้อยละ 90) solitary mastocytosis 3 ราย (ร้อยละ 6) และ diffuse cutaneous mastocytosis 2 ราย (ร้อยละ 4) ผู้ป่วยส่วนใหญ่แข็งแรงดียกเว้น 1 รายเป็นมะเร็งรังไข่ การรักษาทุกรายได้รับยาต้านฮิสตามีน มีผู้ป่วย จำนวน 15 รายที่ได้รับยาทาสเตียรอยด์ ผู้ป่วย 6 ราย ได้รับยาคีโตทีเฟน และผู้ป่วย 4 ราย ได้รับยา prednisolone กิน ผู้ป่วยหายจากโรค 1 ราย เมื่ออายุ 7.8 ปี ผู้ป่วยที่เหลือยังตรวจพบรอยโรคโดยไม่พบความผิดปกติอื่นๆ*

สรุป: *Mastocytosis ที่ผิวหนัง เป็นโรคที่ไม่รุนแรงในเด็ก และไม่พบความผิดปกติอื่น ๆ*