Original Article
Congenital self-healing langerhans cell histiocytosis: clinical and pathological characteristics

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Abstract: Introduction: Congenital Self-Healing Langerhans Cell Histiocytosis (CSHLCH) is rare, characterized by cutaneous lesions at birth or in the neonatal period, and absence of systemic lesions. Materials and methods: Skin biopsy was performed and the histologic examination of the skin section, routinely stained with hematoxylin-eosin. Paraffin sections were stained by immunohistochemical study which were carried out according to the manufacturer’s protocols. Result: Seven cases of CSHLCH were recruited. 28.6% (2/7) of the cutaneous lesions were multiple, 71.4% (5/7) were solitary. Skin biopsy was performed and the histologic examination of the skin section, routinely stained with hematoxylin-eosin. Microscopically, in the dermis, a dense infiltrate of histiocytic cells mixed with numerous eosinophils. These histiocytes were immunohistochemically positive for CD1a and S-100. All of the cutaneous lesions regress spontaneously, and lack of systemic involvement, the final diagnosis of Congenital Self-Healing Langerhans Cell Histiocytosis were made. No recurrence had been observed. Conclusion: The cutaneous lesions of CSHLCH may regress spontaneously. Spontaneous resolution of cutaneous lesions and lack of systemic involvement are essential for the diagnosis of CSHLCH. It needs long-term follow-up.

Keywords: Congenital self-healing, langerhans cell histiocytosis, prognosis, CD1a, S-100

Introduction

Langerhans cell histiocytosis (LCH) is a disorder with a broad spectrum of forms with diverse clinical presentations, ranging from self-healing to systematic forms [1]. Depending on clinical presentations, it is further distinguished including Letterer-Siwe disease, Hand-Schüller-Christian disease, eosinophilic granuloma, and a congenital self-healing form [2].

Congenital Self-Healing Langerhans Cell Histiocytosis (CSHLCH) also called Congenital self-healing reticulohistiocytosis or Hashimoto-Pritzker disease, is rare, characterized by cutaneous lesions at birth or in the neonatal period, and absence of systemic lesions. It is known that the lesions of CSHLCH may regress spontaneously within weeks to months [3, 4].

Here, we reported seven cases of Congenital self-healing Langerhans cell histiocytosis at birth or in the neonatal period, and the clinicopathological characteristics of it are listed based on the literature.

Materials and methods

All the resected specimens were fixed in 10% neutral formalin, conventional dehydrated, embedded in paraffin, made into 4 µm paraffin, and eventually HE (hematoxylin and eosin) staining.

Paraffin sections were stained by immunohistochemical study carried out according to the manufacturer’s protocols. The following primary antibodies were used: CD1a, S-100, CD68, and Ki67 which all from DAKO (Glostrup, Denmark). Immunoreactivity was detected using the Dako labeled streptavidin-biotin detection kit according to the manufacturer’s recommended procedures.

Result

In searches of the archival files spanning long periods in the Foshan Women and Children Hospital, Foshan, People’s Republic of China, seven cases of CSHLCH could be recruited. Birth weight, length and Apgar score of all
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Infants were within normal range. Physical examination revealed no hepatosplenomegaly or lymphadenopathy. Skull, chest and long bone X-rays and abdominal ultrasound were normal. A complete blood count, creatinine, bilirubin, liver and kidney function tests, urine and stool examination, viral serologies such as TORCH, VDRL, and HIV were negative.

Skin biopsy was performed and the histologic examination of the skin section, routinely stained with hematoxylin-eosin. All the resected specimens were fixed in 10% neutral formalin, conventional dehydrated, embedded in paraffin, made into 4 μm paraffin, and eventually H&E (hematoxylin and eosin) staining. Microscopically, in the dermis, there was a dense infiltrate of histiocytic cells mixed with numerous eosinophils. Histiocytes had folded nuclei and eosinophilic cytoplasm, and some kidney-shaped nuclei with prominent nucleoli. Mitotic figures were rare (Figure 1A and 1B). These histiocytes were immunohistochemically positive for CD1a, S-100 (Figure 1C and 1D).

The clinicopathological characteristics, clinical course and outcome of our 7 cases of Congenital Self-Healing Langerhans Cell Histiocytosis are presented in Table 1. Based upon this, the final diagnosis of CSHLCH was made. No recurrence had been observed.

Discussion

Congenital Self-Healing Langerhans Cell Histiocytosis (CSHLCH) was first reported by Hashimoto and Pritzker in 1973 [5], is a rare disorder. Cutaneous lesions range from papules to vesicles, pustules and ulcers, with onset at birth or in the neonatal period. It is known that cutaneous lesions of CSHLCH may regress spontaneously [6, 7], and systemic involvement should be ruled out. Spontaneous resolution of cutaneous lesions and lack of systemic involvement are essential for the diagnosis of CSHLCH [6-8]. The diagnosis is confirmed by immunohistochemical positivity with S-100 and CD1a. Electron microscopy will reveal the characteristic Birbeck granules [9], but is usually not needed [10]. Exact etiology of CSHLCH is unclear. Stenver V. et al. [5] showed that Langerhans cell proliferation may be induced either by viral infection or defective immunity [11].

In our 7 cases of CSHLCH, 28.6% (2/7) of the cutaneous lesions were multiple, 71.4% (5/7) were solitary, indicated that CSHLCH had a classical clinical picture: it is almost a single cutaneous lesion. The lesions measured 0.5~4.5 cm, and it seemed to mostly occur in males. All of the lesions regressed within one to four months, a mean period of 2.5 months and excluding the cases of loss to follow-up, no recurrences were observed. Since the lesions regress spontaneously, clinical findings are nonspecific and it can be supposed that some cases were not diagnosed, suggesting that the morbidity of CSHLCH was underestimated [12].

Our cases provided an additional frequency.
Congenital self-healing langerhans cell histiocytosis

Table 1. Summary of our 7 cases of CSHLCH

<table>
<thead>
<tr>
<th>No.</th>
<th>Age at onset of rash</th>
<th>Age at diagnosis</th>
<th>Sex</th>
<th>Site</th>
<th>Size (cm)</th>
<th>Systemic involvement</th>
<th>Clinical course and outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2 w</td>
<td>1-year-old</td>
<td>M</td>
<td>On the skin of back</td>
<td>Diameter 1.0</td>
<td>None</td>
<td>A solitary red-brown papule with crust; two months later, the skin lesion resolved spontaneously; lost to follow-up</td>
</tr>
<tr>
<td>2</td>
<td>At birth</td>
<td>8 d</td>
<td>M</td>
<td>Multiple on skin of the entire body</td>
<td>Diameter 0.5 to 1.0</td>
<td>None</td>
<td>Multiple red papules, partially blistered; three months later, the skin lesion resolved spontaneously; lost to follow-up</td>
</tr>
<tr>
<td>3</td>
<td>1 d</td>
<td>5 d</td>
<td>M</td>
<td>On Left upper arm</td>
<td>Diameter 1.0</td>
<td>None</td>
<td>A solitary skin colored papule with crust; one month later, the skin lesion resolved spontaneously; followed-up 8 years, no recurrence</td>
</tr>
<tr>
<td>4</td>
<td>At birth</td>
<td>10 d</td>
<td>M</td>
<td>On Right buttocks</td>
<td>Diameter 4.5</td>
<td>None</td>
<td>A red papule with erosion; four months later, the skin lesion resolved spontaneously; followed-up 3 years, no recurrence</td>
</tr>
<tr>
<td>5</td>
<td>At birth</td>
<td>6 d</td>
<td>F</td>
<td>Multiple on skin of the entire body</td>
<td>Diameter 1.0 to 2.2</td>
<td>None</td>
<td>Multiple black papules with crust; three months later, the skin lesion resolved spontaneously; followed-up 2 year, died from other causes</td>
</tr>
<tr>
<td>6</td>
<td>At birth</td>
<td>4 d</td>
<td>F</td>
<td>On left heel</td>
<td>Diameter 1.0</td>
<td>None</td>
<td>A solitary skin-colored papule with crust; two months later, the skin lesion resolved spontaneously; followed-up 9 years, no recurrence</td>
</tr>
<tr>
<td>7</td>
<td>At birth</td>
<td>1 m</td>
<td>M</td>
<td>On left thigh</td>
<td>Diameter 2.0</td>
<td>None</td>
<td>A solitary dark-red papule with crust; three months later, the skin lesion resolved spontaneously; followed-up 1 year, no recurrence</td>
</tr>
</tbody>
</table>

CSHLCH, Congenital Self-Healing Langerhans Cell Histiocytosis; NO., Patient Number; w, week; M, Male; F, Female; d, day; m, month.

includes juvenile xanthogranuloma, hemangiofibroma, infantile fibrous hamartoma. The characteristics of routine histology and immunohistochemistry, such as S-100 and CD1a staining, can exclude those diseases [13].

There is no specific treatment for CSHLCH. The conduct recommended by the Histiocyte Society consists of awaiting spontaneous regression [14, 15]. If the cutaneous lesions persist, topical nitrogen mustard or topical corticosteroids may be effective [16]. Most CSHLCH are limited to the skin, but there are reports of cutaneous lesions accompanied with ophthalmologic and pulmonary involvement [17-19]. Since there are reports of recurrence, it needs long-term follow-up to detect possible systemic involvement [20, 21].

Conclusion

Congenital Self-Healing Langerhans Cell Histiocytosis (CSHLCH) is a rare disorder. It is known that cutaneous lesions of CSHLCH may regress spontaneously. Spontaneous resolution of cutaneous lesions and lack of systemic involvement are essential for the diagnosis of CSHLCH. It needs long-term follow-up.

Acknowledgements

Written informed consent was obtained from the patient for publication of this case report and any accompanying images.

Disclosure of conflict of interest

None.

Abbreviations

HE, hematoxylin and eosin stain; CSHLCH, Congenital Self Healing Langerhans Cell Histiocytosis.

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References

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