Multinucleate cell angiohistiocytoma: A report of six cases

Multinükleer hücreli anjiyohistiyositom: Altı olgu sunumunu

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Abstract

Multinucleate cell angiohistiocytoma (MCAH) is a benign fibrohistiocytic and vascular proliferation that it is seen on the dorsae of the hands or lower extremities in elderly women. Six cases, three males and three females, who had multiple or solitary asymptomatic skin lesions were admitted to our clinic. Histopathological examinations revealed vascular proliferation, perivascular lymphoplasmacytic, fibrohistiocytic infiltration and multinucleated stromal cells in the dermis. Based on the clinical and pathological findings, the diagnosis was MCAH. MCAH shows a slow but progressive course. MCAH is an entity that is not requiring any treatment. However, it is not well known by clinicians or pathologists and misdiagnosis may lead to unnecessary investigations and therapy. It should certainly be taken into consideration during differential diagnosis of cutaneous vascular proliferations.

Keywords: Multinucleate cell, multiple, vascular

Introduction

Multinucleate cell angiohistiocytoma (MCAH) is a benign soft tissue tumour which was firstly identified by Smith and Wilson-Jones¹ in 1985. Clinically it is usually characterised by erythematous or violaceous flat-topped, single or multiple papules and plaques on the dorsae of hands or lower extremities of middle-aged and older women². Histopathologically, there is vascular and fibrohistiocytic proliferation in dermis accompanied with multinucleated cells³. Both clinically and histopathologically, it is confused with medical conditions as Kaposi’s sarcoma, lichen planus, sarcoidosis, and granuloma annulare²,³. Six MCAH cases, delayed diagnosis and caused to redundant surgical intervention are reported, because of this entity could not remind in the first initiative.

Case Report

Six patients within three males and three females, who had multiple or solitary asymptomatic skin lesions were admitted to our clinic between May 2012 and November
2014. The dermatological examinations were revealed multiple except one of them, the smallest was 3 mm, the largest was 15 mm in size, reddish-brown to violaceous flat-topped papules on the right elbow in one case and left crus in one case and dorsum of the right hand in two cases, and left thigh in one case and both arms in one case (Figure 1). Preliminary diagnoses such as Kaposi’s sarcoma, lichen planus, granuloma annulare, sarcoidosis, pseudolymphoma and dermatofibrom were considered. The punch biopsies were taken and stained with hematoxylin and eosin. The results were showed vascular proliferation, perivascular lymphohistiocytic or lymphoplasmocytic infiltrate and fibroblast proliferation in dermis (Figure 2). The increase of vascular structures was proven with CD31 staining but human herpes virus-8 (HHV-8) staining was negative which performed due to the suspicion of Kaposi’s sarcoma. A second biopsy was performed due to persistence of lesions and the growth of old lesions from three of the patients. However, histopathological examinations of recurrent biopsies showed the same characteristics and were not supported to the preliminary diagnoses. When the histopathological preparations from the patient were re-examined in serial cross-sections, dermal multinucleated stromal cells were observed (Figure 2) and the patients were diagnosed with MCAH. The detailed clinical and histopathological features of the six cases are shown on Table 1.

Discussion

Although MCAH is recognized to be a rare condition, it may actually have been underreported due to the clinicians’ and pathologists’ lack of information about this entity2,3. Although lesions were usually seen as unilateral and localized, bilateral and generalized cases have also been reported2,4. A recent dermatopathologic review analysed retrospectively 142 MCHA patients from the literature. The authors found the average age of individuals was as 50.1 years and female predominance (79%)5. In our case series the average age of the patients was 56.8 and we found no predominance of sex. Also it had mentioned that the most affected part of the body was hand (30%)5. In our case series the hand placement was observed in two patients. All patient had multiple lesions, except one of them (Table 1).

Histopathological examination for MCAH reveals vascular proliferation of blood vessels resembling small capillaries or venules in upper-middle dermis. In recent review the prominent finding was vascular proliferation (43.7%) and was accepted as the most frequent pathologic finding of MCAH5. In our patients vascular proliferation was observed in the histopathology of all six patients mentioned. Endothelial cells are swollen and protrude into the vascular lumen2. The typical multinucleated cells exhibit scalloped or angulated basophilic cytoplasm due to nuclear protrusion of 3 to 10 hyperchromatic nuclei arranged around the periphery of the cells2,3. Randomly distributed collagen bundles and fibrohistiocytic mononucleated spindle cell proliferation, moreover scattered perivascular lymphocytes and plasma cells and neutrophiles and mast cell infiltration are observed in dermis2,6. It is postulated that mast cells play a role in multinucleated cell formation by interacting with fibroblasts7.
Figure 2. a) Mild acanthosis in epidermis and vascular proliferation in dermis (H&E x10) (case 4), b) Fibrohistiocytic mononucleated spindle cell proliferation around increasing vessels; eosinophilic and coarse appearance of collagen bundles in dermis and a multinucleated stromal cell (arrow) (H&E x20) (case 4), c) The close appearance of multinucleated stromal cell formed by the incorporation of 4-5 cell nuclei with angulated basophilic cytoplasm in the centre (arrow) (H&E x200) (case 4), d) Vascular proliferation, perivascular lymphocytic infiltration and multinucleated stromal cells in dermis (arrow) (H&E x40) (case 6)

Table 1. Clinical and histopathological features of the six cases

<table>
<thead>
<tr>
<th>Cases</th>
<th>Age</th>
<th>Sex</th>
<th>Location</th>
<th>Duration</th>
<th>Accompanying disease</th>
<th>Number of lesions</th>
<th>Pre-diagnoses</th>
<th>Histopathology</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>71</td>
<td>F</td>
<td>Right arm</td>
<td>1 year</td>
<td>DM</td>
<td>Multiple</td>
<td>Granuloma annulare, sarcoidosis pseudolymphoma</td>
<td>Vascular proliferation, perivascular lymphoplasmocytic infiltrate, increase in the number of mast cells, and multinucleated stromal cells in dermis</td>
</tr>
<tr>
<td>2</td>
<td>59</td>
<td>F</td>
<td>Left leg</td>
<td>7 months</td>
<td>None</td>
<td>Multiple</td>
<td>Kaposi’s sarcoma, lichen planus, granuloma annulare</td>
<td>Acanthosis in epidermis and vascular proliferation, perivascular lymphocytes, histiocyte and plasma cell infiltrate and multinucleated stromal cells in dermis</td>
</tr>
<tr>
<td>3</td>
<td>50</td>
<td>M</td>
<td>Dorsum of the right hand</td>
<td>2 years</td>
<td>None</td>
<td>Multiple</td>
<td>Kaposi’s sarcoma, lichen planus, granuloma annulare</td>
<td>Vascular proliferation, perivascular lymphoplasmocytic infiltration and multinucleated stromal cells in dermis</td>
</tr>
<tr>
<td>4</td>
<td>62</td>
<td>M</td>
<td>Dorsum of the right hand</td>
<td>2 years</td>
<td>Hypercholesterolemia, hypertension</td>
<td>Multiple</td>
<td>Lichen planus, Kaposi’s sarcoma</td>
<td>Acanthosis in epidermis; vascular proliferation, fibrohistiocytic infiltration and multinucleated stromal cells in dermis</td>
</tr>
<tr>
<td>5</td>
<td>56</td>
<td>M</td>
<td>Left thing</td>
<td>5 years</td>
<td>Hypertension, psoriasis</td>
<td>Solitary</td>
<td>Dermatofibroma</td>
<td>Vascular proliferation, fibroblast proliferation and multinucleated stromal cells in dermis</td>
</tr>
<tr>
<td>6</td>
<td>43</td>
<td>F</td>
<td>Right and left arms</td>
<td>1 year</td>
<td>None</td>
<td>Multiple</td>
<td>Lichen planus, sarcoidosis</td>
<td>Vascular proliferation, perivascular lymphocytic infiltration and multinucleated stromal cells in dermis</td>
</tr>
</tbody>
</table>

M: Male, F: Female, DM: Diabetes mellitus
Immunohistochemically the vascular endothelial cells are stained positively for factor 8 and vimentin and CD31 and CD34 antigens while they are stained negatively for HHV-8 antigen. Mononucleated cells express vimentin, factor XIIIa, CD68, alpha-1 antitrypsin and lysozyme. Multinucleated cells are strongly positive for vimentin while they are stained negatively for other monocyte/macrophage markers. Immunohistochemically, the lack of monocyte/macrophage markers and electron microscopic findings for multinucleated cells suggested that these cells were of fibrohistiocytic origin.

MCAH clinically resembles lichen planus, Kaposi’s sarcoma, granuloma annulare, insect bite, pseudolymphoma and sarcoidosis as in our series. Histopathological examination is required for the diagnosis. However, histopathological findings may be confused with dermatofibroma (atrophic vascular variant), angiofibroma, early Kaposi’s sarcoma, and pseudo-Kaposi sarcoma. Atrophic vascular variant of dermatofibroma involves a more intensive cell proliferation and shows a storiform pattern. In angiofibroma, collagen shows peril follicular and vertical distribution patterns. Multinucleated giant cells are not seen in Kaposi’s sarcoma which is HHV-8-positive. Pseudo-Kaposi’s sarcoma is characterised by tortuous and thick-walled capillaries and abundant hemosiderin deposits.

Pathogenesis of MCAH has not been fully understood yet. Its prevalence among women suggests the effects of the hormones. Hand and extremity localisation of the lesions suggests association with trauma. Spontaneous resolution has been reported that indicates an inflammatory condition rather than a neoplastic process. MCAH-like lesions has also been noted to occur periphery of nonmelanoma skin cancers and within chronic inflammatory lesions that supports this condition.

This benign profile shows a slow but progressive course. It does not require treatment, but on the other hand surgical excision, cryotherapy, and CO2 or argon laser treatment may be applied for cosmetic purposes, if needed.

MCAH should certainly be taken into consideration during differential diagnoses of cutaneous vascular proliferations. Both our patients and the cases reported in the literature have clinically and histopathologically similar findings. These cases are firstly reported in our country as far as we know. We think that this status is due to the entity is not known rather than the illness is rarely seen. Therefore MNAH is minded to make diagnosis correctly and to prevent the redundant intervention and treatment for patients who have not initiatory signs excluding the vascular proliferation and lymphohistiocytic infiltration on histopathology and who applies with multiple grouped flat-topped papules.

Ethics
Informed Consent: Consent form was filled out by all participants.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Conflict of Interest: No conflict of interest was declared by the authors.

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References