# A Case of Rosai-Dorfman Disease Limited to the Lip

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**Rosai-Dorfman disease, previously known as sinus histiocytosis with massive lymphadenopathy, is a benign histiocytic proliferative disorder. It commonly affects lymph nodes, but any organ of body may be involved. Rosai-Dorfman disease limited to the skin is rare, only about 50 cases have been reported to date. The lesions of cutaneous Rosai-Dorfman disease are found on the face, trunk, extremities and external genitalia. But no case of purely cutaneous Rosai-Dorfman disease on the lip has previously been reported in the literature. We present a case of purely cutaneous Rosai-Dorfman disease limited to the lip.**
**(Ann Dermatol 16(4) 194~196, 2004)**

*Key Words:* Rosai-Dorfman disease, Lip

## INTRODUCTION

Rosai-Dorfman disease (RDD) is a rare but distinctive clinicopathologic entity of unknown etiology affecting lymph nodes as well as extranodal sites[1]. Although skin involvement in RDD is common, a purely cutaneous disease is rare[2,3]. The lesions of purely cutaneous RDD are found on the face, trunk, extremities and external genitalia[1-3]. But no case of cutaneous RDD on the lip has previously been reported in the literature. We report a case of RDD limited to the lip.

## CASE REPORT

A 31-year-old Korean woman presented with 4-month history of solitary normal skin colored nodule on her lower lip (Fig. 1).

On physical examination, she was afebrile and no enlarged lymph node could be palpated. Her past history and laboratory findings were unremarkable. An Excisional biopsy was performed.

On scanning magnification of histopathologic features, the lesion was located in the whole dermis separated by fibrous stroma. Nodular and diffuse infiltrates of large histiocytes and small lymphocytes were seen. Marked fibrous stromal response was seen within the lesion (Fig. 2A). On higher magnification, large polygonal cells with abundant pale eosinophillic cytoplasm and emperipolesis (engulfment of lymphocytes by histiocytes) and plasma cells were noted (Fig. 2B, 2C). Large polygonal cells were strongly stained with S-100 protein, and S-100 protein staining emphasized the emperipolesis phenomenon (Fig. 3). Staining with antibody to CD68 was positive.

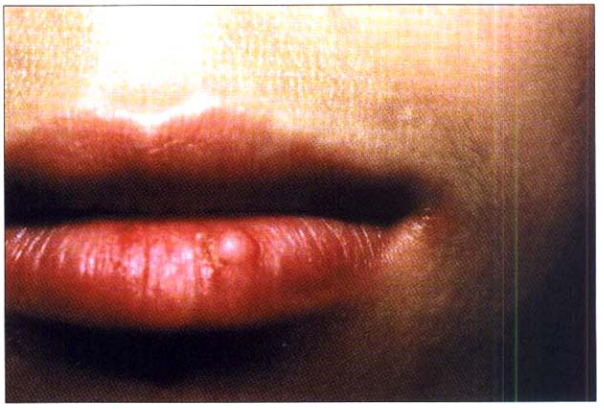

Fig. 1. Solitary normal skin colored nodule on the lower lip.

Received July 14, 2004
Accepted for publication October 13, 2004

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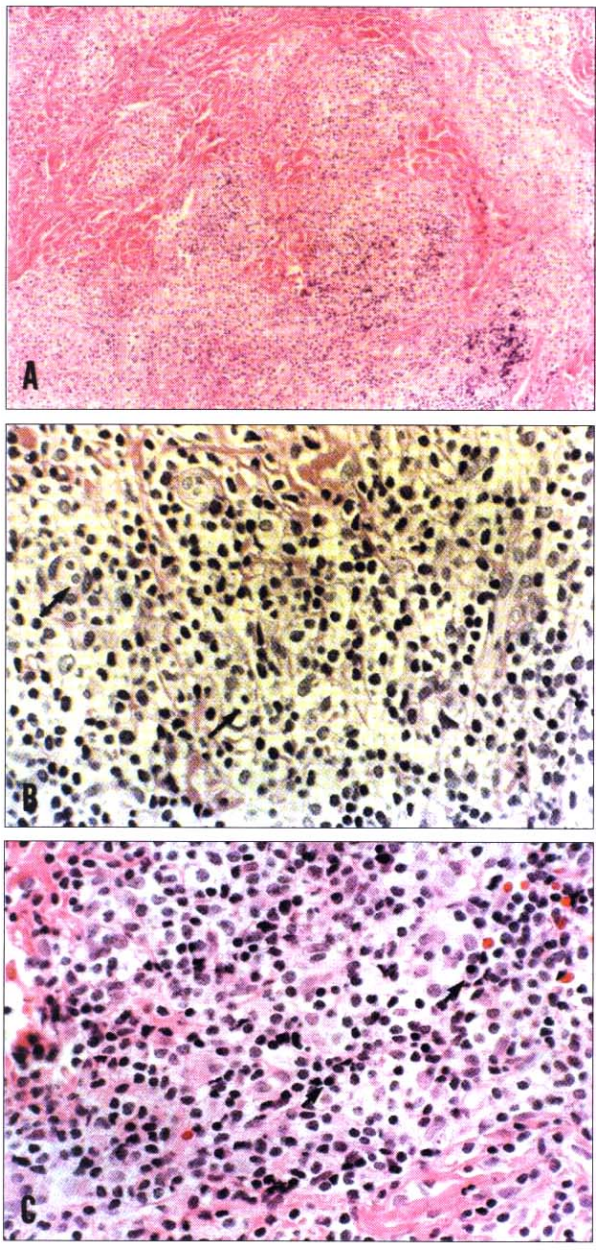


Fig. 2. (A) Photomicrograph showing nodular infiltrates of large histiocytes and small lymphocytes with marked stromal fibrosis (H&E, × 100). (B) Large polygonal histiocytes with ample cytoplasm shows emperipolesis (arrows, H&E, × 400). (C) Diffuse infiltration of plasma cells were noted (arrows, H&E, × 400).

The patient was given the diagnosis of cutaneous Rosai-Dorfman disease. There was no recurrence in 9 months following the excision.

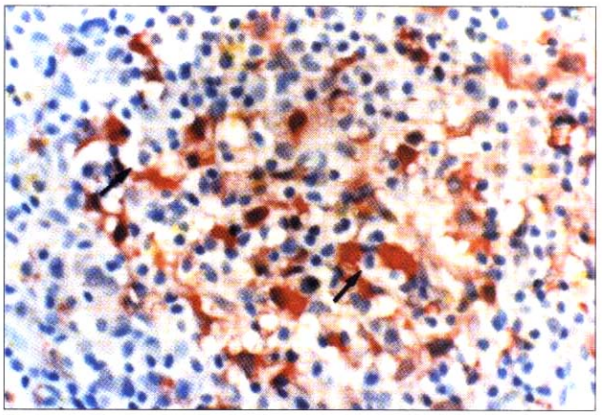

Fig. 3. S-100 protein staining emphasizes the emperipolesis phenomenon (arrows × 400).

## DISCUSSION

Sinus histiocytosis with massive lymphadenopathy or Rosai-Dorfman disease was first described in 1965 and recognized as a distinct clinicopathologic entity in 1969[4]. Typically, cervical lymph node is involved, leading to painless lymphadenopathy, that is accompanied by fever, leukocytosis and elevated ESR[2-4]. It usually follows a benign course with spontaneous resolution[1-3].

Extranodal lesion of this disease occurs in 1/3 of cases, and skin involvement is the most frequent extranodal manifestation[2-5]. Extranodal RDD without lymph node involvement is rare, and about 50 cases of purely cutaneous RDD have been reported [1-3,5]. Clinically, the lesion of pure RDD presented as papules, pustules, nodules, plaques or tumors[1-3,5]. The lesions do not show any predilection for specific body sites and are frequently found multifocally and/or clusters[1-3]. Solitary lesions are observed in 1/3 of cases[1]. But, to the best of our knowledge, no case of RDD limited to the lip has been reported.

Histopathologic features of RDD reveal nodular and diffuse infiltrates of large pale histiocytes and perivascular infiltrates of lymphocytes and plasma cells, and engulfment of lymphocytes and plasma cells by histiocytes is characteristic features[1-5]. Sometimes marked fibrous stromal response within the lesion is noted[6]. Most of the histiocytes are S-100 positive but CD1a negative and do not contain Birbeck granules[1-3,7]. The clinical and histopathologic features in purely cutaneous RDD are indistinguishable from those of cutaneous lesion in RDD

with associated lymph node involvement[2]. Because clinical features of cutaneous RDD are variable and not characteristic, S-100 protein immunoreactivity and emperipolesis found in large histiocytes are considered crucial for a definite diagnosis of RDD.

Differential diagnosis of RDD includes xanthoma, Langerhans cell histiocytosis, juvenile xanthogranuloma, and reticulohistiocytoma. Xanthoma lacks signs of emperipolesis and is missing a large number of plasma cells[8]. Langerhans cell histiocytosis is constituted of Langerhans cells with distinctive cytologic features, namely, reniform nuclei and abundant amphophilic cytoplasm; there is no evidence of emperipolesis[2]. Juvenile xanthogranuloma shows neither a large number of plasma cells nor emperipolesis[8]. Prominent "ground glass" appearance of the histiocytic cytoplasm in reticulohistiocytoma is characteritic and it rarely stains positive for S-100 protein[7]. It is easy to distinguish RDD histopathologically from other diseases in which mononuclear cells with abundant pale cytoplasm predominate, because it is so distinctive. Furthermore, no disease other than RDD is composed largely of mononuclear cells with copious pale cytoplasm and displays emperipolesis[8].

The etiology of RDD remains unknown. RDD has long been suspected to be caused by, or closely related to an infectious agent, especially a virus belong to the human herpes virus family. In regard to HHV-6 role in RDD pathogenesis, there were three hypotheses proposed: its presence in lesional tissue is fortuitous, HHV-6 plays a role in promoting more aggressive disease and various cause, including HHV-6, are implicated in the pathogenesis of RDD[9].

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