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Case Report

Internal Medicine Section

Rosai Dorfman Disease: A Rare Cause of Cervical Lymphadenopathy

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ABSTRACT

Rosai Dorfman disease, a sinus histiocytosis, is rare to find and difficult to diagnose. It may masquerade as commoner diseases including infections and malignancies. Imaging may yield ambiguous results and it is often the histopathology that clinches the diagnosis. Hereby, we report two cases of Rosai Dorfman disease both presented with nasal mass and neck nodes. We present these cases to emphasise the difficulty in clinical diagnosis and to illustrate the pathognomonic pathological findings.

Keywords: Emporipolesis, Lymphadenopathy, Nasopharyngeal mass

CASE REPORT

Case 1

A 14-year-old boy was brought to the outpatient department with painless swelling at the root of his neck for last one month. He had no fever, cough or weight loss. In spite of a two week course of antibiotics, the swelling persisted. At presentation he had a mucoid nasal discharge and significant right cervical lymph nodes with a size of 1 x 0.5 cm each. He also had a large right axillary lymph node (3 x 2 cm in size). Blood examination revealed a mild normocytic anaemia with reactive lymphocytes and normal liver and renal function tests. A diagnosis of tuberculosis was considered initially and was ruled out as the chest X-ray and Mantoux test were negative. Vasculitic markers and serum Angiotensin Converting Enzyme (ACE) was normal.

Computerised Tomography (CT) of paranasal sinuses showed a mildly enhancing soft tissue density in the anterior aspect of nasal cavity involving the septum with invasion of the clivus and the floor of the sphenoid sinus with intrasphenoid extension and level two lymph nodes bilaterally. The radiological report of nasopharyngeal carcinoma with skull base involvement was considered unlikely considering the age of the patient.

Diagnostic nasal endoscopic biopsy showed a diffuse subepithelial collection of lymphoid cells. Histiocytes were seen with engulfed lymphocytes (emporipolesis) [Table/Fig-1]. Immunohistochemistry on the specimen showed large cells positive for CD68 and S100 but negative for CD1a. Cervical lymph node biopsy showed only reactive changes.

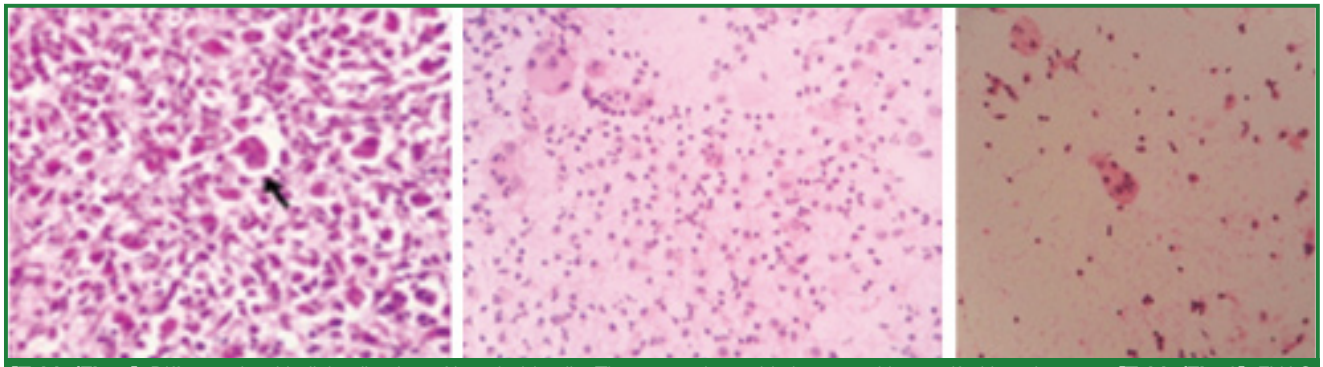
With a final diagnosis of Rosai Dorfman disease of the nasopharynx, the patient was started on oral steroids (prednisolone 30 mg/day, tapering doses). On follow-up, his cervical lymph nodes were not palpable in 6 weeks' time and he is asymptomatic at one year follow-up. Patient consent was obtained.

Case 2

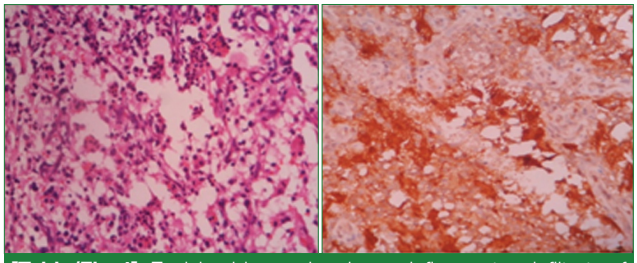
A 15-year-old girl presented with epistaxis from both nostrils for two months and bilateral nasal obstruction for 2 weeks. No history of headache or facial pain. Past history was unremarkable. Anterior rhinoscopy was normal. On examination of the neck, she had a 3 x 5 cm large, freely mobile swelling over the upper part of the right sternocleidomastoid deep to the muscle.

CT nasopharynx showed a peripherally enhancing lesion in right nasopharynx with associated right petrous apicitis and mastoiditis. Magnetic Resonance Imaging (MRI) of the nasopharynx revealed similar changes. FNAC of cervical lymph node revealed a polymorphous polulation of cells including neutrophils, lymphocytes, plasma cells, macrophages showing emporipolesis and tingible body macrophages [Table/Fig-2].

As imaging suggested nasopharyngeal abscess which was not clinically correlated, a nasopharyngeal mass biopsy was performed under general anaesthesia. Imprint smear from nasopharyngeal mass showed scattered inflammatory cells with predominantly histiocytes having abundant eosinophilic cytoplasm, round vesicular nucleus and prominent nucleolus many of them shows emporipolesis [Table/Fig-3]. Excision biopsy revealed similar changes [Table/Fig-4]. IHC for S100 was positive, confirming the diagnosis of Rosai Dorfman disease [Table/Fig-5]. This patient was put on tapering doses of steroids and she remains on follow-up. Her neck swelling has reduced in size and epistaxis has resolved. Patient consent was obtained for publication.



[Table/Fig-1]: Diffuse subepithelial collection of lymphoid cells. The arrow shows histiocytes with engulfed lymphocytes; **[Table/Fig-2]:** FNAC of the cervical lymphnode showing a neutrophils, lymphocytes, plasma cells and macrophages showing emporipolesis. **[Table/Fig-3]:** Imprint smear from nasopharyngeal mass showed histiocytes having abundant eosinophilic cytoplasm many of them showing emporipolesis.



[Table/Fig-4]: Excision biopsy showing an inflammatory infiltrate of lymphocytes with macrophages with emporipolesis. **[Table/Fig-5]:** Immunohistochemistry staining for S100 in the excision biopsy specimen.

DISCUSSION

Rosai Dorfman disease or Sinus Histiocytosis with Massive Lymphadenopathy (SMHL) is a histiocytic disease of unknown etiology [1,2]. It is global in distribution and affects all ages, but with preponderance for young adults. The commonest presentation is cervical lymphadenopathy with fever, polyclonal hypergammaglobulinaemia and neutrophilic leukocytosis [3]. More rarely, axillary, inguinal and mediastinal lymph nodes can also be involved. About 87% of patients have cervical lymphadenopathy and upto 30% of cases have extra-nodal involvement, especially of the skin, respiratory tract including nose and sinuses, genitourinary tract and bones [4].

Both immunological and infective etiologies have been postulated. Human Herpes Virus 6 (HHV6) antigens have been reported in tissues and it is one of the main organisms implicated [5]. Varicella Zoster, Cytomegalo virus, Epstein-Barr virus, *Klebsiella* and *Brucella* are also suspected to be involved.

While Rosai Dorfman disease can be suspected clinically, diagnosis must be confirmed histologically. The pathognomonic feature in Rosai Dorfman disease is emporipolesis. Emporipolesis refers to the engulfment of a cell by another cell, both cells remaining intact [6]. Generally, a lymphohistiocytic infiltrate is seen and large macrophages with intact lymphocytes within their cytoplasm are seen. While emporipolesis is a specific feature of Rosai Dorfman disease, it can also occur in other conditions including Hodgkin's lymphoma and leukaemias. Hence, immunohistochemistry is also desirable for confirming the diagnosis. The immunohistochemical profile of S100 positive, CD68 positive, CD 1a negative is pathognomoic of the disease [7].

The rarity and the many atypical presentations of Rosai Dorfman disease make it a difficult diagnosis to make clinically. Initial presentations can be misleading and provisional diagnoses ranging from carcinoma of the lung (with full TNM staging) to orbital pseudo tumour to lymphoma have been made [8-10]. Rosai Dorfman disease of the breast has been clinically and radiologically mistaken for carcinoma of the breast [11]. In a tropical country, tuberculosis always remains a possibility. Spinal Rosai Dorfman disease can present with paraplegia [12]. In our own case, the diagnoses initially made included nasopharyngeal carcinoma and nasopharyngeal abscess. Intra cerebral Rosai Dorfman disease can mimic a meningioma.

Some patients with Rosai Dorfman disease go into spontaneous remission [10]. Treatment with steroids has been found effective in many cases. Radiotherapy and low-dose thalidomide have also been used [13]. Surgical treatment has been tried with success in intra cerebral Rosai Dorfman disease [14].

CONCLUSION

We present two cases of Rosai Dorfman disease which caused considerable diagnostic confusion. Both cases were finally diagnosed histopathologically. Both patients improved considerably on steroids. We wish to highlight the importance of a lymph node biopsy in all cases of persistent lymphadenopathy without an obvious cause.

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