Sinus histiocytosis with massive lymphadenopathy (Rosai-Dorfman's Disease) as cause of isolated hilar lymphadenopathy and complete remission after high dose steroid

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ABSTRACT

مرض روزاي دورفمان (Rosai–Dorfman's disease) ويعرف أيضا بمرض تكاثر الخلايا النسيجية التجوفي مع تضخم الغدد اللمفاوية (SHML) هو مرض نادر وله خاصية سريريه ونسيجية غير معروفة المنشأ. يعتبر تضخم الغدد اللمفاوية الغير مؤلم من أكثر الأعراض شيوعاً. تم استخدام عدة أدوية في عدد من الحالات ولكن لا يوجد اتفاق على دواء معين بشكل كبير. نستعرض في هذا التقرير إحدى حالات روزاي دورفمان النادرة التي أصابت إحدى الغدد اللمفاوية الصدرية (Hilar lymphadenopathy) ومدى استجابة المريض لجرعة عالية من الكورتيزون (dexamethasone 20 mg) لمدة ثلاثة أيام فقط، واختفاء المرض لأكثر من ستة أعوام متتالية وهو مالم يحدث مسبقا.

Rosai-Dorfman's Disease, also known as sinus histiocytosis with massive lymphadenopathy (SHML), is a rare histiocytic proliferative disorder and a distinct clinico-pathological feature of unknown origin. Painless cervical lymphadenopathy is the most common clinical presentation. Different treatment modalities have been tried with variable responses, however, there is no consensus on the best modality of treatment. Here, we present a case report of SHML causing isolated hilar lymphadenopathy with complete remission for more than 6 years, after a short course of high dose steroid (dexamethasone 20 mg daily for 3 days).

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Sinus histiocytosis with massive lymphadenopathy (SHML) is a rare histiocytic proliferative disorder of unknown origin with distinct clinicopathologic features. The disease was first described in 4 patients in 1969, since then more cases have been published.[1-4] Although originally thought to be a disease of lymph nodes, it can involve extra-nodal tissues such as skin, breast, meninges, salivary glands, and orbit.[1-4] Painless cervical lymphadenopathy is the most common presentation. However, isolated involvement of the hilar lymph nodes has not been reported. Although many authors have used steroids to treat SHML, the dose regimen we used to treat our patient was not reported before.

Case Report. A 26-year-old man presented to the pulmonary clinic with a pre-employment chest radiography showing right hilar mass (**Figure 1a**). He was completely asymptomatic. Systemic review was unremarkable, in particular, there was no fever, weight, or appetite loss. His past medical history was also unremarkable. No contact with a known tuberculosis case or a history of recent travel. His complete blood count and differential, sedimentation rate, chemistry, and liver function tests were all normal. Chest computer tomography (CT) (**Figure 1b**) reveals well-circumscribed hilar soft tissue mass, extending from the level of the great vessels to the level of the carina. The mass maximum diameter was 3.5 cm. A CT of the abdomen and pelvis did not show any other lymphadenopathy. Bronchoscopy was normal. The patient underwent right thoracoscopy with excisional biopsy of the mass. The histology sections revealed distention of the sinusoids by numerous reactive histiocytes with large nuclei and visible nucleoli. Some of which has large vacuolated cytoplasm, and other vacuoles contain engulfed viable lymphocytes (**Figure 2a**) a process known as emperipolesis. Also, plasma cells and

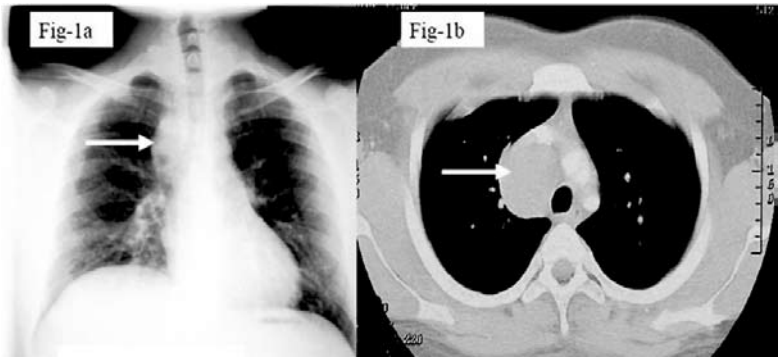

Figure 1 - Pre-employment chest radiography showing right hilar mass (white arrow) **1a**) Chest computer tomography reveals well-circumscribed hilar soft tissue mass extending from the level of the great vessels to the level of the carina (white arrow) **1b**) The mass maximum diameter was 3.5 cm.

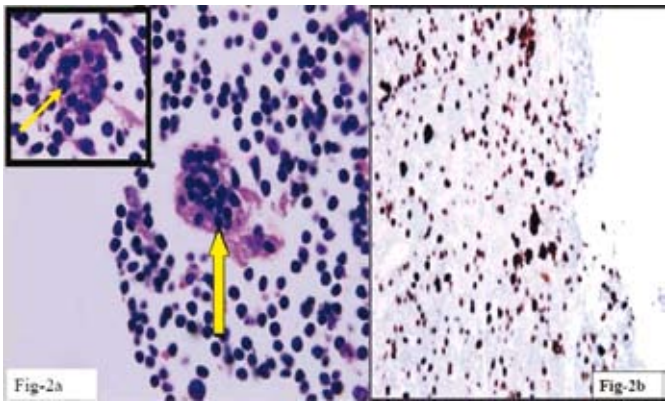

Figure 2 - Sinus histiocytosis with massive lymphadenopathy. **2a**) Showing large histiocyte (thick yellow arrow) containing numerous lymphocytes namely, emperipolesis, hematoxylin and eosin stain. Another histiocyte showing the same phenomenon (thin yellow arrow) inset magnifed 100X **2b**) showing histiocytes express S100 protein [polyclonal from Dako] in distended sinuses, immunoperoxidase stain.

polymorph nuclear leucocytes are seen admixed with the histiocytes. Immunohistochemical stain revealed strong reactivity of these histiocytes for polyclonal S100 from Dako (**Figure 2b**). The post-operative chest radiography revealed no evidence of residual disease. However, chest radiography obtained 2 months after surgery showed recurrence of the disease at the same location, but with maximum diameter of 5 cm this time. Clinically the patient was completely asymptomatic with normal physical examination and laboratory workup. The patient was given a trial of dexamethasone 20 mg a day for 3 days. Repeated chest radiography 2 weeks later revealed remarkable reduction in the size of the lymph nodes, which eventually disappeared after 6 weeks. Follow-up chest radiography showed no recurrence of the disease 6 years after the initial treatment with corticosteroid.

Discussion. Sinus histiocytosis with massive lymphadenopathy, first described by Rosai and Dorfman in 1969, is a rare disease of unknown origin.[1] It is more prevalent in children and young adults.[2,3] The extra-nodal form of the disease tends to affect older patients.[1-4] Males are more commonly affected than females with a ratio of 2:1.[2,3] The most common clinical presentation of SHML is painless, bilateral cervical lymphadenopathy.[2-4] Other groups of lymph nodes can be involved as well, either in isolation or with cervical lymphadenopathy.[2-4] More than 30-40% of cases of SHML have extra-nodal disease, and it can affect any organ and may involve many organs at the same time.[3-5] Although SHML is reported to be a self-limited disease, indolent course characterized by exacerbations and remissions has been described.[2-4] The clinical course of the disease can be divided into 5 categories: 1) complete spontaneous remissions, 2) indolent course

with exacerbations and remissions, 3) chronic persistent disease, 4) progressive disease, and 5) fatal disease.[2] Death may occur as a result of disseminated extra-nodal disease or involvement of certain sites like the kidneys or the upper respiratory tract. The best modality of treatment of SHML is unknown. Since in the majority of cases, the disease is self-limited, no treatment is usually required. Treatment usually depends on the extent and the site of the disease. Surgical treatment may be required to avoid pressure symptoms caused by enlarged nodal or extranodal masses.[3-5] Corticosteroids are used in the treatment of SHML. They are effective in improving the constitutional symptoms.[6] Antonius et al[6] suggested that organ dysfunction caused by SHML could be rapidly reversed by the use of steroids. Vinblastine, chlorambucil, and cyclophosphamide have been tried, either as a single agent or in combination.[5,7] In a recent literature review of the treatment of SHML, chemotherapy was ineffective in most of the cases, although the efficacy of some agents, such as methotrexate and 6-mercaptopurin (6-MP) needs further investigation.[5,7] Radiotherapy is one of the treatment modalities that have been tried in SHML. The results of response to radiotherapy are conflicting, with some cases having complete response with radiotherapy alone.[5,8] A few cases of SHML have been treated with interferon.[9] Further data are needed to precisely define the role of interferon in the treatment of this disease. There is no consensus of the best regimen modalities of therapy. Our patient had a recurrence of the disease shortly after excisional surgical resection; furthermore, because of the seriousness of the disease site and potential risk of compressing the major airways or great vascular structure, a trial of high dose of steroid was used. This regimen has not been tried before, but resulted in complete remission for more than 6 years.

In conclusion, SHML is a rare disease. However, it should be considered in the differential diagnosis of hilar lymphadenopathy. Diagnosis can be made easily with fine needle aspiration cytology. In most cases, treatment is not required, however, in some cases, surgical treatment, chemotherapy, or radiotherapy can be tried, particularly if the disease is widely spread or pressure symptoms occur.

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