Case Report

Unusual case of Hodgkin lymphoma presenting as soft tissue mass with intracranial metastasis and review of literature

Vandana Singh Kushwaha, Kirti Srivastava, Nuzhat Husain[1], Sudhir Singh

Department of Radiotherapy, King George's Medical University, [1]Department of Pathology, Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow, Uttar Pradesh, India

ABSTRACT

Hodgkin lymphoma (HL) primarily presents as nodal disease and may involve extranodal sites during the progression of the disease. Extra nodal involvement of lung, gastrointestinal tract, testis and thyroid etc., is well-recognized in non-HL but clinically detectable soft tissue involvement is rare and quite exceptional with HL. We report here an unusual case of a young adult male, who presented with a frontal soft tissue mass associated with cervical lymph node. Histopathology supplemented with immunohistochemistry revealed classical HL. Patient did not respond to treatment adequately, and he developed intracranial metastasis during the course of treatment.

Key words: Hodgkin lymphoma, immunohistochemistry, intracranial metastasis, soft tissue mass

INTRODUCTION

Hodgkin lymphoma (HL) primarily involves lymph nodes, cervical nodes being the most common. It may be associated with constitutional symptoms such as fever, weight loss and night sweats. Extranodal involvement is commonly seen in non-HL (NHL); however, it is rarely encountered in HL.[1,2] Initial presentation of lymphoma as a soft tissue mass is rare and more so in HL. Only 0.1% of the cases of NHL have shown involvement of soft tissue as a primary event.[3-6] We report here a case of HL presenting with a soft tissue swelling on forehead with cervical lymphadenopathy and no associated systemic symptoms. Subsequently, he developed intracranial metastasis during the treatment. Both of these events are extremely rare especially in HL. To the best of our knowledge, such a case has been seldom described to date. The clinical presentation was highly unusual making the diagnosis and management a challenge.

Access this article online	
Quick Response Code:	Website: www.ccij-online.org
	DOI: 10.4103/2278-0513.154538

CASE REPORT

A 20-year-old male patient was referred to our hospital for evaluation of midline forehead swelling which had been present for past 1-month and progressively increasing in nature. Fine-needle aspiration cytology of the forehead mass was prior done by his local practitioner, and it showed atypical lymphoid proliferation. On detailed clinical examination, a solitary, nontender, mobile, firm, 2.5 cm × 1.5 cm in size cervical lymph node was found with no enlarged lymph nodes at other sites or no organomegaly. Magnetic resonance imaging of the head revealed well-defined soft tissue lesion over scalp in frontal area measuring 3.02 cm × 5.16 cm in size with no mass in the cranial parancim [Figure 1a and b]. Initial laboratory results including hematological, renal and liver profile were normal. Contrast-enhanced computed tomography (CT) scan of the abdomen and thorax and bone-marrow biopsy did not show disease elsewhere. Biopsy of the cervical lymph node and soft tissue mass was performed. Further the histopathology report supported with immunohistochemistry was suggestive of classical HL (CD30+, CD20 focal positive in Reed–Sternberg [RS] cells and lymphocytes, CD3 focal positive in lymphocytes, PAX5 positive in RS, CD15 negative in RS cells and anaplastic lymphoma kinase negative) [Figure 2]. Patient was staged according to Ann Arbor system and designated as stage

Address for correspondence: Dr. Vandana Singh Kushwaha, Department of Radiotherapy, King George's Medical University, Lucknow - 226 003, Uttar Pradesh, India. E-mail: singh.drvandana@gmail.com

IIE. Patient was given systemic chemotherapy in the form of Doxorubicin, Bleomycin, Vinblastine, Dacarbazine regimen (ABVD) and did not show adequate response even after three cycles. Ten days after third chemotherapy cycle, patient presented with the complaints of headache, nausea and vomiting. Contrast-enhanced CT of the brain was done which revealed ill-defined hyper-dense lesion with perilesional edema in right cerebellar hemisphere crossing midline with similar lesion in suprasellar region and residual mass in frontal area suggestive of intracranial metastasis [Figure 1c and d]. Subsequent to this event, patient was planned for radiotherapy to whole brain (30 Gy in 15 fractions) but he deteriorated progressively and succumbed to the disease before the next chemotherapy cycle could be delivered.

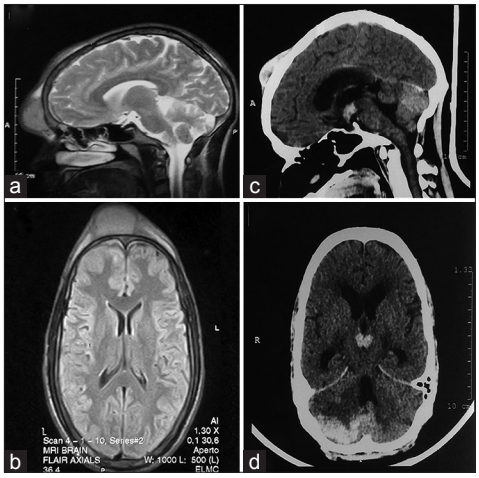

Figure 1: Radiographic examination of the lesion. (a and b) Magnetic resonance imaging of head, sagittal T2-weighted (a) and axial fluid-attenuated inversion-recovery (b) sequence pretreatment study, showing well-defined hyper intense lesion over scalp in right frontal region. (c and d) Enhanced brain computed tomographic sagittal (c) and axial (d) scan during treatment study, demonstrating the residual lesion over fronto-parietal convexity and newly appeared ill-defined heterogeneously enhanced hyperdense lesions with perilesional edema in right cerebellar hemisphere and suprasellar region with mass effect in form of hydrocephalus

DISCUSSION

Hodgkin's disease is a neoplasm of proliferation of clonal B-cells characterized by the presence of RS cells. Hodgkin's disease typically arises in a single node or chain of nodes and spreads to other sites through contiguous lymph node. Extra-nodal involvement is more common in NHL and it accounts for 35–40% of patients.[7] The commonly involved extra-nodal sites are gastrointestinal tract, central nervous system (CNS), thyroid and bone.[7]

Extra-nodal involvement in HL usually occurs at advanced stages or in association with an immunodeficiency disease.[8] Extra-nodal spread can occur in HL through localized extension especially when the original lymph node involvement is bulky, either by direct invasion or through

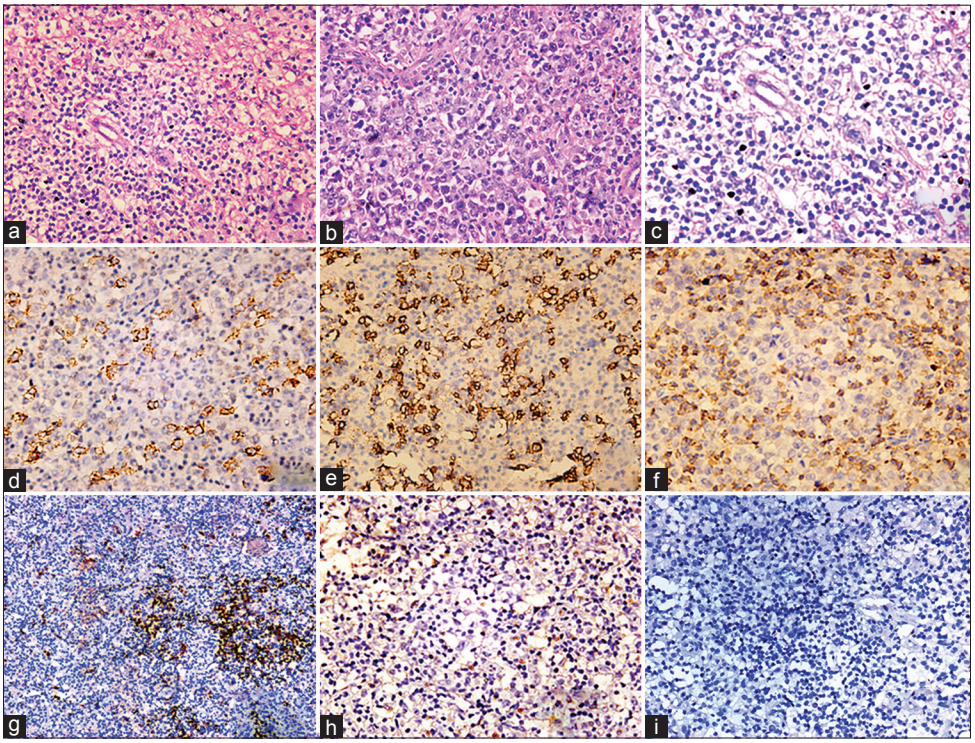

Figure 2: Micro-photographs of the lymphoma. (a and b) Lymph node with partial effacement and (c) interspersed Reed–Sternberg (RS) cells (H and E staining with original magnification, a and b: ×20, and c: ×40). The immunohistochemical staining showing (d) CD30+ in RS cells; (e) CD20 focal positive in RS and lymphoid cells; (f) CD3 focal positive in lymphoid cells; (g) PAX5 positive in RS; (h) CD15 negative in RS cells and (i) anaplastic lymphoma kinase negative (original magnification d-f: ×20; g-h: ×100 and i: ×200)

local lymphatic channels and may involve any nearby structure such as thyroid, pleura, pericardium, perihilar lungs, subcutaneous tissue, skin, epidural tissue and other similar sites of involved lymph node.[9] However, distant extranodal spread in HL occurs exclusively in liver, bone marrow, lung, or bone. This is always preceded by splenic involvement and may be occult or vivid.

Review of literature reveals only 0.1% cases showing primary soft tissue involvement and more so in NHL.[4] Only a few cases of HL have been reported till date with soft tissue mass as a primary presentation.[10] Soft tissue lymphomas primarily involve the subcutaneous and the musculoskeletal tissues without evidence of nodal involvement. These are aggressive in nature with frequent involvement of the adjacent tissues, such as the skin and bone.[4,5] More commonly involved sites are extremity, chest wall, gluteal region and frontal subgaleal as documented in the literature.[5,6] On the other hand, our case initially presented with frontal soft tissue swelling in the absence of bulky lymph node, which is quite different from usual presentation of classical HL.

Central nervous system involvement is also more common in NHL as compared to HL. Sapozink and Kaplan reviewed 2185 patients with Hodgkin lymphoma and found only 12 cases (0.5%) with intracranial HL.[11] The mechanism for brain metastasis could be either through cranial bones or via haematogenous spread, later is more common.[11] Dural involvement is more common than intra cerebral involvement. Brain metastasis in HL has been reported to occur in patients having prolonged disease-free survival and in advance cases. The prognosis of a patient of HL, relapsing with CNS involvement is poor.[12] While the patient developed intracranial metastasis within few months after the diagnosis and succumbed to the disease.

Hodgkin lymphoma is responsive to both chemotherapy and radiation. It is a disease with a good prognosis up to 80% cases can be cured with current treatment options.[9] However, the patient didn't respond to standard treatment (ABVD) and developed metastasis mimicking the aggressive behavior of Soft tissue lymphoma.

In addition, diagnosis of the present case with such an unusual extranodal involvement has to be distinguished from anaplastic large cell lymphoma (ALCL) and diffuse large B-cell lymphoma DLBCL. The enlarged lymph node demonstrated typical multinucleated RS cells with CD30 positive to rule out DLBCL. Differential diagnosis between HL and ALCL was made by ALK expression, and co-expression of CD30 and PAX5 with ALK-negative is very helpful in differentiating this case from ALCL.

CONCLUSION

This case highlights the atypical presentation of HL presenting as soft tissue mass with Intra-cranial metastasis. The disease seems to have aggressive feature and worse prognosis. Due to nonresponding nature with standard treatment, such tumor should be treated as distinct clinical entity. Some other combination regimen may be tried to combat this dreadful disease after enrolment of the patient in a clinical trial.

REFERENCES

1. Zucca E. Extranodal lymphoma: A reappraisal. Ann Oncol 2008;19 Suppl 4:iv77-80.
2. Stein H. Hodgkin lymphoma. In: Swerdlow SH, Campo E, Harris NL, Jaffe ES, Pileri SA, Stein H, *et al.*, editors. WHO Classification of Tumours of Haematopoietic and Lymphoid Tissues. 4th ed. Lyon: IARC Press; 2008. p. 322-42.
3. Derenzini E, Casadei B, Pellegrini C, Argnani L, Pileri S, Zinzani PL. Non-hodgkin lymphomas presenting as soft tissue masses: A single center experience and meta-analysis of the published series. Clin Lymphoma Myeloma Leuk 2013;13:258-65.
4. Corti M, Villafañe MF, Bistmans A, Campitelli A, Narbaitz M. Soft-tissue masses as presentation of non-Hodgkin's lymphoma in AIDS patients. An Bras Dermatol 2013;88:631-4.
5. Travis WD, Banks PM, Reiman HM. Primary extranodal soft tissue lymphoma of the extremities. Am J Surg Pathol 1987;11:359-66.
6. Salamao DR, Nascimento AG, Lloyd RV, Chen MG, Habermann TM, Strickler JG. Lymphoma in soft tissue: A clinicopathologic study of 19 cases. Hum Pathol 1996;27:253-7.
7. Sutcliffe S, Gospodarowicz MK. Primary extranodal lymphomas. In: Canellos GP, Lister TA, Sklar JF, editors. The Lymphomas. Philadelphia: W.B. Saunders Company; 1998. p. 449-79.
8. Da Costa AA, Flora AC, Stroher M, Soares FA, de Lima VC. Primary Hodgkin's lymphoma of the rectum: An unusual presentation. J Clin Oncol 2011;29:e268-70.
9. Connors JM. Clinical manifestations and natural history of Hodgkin's lymphoma. Cancer J 2009;15:124-8.
10. Dirim B, Karakas L, Oyar O, Bener S, Sener M, Yagtu M, *et al.* An unusual Hodgkin's lymphoma case presenting with upper extremity multiple masses. Clin Imaging 2012;36:873-6.
11. Sapozink MD, Kaplan HS. Intracranial Hodgkin's disease. A report of 12 cases and review of the literature. Cancer 1983;52:1301-7.
12. Norum J, Wist E. Cerebral metastasis in Hodgkin's disease. Tidsskr Nor Laegeforen 1990;110:3240-1.

Cite this article as: Kushwaha VS, Srivastava K, Husain N, Singh S. Unusual case of Hodgkin lymphoma presenting as soft tissue mass with intracranial metastasis and review of literature. Clin Cancer Investig J 2015;4:419-21.

Source of Support: Nil, **Conflict of Interest:** None declared.