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Uncommon Presentation of Hodgkin's Lymphoma: A Case Report

C. E. Nonyelu[1*], A. J. Madu[1], I. O. Anigbogu[1] and O. C. Okafor[2]

[1]Department of Haematology and Immunology, College of Medicine, University of Nigeria, Ituku-Ozalla, Enugu, Nigeria.
[2]Department of Morbid Anatomy, College of Medicine, University of Nigeria, Ituku-Ozalla, Enugu, Nigeria.

Authors' contributions

This work was carried out in collaboration among all authors. Author CEN wrote the abstract, case presentation and part of the discussion. Author AJM wrote the part of the discussion. Author IOA wrote the introduction and part of the discussion. Author OCO described the histology, immunopheno typing and wrote part of the discussion. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Hodgkin's lymphoma is a lymphoid malignancy that rarely presents with extranodal involvement and even rarer is presentation involving the central nervous system (CNS). The index patient had a diagnosis of Hodgkin's lymphoma made from histology and immunophenotyping of the cervical lymph node biopsy. However, involvement of the thoracic vertebrae and epidural with attendant neurological manifestations occurred while on treatment. The central nervous system (CNS) involvement was not biopsied but an impression of Hodgkin's lymphoma with CNS involvement was made based on primary tissue diagnosis and patient treated as such. He passed on subsequently following complications of chemotherapy and radiotherapy.

Keywords: Hodgkin's lymphoma; hematolymphoid malignancy; epidural involvement, Intrathecal chemotherapy.

**Corresponding author: E-mail: charles.nonyelu@unn.edu.ng, cenonyelu@gmail.com;*

1. INTRODUCTION

Hodgkin's lymphoma is a potentially curable haemato-lymphoid malignancy which is characterized microscopically by presence of Reed-Sternberg cells [1]. Contiguous involvement of lymph node groups is the most common mode of presentation.

We present a case of central nervous system (CNS) involvement in Hodgkin's lymphoma. This is a very rare form of presentation as search of relevant literature show an incidence of about 0.2%-0.5% [1]. It is important to point out that most of the published works on CNS involvement on Hodgkin' lymphoma appear as case reports and case series with dearth of such reports in our environment. This paucity of published data on this complication impacts negatively on clinical decision making for effective patient management.

2. CASE PRESENTATION

KO is a 37 years old business man who has been ill for about six months prior to presentation. Symptoms include back pain which was moderate to severe and necessitated opiate analgesics, some degree of weight loss, intermittent fever, cough and weakness of gradual onset. The patient has been on treatment for peptic ulcer and the accompanying back pain was viewed as an evidence of worsening of the peptic ulcer disease. He was not a known diabetic or hypertensive. Positive examination finding on presentation was just pallor. Investigations showed; Hb of 9.3g/dl, total white cell count of 5.8 x 10^9/l , platelet count of 91x 10^9/l with hypochromic, microcytic red cells. Erythrocyte sedimentation rate was 41mm 1st hr. Liver function test showed deranged liver enzymes while a chest X-ray done was normal. Abdominal ultrasound scan showed hepatosplenomegaly and a chest computerized tomography noted bilateral paravertebral lymphadenopathy with a final impression of ankylosing spondylitis. Upper and lower gastrointestinal endoscopy was done with only remarkable feature being gastritis. Gastric biopsy was also done along with the endoscopy. Gastric biopsy report came out as chronic gastritis, hence the patient was commenced on Helicobacter pylori eradication therapy. He was also started on steroid and rituximab based on positive autoantibody screening.

Roughly 3 months after the onset of the aforementioned symptoms, patient was gradually losing weight and was becoming breathless. At this point physical examination revealed a right pleural effusion and multiple significant lymph nodes involving the right cervical, bilateral axillary and bilateral inguinal nodes. A chest X-ray done showed massive right pleural effusion with lung collapse and mediastinal lymphadenopathy. Thoracocentesis was done along with an excision biopsy of the right cervical lymph node. The histology of the lymph node biopsy came out as Hodgkin's lymphoma (nodular sclerosis variant) which was CD30 and CD15 positive. Cytological analysis of the pleural aspirate was done and showed presence of malignant cells in the pleural fluid.

Patient was commenced on Adriamycin, Bleomycin, Vinblastine and Dacarbazine (ABVD) chemotherapy regimen after optimizing his hematologic parameters. He was also commenced on allopurinol and sodium bicarbonate.

One week after completion of the first cycle of chemotherapy, patient started complaining of heaviness on both limbs. This rapidly progressed over a two days period to a complete loss of power on both lower limbs. Neurologic examination showed power was grade 1 on both lower limbs with no loss of sensation. Magnetic resonance imaging showed multiple thoracic spine metastases with cord compression involving epidural space T6/7 to T7/8.

Based on the above, an impression of Hodgkin's lymphoma with spinal cord compression was made. Systemic chemotherapy was continued, and adjunct intrathecal chemotherapy added (methotrexate, hydrocortisone and cytarabine). He was also commenced on radiotherapy of the affected spine and physiotherapy sessions were also added as part of care.

After completing 5 days of radiotherapy, 4 sessions of intrathecal chemotherapy and an additional 1 cycle of systemic chemotherapy, patient developed pancytopenia and severe intractable diarrhea. On account of possible chemotherapy induced myelosuppression and radiotherapy induced enteritis, he was started on parenteral fluids, anti-motility drugs and octreotide. Parenteral antimicrobials were commenced due to severe neutropenia while also giving transfusion support and patient placed also placed on filgrastim (G-CSF).

Despite these measures patient's condition worsened and he passed on 3 days after onset

of severe neutropenic sepsis and symptomatic severe thrombocytopenia.

3. DISCUSSION

Hodgkin's lymphoma is a potentially curable haematolymphoid malignancy which is characterized microscopically by presence of Reed-Sternberg cells. These are large cells and most of the time binucleated or multinucleated [1]. Lymphoid involvement is usually axial as well as contiguous.

Extra-nodal presentation is unusual and even more rare is CNS involvement which was initially put at 0.2-0.5% but recently reviewed downwards to 0.02% [2,3,4]. It is so rare that it is advocated that other neurologic lesions should be thought of, and thorough investigation done before a conclusion of HL with CNS affectation is made [5]. It usually occurs with advancing/relapsed disease and the histologic subtypes most commonly seen in CNS involvement are mixed cellularity and nodular sclerosis variant [6]. The data on CNS involvement of Hodgkin's lymphoma is mainly based on assumption as almost all case findings are from systemic relapse of the primary diagnosis of HL [2] and as such were majorly not based on histology of the supposed CNS lesion [2].

Neurologic involvement in classical HL results from two main mechanisms which can either be direct metastases of the tumour or indirectly through paraneoplastic phenomena and treatment related neurologic involvement[3]. Direct metastasis to the intracranial, epidural space of the spinal cord, metastatic leptomeningeal disease and intramedullary spinal cord metastasis has been recorded [3]. For the indirect neurological involvement, paraneoplastic syndromes especially immune mediated forms are mainly seen [7] and CNS symptoms tend to occur month after diagnosis of Hodgkin's lymphoma [8]. Other forms of indirect CNS involvement include primary angiitis of CNS [9] and complication arising from HL treatment using radiotherapy and chemotherapy [10].

Spinal epidural Hodgkin's lymphoma is rare and they are mostly observed in the presence of an advanced disease [11,12]. Most epidural presentations are seen concurrently with nodal disease while others though very rare present with the neurologic disease after the primary diagnosis of Hodgkin's Lymphoma [11]. The upper thoracic spine and the lumbar spine are mostly affected [12] and spread to the epidural space is mostly by tumour growth along the intervertebral foramina [13]. The compression of the spinal cord may be as a result of collapse of the vertebrae as this has also been reported in some series [14, 15].

Patients with epidural involvement of Hodgkin's lymphoma, present with progressive back pain which is moderate to severe and found to be worsened by physical activity. The back pain typically precedes the primary diagnosis most of the time [16]. This pain may occur at any spinal level and radiation to any other site may happen. Progressive motor weakness is another very important symptom found in this category of patients [17]. Upper neuron signs like extensor weakness in the upper extremities and flexor weakness in the lower extremities, hyper-reflexia and presence of Babinski sign. Less commonly they may present with sensory deficit.

Epidural involvement of Hodgkin's lymphoma just like any other malignancy compressing the cord is a neurologic emergency [18]. Prompt diagnoses and commencement of treatment is key to overall prognosis of the disease. It is important to note that at presentation, majority of patients will have developed neurologic symptoms [18].

Once suspected, a neurologic and neurosurgery consult is advised then thereafter, imaging is advised to make a definitive diagnosis. Radiologic imaging especially MRI of the entire spine is used for diagnosis [16] but CT myelogram can also be used when MRI is contraindicated.

Traditionally, surgery remains the bedrock of treatment for cord compression from malignancies. However, epidural HL is treated differently with chemotherapy and radiotherapy [19,20] since Hodgkin's lymphoma is both very chemosensitive and radiosensitive. Surgery is mainly restricted to taking biopsy or performing a laminectomy.

The patient in this presentation was treated with both involved field radiotherapy and systemic chemotherapy using ABVD. He was also placed on oral steroid and had intrathecal chemotherapy using methotrexate, cytosine arabinoside and hydrocortisone.

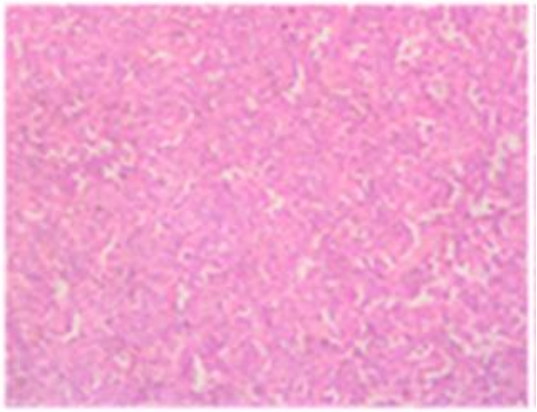

Fig. 1. Lymph node showing loss of normal architecture with numerous large atypical, atypical cells (haematoxylin and eosin stain, X300)

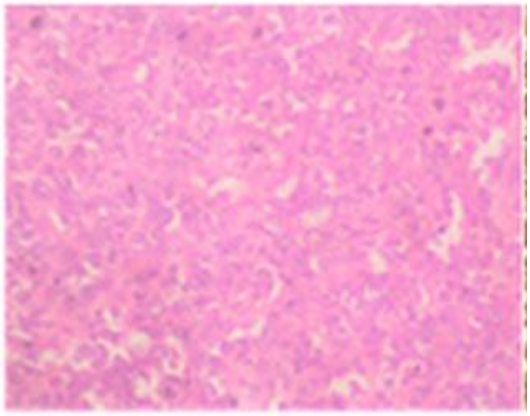

Fig. 2. Higher magnification of the lymph node shows classical Reed-Sternberg with large , mirrored nuclei, nuclear clearing and a prominent eosinophilic nucleolus (haematoxylin and eosin stain, X600)

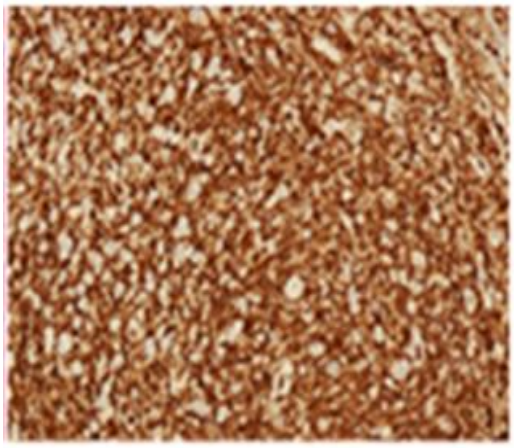

Fig. 3. Lymph node CD 45 Positivity in Hodgkin's Lymphoma (X300)

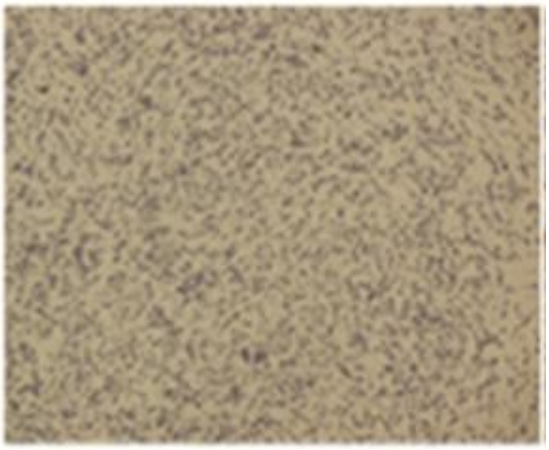

Fig. 4. ALK Negative (X150)

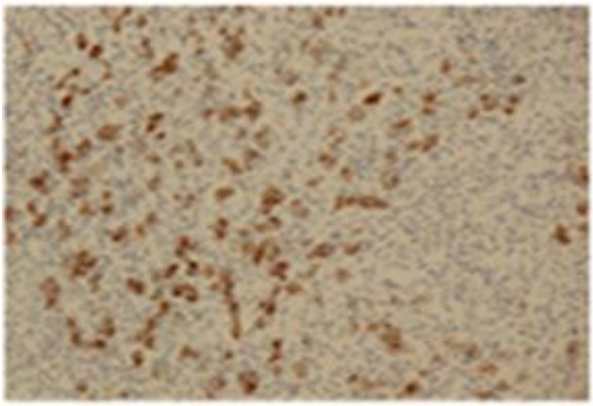

Fig. 5. CD15 Positivity

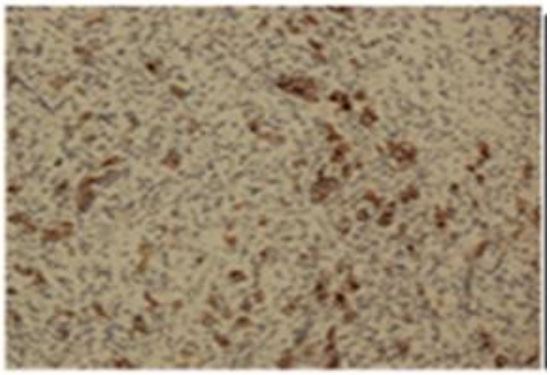

Fig. 6. CD30 Positivity (X150)

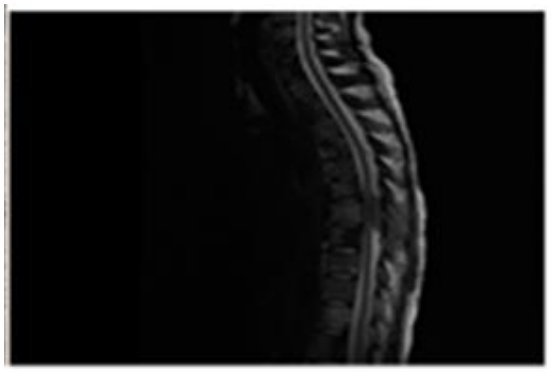

Fig. 7. T2W MRI showing multilevel vertebral body and epidural metastases with thoracic cord compression

4. CONCLUSION

Hodgkin's lymphoma involving the epidural either as primary disease or secondary disease from systemic Hodgkin's lymphoma is rare and should be treated as emergency. A high index of suspicion is needed to make a diagnosis once patients present with probable symptoms of which back pain is the most important. MRI is the gold standard for making diagnosis and once this is made treatment should be started with the sole aim of preventing loss of motor function. Basically, chemotherapy and radiotherapy are standard form of treatment while surgery is needed mainly for cord decompression.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

Not applicable.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Re D, Fuchs M, Schober T, Engert A, Diehl V. CNS involvement in Hodgkins Lymphoma. J. Clin Oncol. 2007;25(21):3182
2. Kuppers R, Hansmann ML. The Hodgkins and Reed/Sternberg cell. Int J Biochem Cell Biol. 2005;37(3): 511-517
3. Grimm S, Chamberlain M. Hodgkins Lymphoma: A review of neurological complications. Adva Hematol. 2011; 2011:624578
4. Cuttner J, Meyer R, Huang YP. Intracerebral involvement in Hodgkins disease : a report of 6 cases and review of the literature. Cancer. 1979;43(4):1497-1506
5. Guermazi A, Brice P, de Kerviler E, et al. Extranodal Hodgkins disease: spectrum of disease. Radiographics. 2001;21(1):161-179.
6. Gessi M, Kuchelmeister K, Keliner U, et al. Unusual clinic-pathological features in primary Hodgkins Lymphomas of central nervous system. Acta Neurochir (Wien). 2013;155(1):19-24
7. Darnell RB, Posner JB. Paraneoplastic syndrome involving the nervous system. The New England Journal of Medicine. 2003;349(16):1543-1554
8. Peltola J, Hietahargu A, Rantala I, et al. A reversible neuronal antibody (anti Tr) associated paraneoplastic cerebellar degeneration in Hodgkins disease. Acta Neurologica Scandinavica. 1998;98 (5):360-363.
9. Birnbaum J, Hellmann DB. Primary angiitis of the central nervous system. Archives of Neurology. 2009;66(6):704-709.

10. Ferme C, Eghbali H, Meerwaldt JH, et al. Chemotherapy plus involved field radiation in early stage Hodgkins disease. The New England Journal of Medicine. 2007;357(19): 1916-1927
11. Al-Khayat H, Al-Khayat H, Al-Baker O, et al. Cervical radiculopathy secondary to Hodgkins lymphoma. Surg Neurol.2007;67:540-543.
12. Samadian M, Vahidi S, Khormaee F et al. Isolated primary spinal epidural Hodgkins disease in child. Padiatr Neurol.2009;40:480-482.
13. Friedman M, Kim TH, Panahon AM. Spinal cord compression in malignant lymphoma: treatment and results. Cancer. 1976;37:1485-1491
14. Mullins GM, Flynn JP, EL-Mahdi AM et al. Malignant lymphoma of the spinal epidural space. Ann Int Med. 1971;74:416-423
15. Haddad P, Thaell JF, Kiely JM et al. Lymphoma of the spinal extradural space. Cancer. 1976;38:1862-1866.
16. Cole JS, Patchell RA. Metastatic epidermal spinal cord compression. Lancet Neurol.2008;7:459-466.
17. Greenberg HS, Kim JH, Posner JB. Epidural spinal cord compression from metastatic tumour: results with a new treatment protocol. Ann Neurol. I980;8:361-366
18. Yanez LM, Miller JJ, Batchelor TT. Diagnosis and management of epidural metastases. Oncology.1990;4(4):47-58
19. Yaman O, Ozdemir N, Sevin IE et al. J Surg Case Rep. 2013.10;rjt 090. doi: 10.1093/jscr/rjt 090
20. Engert A, Schiller P, Josting A et al. Involved field radio therapy is equally effective and less toxic compared with extended field radiotherapy after four circles of chemotherapy in patients with early stage unfavorable Hodgkin lymphoma: results of the HD8 trial of the German Hodgkin lymphoma study group. J Clin Oncol. 2003;21:3601-3608.

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