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Case Report

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NK/T Cell Lymphoma, Nasal Type: a Case Report

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Abstract

Extranodal NK/T cell lymphoma, nasal type is a rare, clinically aggressive, locally destructive and necrotizing disease. It represents 7-10% of all non-Hodgkin lymphomas with a 1-year survival rate of 40%. This case will be the first reported case in the Philippines. We report 44 year old Filipino male who presented with one year history of foul smelling left nasal discharge. Physical examination was unremarkable except for ~1 x 1 cm cavity at the soft palate. Several consult done, given nasal drops and antibiotics with no relief of symptoms. Nasopharyngeal CT scan revealed a 5.2 x 3.1 cm soft tissue mass at left nasal cavity extending into the contralateral nasal cavity, no intracranial extension. After three unremarkable nasal biopsies, histopathology revealed round cell neoplasm, with immunohistochemical stains consistent with NK/T cell lymphoma Nasal type localized disease. Metastatic work up were all unremarkable. He then underwent concurrent chemotherapy with Cisplatin and radiotherapy (30cGY). The palatal cavity increased in size to 3 x 3 cm after completion of radiotherapy, however the soft tissue mass decreased in size hence three cycles of VIPD (etoposide, ifosfamide, cisplatin, dexamethasone) was given. Patient remained asymptomatic, with a good performance score. Nasal endoscopy and nasopharyngeal MRI done post-treatment showed no evidence of lesion with stable palatal cavity defect. CT scan of chest however revealed a left upper lobe non-calcified 2cm nodule with bilateral subpleural nodules.

In a rare yet aggressive malignancy such as NK/T cell lymphoma wherein the primary lesion had good response to treatment, a new lung lesion could impose progressive disease such as metastasis. We could either treat patient as a case of progressive disease and subject him to a battery of chemotherapy or we could biopsy the new lesion. Either way, delay in diagnosis cause undue anxiety and uncanny cost to patient. In our case, biopsy was done and indeed it was of infectious in origin. The malignancy responded well to treatment.

Introduction

Natural killer (NK)/T-celly lyphomas are aggressive malignancies. Occurring worldwide, they show a predilection for Asian and South American populations. These lymphomas occur commonly in nasal and aerodigestive region. Occasionally, they occur in the skin, salivary gland, testis and gastrointestinal tract. NK cells are cytolytic cells targeting tumor cells and bacteria pr virus infected cells [1]. NK cells and T cells share a common ontogeny and express T-lineage associated antigens, including CD2 and CD7. Different from T cells, they are negative for surface CD3 but express cytoplasmic CD3. NK cells also express NK associated antigens, including CD16, CD56 and CD57 with CD56 being the most consistently expressed [2].

Objectives

1. To present a case of NK/T cell lymphoma in a 43 year old Filipino male.
2. To review the incidence, etiology, pathogenesis, clinical manifestations, diagnostic modalities and management of NK/T cell lymphoma.
3. To emphasize biopsy of a new lesion to determine its cause.

The Case

J.F, a 43 year old male, Filipino presented with a nine month history of foul smelling nasal discharge, no associated fever, no headache, no cough. Consult done at a clinic in Qatar wherein he was given unrecalled nasal drops and antibiotics. No relief of symptoms. Five months later, noted bulging at the left side of the nose with associated periorbital swelling, erythema, and tenderness. Noted undocumented fever still no associated symptoms. Consult done at our institution, given clindamycin 300mg/tab 1 tablet TID x 7 days which offered no relief. Computed tomography of nasopharynx (Image 1) done revealed mildly enhancing soft tissue mass lesion measuring about 5.2 x 3.1 cm within the LEFT nasal cavity and LEFT vestibule. Extension into the nasolabial area on both sides, more on the LEFT at the level of the vestibule. Patient had good performance score and unremarkable physical examination except for a 1 x 1 cm soft palate defect.

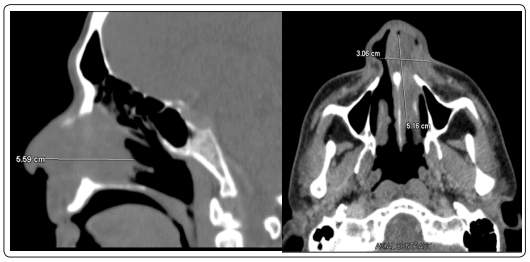

Image 1: CT scan of nasopharynx: soft tissue mass in left nasal cavity

A month later, intranasal punch biopsy was performed which showed few degenerated atypical cells with necrotic detritus (image 2). A repeat biopsy done two weeks later now showed spindle cell lesion with nectrotic detritus. With two inconclusive tissue diagnosis, an open biopsy under general anesthesia was done which now revealed round cell neoplasm. Leukocyte common antigen was positive (image 3) whereas cytokeratin was negative (image 4) which is consistent with high grade Non Hodgkins lymphoma. Further immunohistochemical tests were done revealed CD3, CD56 and In Situ Hybridization for Epstein Bar Virus to be positive with a high KI67 which clinched the diagnosis of NK/T cell lymphoma nasal type.

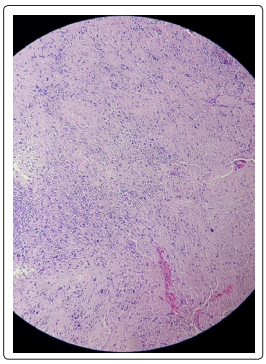

Image 2: First intranasal biopsy showing degenerated atypical cells with necrosis

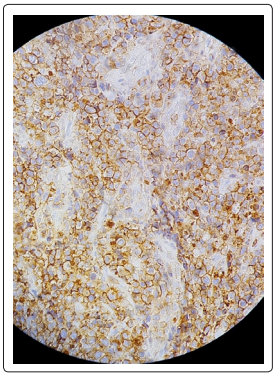

Image 3: LCA positive

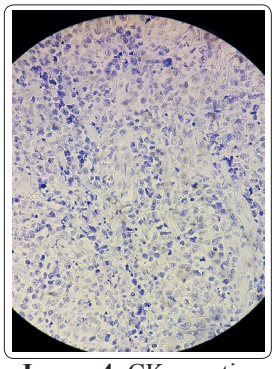

Image 4: CK negative

Chest and Abdominal Computed Tomography were done which revealed no metastasis nor enlarged lymph nodes. Lactate dehydrogenase was within normal level of 180mg/dl. Lumbar puncture done revealed normocellular bone marrow (50-60%) with orderly trilineage hematopoiesis and adequate megakaryocytes. Cerebrospinal fluid analysis was clear, colorless, negative for tuberculosis, india ink stain, cryptococcus and no growth on culture. Based on these work up, patient had localized disease. Concurrent chemotherapy with Cisplatin (40mg/m^2) and radiotherapy 30cGy was done. The palatal defect (image 5) increased in size after completion of radiotherapy now measuring approximately 3 x 3 cm. Systemic chemotherapy then followed with three cycles of VIPD (etoposide 100 mg/m^2 days 1-3, ifosfamide 1,200 mg/m^2 days 1-3, cisplatin 33 mg/m^2 days 1-3, and dexamethasone 40 mg days 1-4). Prior to start of the third cycle of chemotherapy, patient developed febrile neutropenia. Chest xray and urinalysis were unremarkable however with blood culture growth of Pseudomonas aerugenosa. A repeat lumbar puncture was done to rule out probable meningitis, which later showed no growth for gram stain, tuberculosis and KOH. Patient completed ten days of Meropenem and proceeded with his last cycle of chemotherapy after clearance from Infectious Disease service.

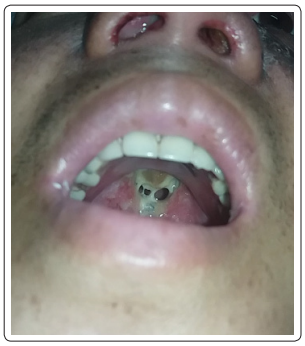

Figure 5: Soft palate cavity post radiation treatment

One month after completion of chemotherapy around July 23, 2016, surveillance studies were done. Nasopharyngeal MRI (image 7) showed no definite residual or recurrent lesion in the right nasal cavity, no enlarged lymph nodes. CT scan of upper abdomen was unremarkable. Chest CT scan (image 8, 9) now showed non-calcified nodule in the left upper lobe measuring 1.7 x 2 cm adjacent reticulonodular densities. A 0.7 x 1.4 cm subpleural nodule noted adjacent to the said nodule. New subcentimeter pulmonary nodules are also seen scattered in the lungs with sizes ranging from 0.2 cm to 0.6 cm. The largest is noted in the RIGHT middle lobe measuring 0.6 cm. Patient had good performance score and has no fever, cough nor dyspnea. The palatal defect stabilized at 3 cm.

Fluoroscopic guided biopsy of lung nodule done which later found out to be tuberculous in origin

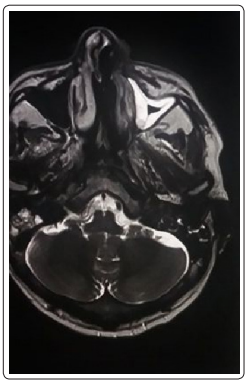

Image 6: To the right is baseline CT scan showing the mass

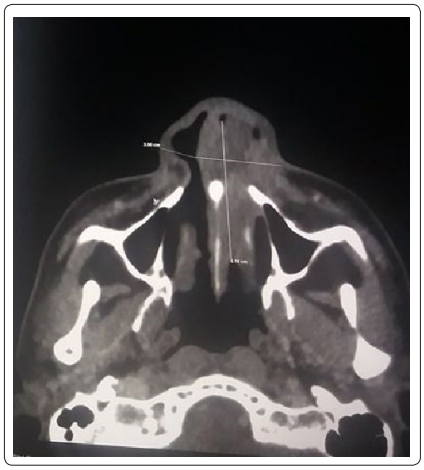

Image 7: To the left is post treatment MRI showing no evidence of measurable disease

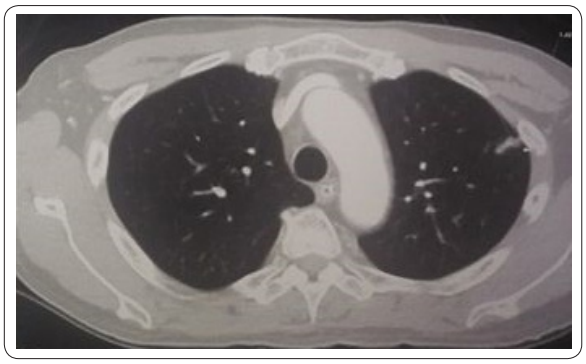

Image 8: To the right showing post treatment CT scan of chest showing a 2 cm left upper lobe nodule

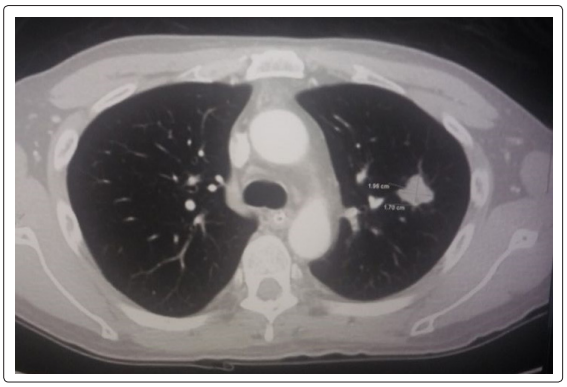

Image 9: To the left showing largest subpleural nodule measuring 1.4 cm

Patient is currently on his first month of anti-tuberculosis medication. He has gained weight and has no fever, no cough. He is now under close surveillance with quarterly monitoring. He is scheduled for palatal defect closure after clearance from pulmonary service.

Discussion

Extranodal NK/T-cell lymphomas characteristically involve the upper aerodigestive tract, with the nasal cavity being the prototypic site [3]. Rarely, the tumour occurs in prostate, adrenal glands and lung [4-6]. According the WHO criterion, the neoplastic lymphoid cells usually co-express NK cell markers such as CD56 and T cell-associated antigens like CD3, CD2 with expression of cytotoxic markers such as TIA-1, Perforin and Granzyme-B [6]. The current case demonstrated the immuno characteristics of tumor cells are typical nasal-type NK/T cell lymphoma: CD^{3+}, CD^{56+}, TIA^{1+}, $Perforin^{+}$, Granzyme B^{+}. As a hallmark of nasal type NK/T cell lymphoma, EBV in situ hybridization clearly supported EBV infection of the lymphoma cells. TIA-1 and EBER were the two most sensitive markers of the disease. However PCR-based TCR gene rearrangement analysis might not be a useful technique for making diagnosis of NK/T cell lymphoma [7]. NK/T cell lymphomas were reported to have a median survival of only 0.28 years [8]. The pathogenesis of extranodal NK/T-cell lymphoma, nasal type, is unknown. However, it is strongly associated with Epstein-Barr virus (EBV) infection [9]. EBV infection is associated with a poor prognosis with a high local recurrence rate, possible extension to other extranodal areas and development of macrophage activation syndrome, the most dreaded complication that occurs in 8 to 12% of cases due to secretion of cytokines by tumour cells, frequently inducing systemic symptoms such as fever and weight loss [10]. In our case, patient is EBER positive hence with increase recurrence rate.

The treatment of extranodal NK/T-cell lymphoma, nasal type, is difficult and complex. Some authors consider that surgery is ineffective and may even cause deterioration of the lesions by inducing rapid progression of the disease. Surgical resection of the lesions has been proposed, essentially for diagnostic purposes, but also to promote drainage of necrotic cavities. Patients with newly diagnosed, stages IE to IIE, nasal Extra Nodal NK/T cell lymphoma are best treated with frontline concurrent chemotherapy and radiation therapy, which our patient underwent [11].

This tumor has a poor prognosis, with a 5-year overall survival ranging between 10 and 45% depending on the series [12,13].

Conclusion

Our case if of a first documented Filipino survivor of NK/T cell lymphoma. After completion of first line treatment, patient had complete response except for a new lung nodule and sub-pleural nodules. In a rare and aggressive malignancy such as NK/T cell lymphoma, where progression free survival is of limited experience, a biopsy of a seemingly metastatic lesion cannot be over emphasized. A new lung nodule and subpleural nodules could be easily labelled as metastatic by an experienced clinician. However taking into consideration the rarity and limited experience of such malignancy, histologic biopsy is warranted to rule out other cause. Indeed for our case, despite two prior negative TB PCR tests, patient's biopsy of the lung nodule turned out positive for tuberculosis. Diagnosis can be challenging hence pathologic examination is necessary for appropriate therapy. NK/T cell lymphoma is an uncommon extranodal disease that frequently relapse with a grave prognosis and its optimal treatment has still not clearly been established. In our case, patient had complete response to first line treatment.

References

1. 1. Spits H, Lanier LL, Phillips JH (1995) Development of human T and natural killer cells. Blood 85: 2654-2670.
2. 2. Swerdlow SH (2008) Extranodal NK/T cell lymphoma, nasal type. In: Swerdlow SH. WHO Classification of Tumours of Heamatopoeitic and Lymphoid Tissues. Lyon: IARC 285-288.

3. Chan JKC, Quintanilla Martinez L, Ferry JA, Peh SC (2008) Extranodal NK/T-cell lymphoma, nasal type, in: WHO classification of tumours of haemopoietic and lymphoid tissues, Lyon: IARC 285-288.
4. Jiang Q, Liu S, Peng J, Xiong H, Xiong Z, et al. (2013) An extraordinary T/NK lymphoma, nasal type, occurring primarily in the prostate gland with unusual CD30 positivity: case report and review of the literature. Diagnostic Pathology 8: 94-99.
5. Tsukahara T, Takasawa A, Murata M, Okumura K, Nakayama M, et al. (2012) NK/T-cell lymphoma of bilateral adrenal glands in a patient with pyothorax. Diagnostic Pathology 7: 114-118.
6. Gong L, Wei LX, Huang GS, Zhang WD, Wang L, et al. (2013) Identification of genuine primary pulmonary NK cell lymphoma via clinicopathologic observation and clonality assay. Diagnostic Pathology 8: 140-146.
7. Pongpruttipan T, Kummalue T, Bedavanija A, Khuhapinant A, Ohshima K, et al. (2011) Aberrant antigenic expression in extranodal NK/T-cell lymphoma: a multi-parameter study from Thailand. Diagnostic Pathology 6: 79-89.
8. Au YW, Weisenburger DD, Intragumtornchai T, Nakamura S, Kim WS, et al. Clinical differences between nasal and extranasal natural killer/T-cell lymphoma: a study of 136 cases from the International Peripheral T-cell Lymphoma Project. Blood 113: 3931-3937.
9. Mestiri S, Zeglaoui I, Sriha B, Belcadhi M, Bouzouita K, et al. Lymphomas of the nasal cavities and sinuses. Ann Otolaryngol Chir Cervicofac 125: 188-192.
10. Al-Hakeem DA, Fedele S, Carlos R (2007) Extranodal NK/T-cell lymphoma, nasal type. Oral Oncol 43: 4-14.
11. Kim SJ, Kim K, Kim BS, Kim CY, Suh C, et al. (2009) Phase II trial of concurrent radiation and weekly cisplatin followed by VIPD chemotherapy in newly diagnosed, stage IE to IIE, nasal, extranodal NK/T-Cell Lymphoma: Consortium for Improving Survival of Lymphoma study. J Clin Oncol 27: 6027-6032.
12. Armitage JO (2009) Peripheral T-cell lymphomas: their time has come. Oncology (Williston Park) 23: 1151-1152.
13. Lee J, Park YH, Kim WS, Lee SS, Ryoo BY, et al. (2005) Extranodal nasal type NK/T-cell lymphoma: elucidating clinical prognostic factors for risk-based stratification of therapy. Eur J Cancer 41: 1402-1408.