International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

A Case Report: Compressive Optic Neuropathy Secondary to Osteosarcoma in Right Scapula

Dr. Abdulazim Junaidi[1], Dr. Payal Gonde[2]

[1]Lecturer, Department of Biochemistry, Tata Memorial Hospital, Mumbai

[2]Speciality Medical Officer, Department of Ophthalmology, KEM Hospital, Mumbai

Abstract: ***Purpose: The purpose of this study was to report the case of a female patient who had an Osteosarcoma in right scapula and undergoing Chemotherapy with Resection surgeries experienced compressive optic neuropathy in right eyes. Case Presentation: This study involved a 25-year-old woman who was previously diagnosed with an Osteosarcoma of right scapula at age 22. A MRI scan revealed High grade osteoid producing Sarcoma in keeping with conventional Osteosarcoma with sclerotic metastasis. At age 23, a tumour resection was performed in conjunction with Chemotherapy and radiation therapy. Two year after resection and chemotherapy, there was marked decreased in visual acuity in right eyes with nasal blurring of disc margin on fundus examination. Conclusion: In this case, a large osteosarcoma occurred in Right scapula and it is thought that optic atrophy was caused by compressive optic neuropathy. Therefore, early detection and treatment are important. This is the first case report of Osteosarcoma causing compressive optic neuropathy.***

Keywords: OS (Osteosarcoma), MRI(Magnetic Resonance imaging), CT(Computed Tomography) NACT(Neoadjuvant Chemotherapy), ACT (Adjuvant Chemotherapy), OCT(Optical Coherent Tomography)

1. Introduction

Osteosarcoma (OS) is a primary malignant bone tumour with a worldwide incidence of 3.4 per million people per year [1]. For most of the twentieth century, five-year survival rates for classic OS were 20%. In the 1970s, the introduction of adjuvant chemotherapy in the treatment of OS increased survival rates to 50% [2–4]. Before the mid-1970s, amputation was the routine treatment for high-grade OS. By 1990, the management of high-grade OS shifted to include more emphasis on chemotherapy and limb salvage. The current survival rate has increased to >65%.Herein, we report a case of Osteosarcoma leading to compressive optic neuropathy.

The technology and techniques used to diagnose osteosarcoma have improved over the past several decades [5]. For any suspected bone lesion, a preoperative imaging protocol should be followed, which includes taking at least two X-ray views of the whole bone and the adjacent joint. Radiographs will show an ill-defined lesion arising at the metaphysis of bone, with osteoblastic and/or osteolytic areas, periosteal reaction, and a soft tissue mass. Computed tomography (CT) scans are useful in defining cortical irregularities, fracture sites, mineralization, and neurovascular involvement.[6]

2. Treatment

Conventional treatment for OS consists of a combination of neoadjuvant and adjuvant chemotherapy, and surgery [7]. Prior to the use of chemotherapy, there was less than a 20% survival rate in high-grade conventional osteosarcoma even with surgical amputation, indicating the presence of metastasis (typically pulmonary) prior to surgery [7]. The low grade can typically be treated with excision alone and chemotherapy is avoided if final pathology confirms low grade.

3. Case report

We report the case of a 25-year-old female. Her chief complaints were sudden decreased visual acuity in Right eye accompanied by headache, a request for ophthalmological examination.

Medical History

Patient diagnosed with osteosarcoma at age of 22.MRI Right shoulder suggestive of ill-defined altered signal intensity lesion 6.6x6, 3x5.9cm involving the coracoid process of scapula, neck, glenoid cavity and superior portion of lateral border of scapula with chondroid matrix abutting the rotator cuff muscles suggestive of neoplastic aetiology. Patient was referred to Tata Memorial hospital where MRI was done.MRI report suggestive of High grade osteoid producing Sarcoma in keeping with conventional Osteosarcoma with sclerotic metastasis. Immediately, neoadjuvant chemotherapy according to the OGS NACT 2012 protocol followed by ACT (Ifosfamide 1.8mg/m2, mesna600mg/m2, and cisplatin 25mg/m2, alternating with cisplatin 33mg/m2, Adriamycin 25mg/m2, ifosfamide 1,8mg/m2,mesna 600 mg/m2) was initiated by the haematologist. A total of 8 cycles of this regimen were administered over 1 year. After 8th cycles, Stereotactic Radiation therapy was given. The treatment was well tolerated and no incidents of major toxicity were recorded.One month later ,Right Scapulectomy surgery was done. After that the patient refused additional chemotherapy due to chemotoxicity and was lost to follow-up. We received informed consent from the patient for this report and its related images.

At age of25-year, woman presented in KEM Hospital with sudden decreased visual acuity in Right eye accompanied by headache. Her medical history and review of systems were unremarkable. Her right visual acuity declined rapidly to No perception of light with a relative afferent pupillary defect.

Ophthalmologic examinations showing nasal blurring of disc margin in Right eye.(Fig.1) and normal peripapillary retinal nerve fibre layer (RNFL) thickness on optical coherence tomography (OCT). Intraocular pressure was 11 and 13 mm Hg in her right and left eye, respectively. No abnormalities of the anterior ocular segment and ocular media were observed. Left eye appears to be normal. To determine the cause of visual symptoms, brain magnetic resonance imaging (MRI)(Fig.2)was performed and showed a 1.5X1.7X1.33cmis seen at Right orbital apex extending intracranially along the right optic nerve in its intracanalicular segment for length of 1.8cm with no diffusion restriction with homogenous post contrast enhancement. The Lesion causing tortuosity of right optic nerve.A biopsy was performed and histologic study confirmed Osteosarcoma consisting of osteoblastic deposits(fig.3)

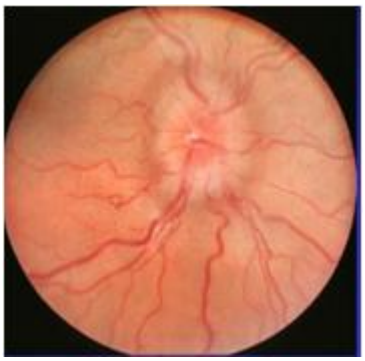

Figure 1: Nasal blurring of disc margin in Right eye

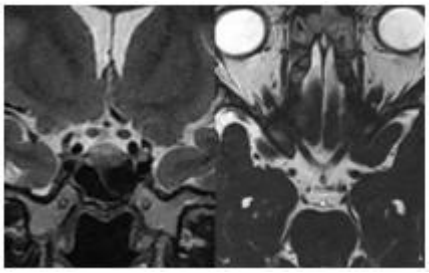

Figure 2: MRI

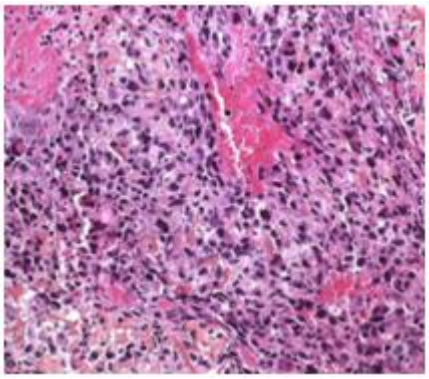

Figure 3: Histologically Osteosarcoma consisting of osteoblastic deposits

4. Discussion

Osteosarcoma is a rare sarcoma that has the histological findings of osteoid production in association with malignant mesenchymal cells[8]. Osteosarcoma is the third most common cancer in adolescence, with only lymphomas and brain tumours being more prevalent, and with an annual incidence of 5.6 cases per million children under the age of 15.[9,10]

In this case, the patient had optic neuropathy of the ipsilateral side accompanied by decreased visual acuity and dyschromatopsia. Based on these neurologic symptoms, the decision to perform brain imaging study was made by the physician. During the process of diagnosis, the tumour size rapidly increased and the visual acuity decreased significantly. Invasion of the orbit by the Osteosarcoma is reported to be very rare. However, in this case, the optic nerve was compressed by the Osteosarcoma, resulting in compressive optic neuropathy.

Tumour within the orbit or optic canal can cause damage to the optic nerve. Direct compression of the optic nerve can cause a reduction in visual acuity and colour vision. Intracranial surgery, chemotherapy, or radiotherapy are conducted with the aim to decompress the nerve by attempting to free it of tumour mass, and thus, enable recovery of function. A dramatic return of vision after treatment of the tumour for compressive optic neuropathy is reported in many cases.

5. Conclusion

To the best of our knowledge, this is the first case report of Osteosarcoma causing compressive optic neuropathy. Especially, as a treatment option, surgical excision, which may lead to optic nerve injury. Our experience highlights that early diagnosis and immediate treatment by close cooperation between the ophthalmologist and oncologist can preserve the patient's life and prevent from permanent visual loss.

Disclosure Statement

The conflicts of authors disclose no potential interest. There is no financial interest behind this study.

References

[1] International osteosarcoma incidence patterns in children and adolescents, middle ages and elderly persons.
[2] Harvei S, Solheim Ø (1981) The prognosis in osteosarcoma: Norwegian national data. Cancer 48, 1719–1723. [PubMed] [Google Scholar]
[3] Sutow WW, Sullivan MP, Fernbach DJ, Cangir A, George SL (1975) Adjuvant chemotherapy in primary treatment of osteogenic sarcoma. A Southwest Oncology Group study. Cancer 36, 1598–1602. [PubMed] [Google Scholar]
[4] Eilber ByF, Giuliano A, Eckardt J, Patterson K, Moseley S, Goodnight J (1987) Adjuvant chemotherapy for osteosarcoma: a randomized prospective trial. J Clin Oncol 5, 21–26. [PubMed]
[5] Metastatic osteosarcoma at diagnosis: prognostic factors and long-term outcome--the French pediatric experience.

[6] Majó J, Cubedo R, Pardo N (2010) Treatment of osteosarcoma. A review. Rev Esp Cir Ortop Traumatol 54, 329–336.
[7] Eilber ByF, Giuliano A, Eckardt J, Patterson K, Moseley S, Goodnight J (1987) Adjuvant chemotherapy for osteosarcoma: a randomized prospective trial. J Clin Oncol 5, 21–26
[8] Osteosarcoma multidisciplinary approach to the management from the pathologist's perspective.*Raymond AK, Jaffe NCancer Treat Res. 2009; 152():63-84.*
[9] Non-metastatic osteosarcoma of the extremities in children aged 5 years or younger.*Abate ME, Longhi A, Galletti S, Ferrari S, Bacci GPediatr Blood Cancer. 2010 Oct; 55(4):652-4.*
[10] Pakos EE, Nearchou AD, Grimer RJ, Koumoullis HD, Abudu A, Bramer JAM, Jeys LM, et al. (2009) Prognostic factors and outcomes for osteosarcoma: an international collaboration. Eur J Cancer 45, 2367–2375