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Proptosis of eye: an atypical presentation of prostatic malignancy.

Amna Amjad
Jinnah Postgraduate Medical Centre, Karachi.

Asif Husain Osmani
Jinnah Postgraduate Medical Centre, Karachi.

Ghulam H
Aga Khan University, ghulam.haider@aku.edu

CASE REPORT

Proptosis of Eye: An Atypical Presentation of Prostatic Malignancy

Amna Amjad, Asif Husain Osmani and Ghulam Haider

ABSTRACT

Orbital metastasis is a rare occurrence found only in about 3 - 10% of all prostate cancers. A 72 years male presented with proptosis of the left eye associated with pain, blurred vision and frequent headaches for the past 8 months. Past medical history had symptoms of bladder outflow obstruction for 3 years. MRI brain and orbit with contrast was consistent with a large soft tissue mass in the left frontal region. The mass was surgically excised in order to achieve palliation. Histopathology revealed poorly differentiated malignant neoplasm with immunohistochemistry favoring metastatic prostate carcinoma. Postoperative radiotherapy was administered with a palliative intent. CT scan identified an enlarged prostate with a nodular lesion, abdominal lymphadenopathy and soft tissue density lesion in the apical segment of left lung. Serum PSA level was 149 µg/L. Bone scan was also consistent with metastatic disease.

Key Words: *Proptosis. Prostate cancer. Cranio orbital extension.*

INTRODUCTION

Prostate cancer is the most common non-cutaneous cancer in men and the second leading cause of cancer death in USA.[1] The incidence of prostate cancer is rising rapidly in most countries including Asian countries.[2] The most common sites of metastases are bone, lung and liver.[3] Orbital metastasis is a rare occurrence found only in about 3 - 10% of all prostate cancers. Its metastasis to the brain has an estimated autopsy incidence of 0.64%.[4] Two theories have been postulated about the mechanism/pathway of brain metastasis. One theory states that intracranial metastasis could be a result of extension from adjacent metastatic foci, for example the bone, dura matter or lung. The other theory is that there is direct access through the paravertebral venous plexus, thus avoiding bone and viscera.[4,5]

The authors present an unusual case of a patient with proptosis as an index sign of prostate malignancy.

CASE REPORT

A 72 years male presented with proptosis of the left eye associated with pain, blurred vision and frequent headaches which was progressive in nature for the past 8 months. Past medical history was consistent with bladder outflow obstruction since 3 years. MRI brain and orbit with gadolinium was done which revealed a large soft tissue mass measuring 7.5 x 4.0 cm in the left frontal region involving the skull vault and extraclavarial region. Intracranial infiltration was also seen. The mass was occupying the left side of the orbit, obscuring the lacrimal gland, recti muscles abducting the eyeball.

Department of Clinical Oncology, Jinnah Postgraduate Medical Centre, Karachi.

Correspondence: Dr. Asif Husain Osmani, House No. 76/II, 14th Street, Khayaban-e-Badar, Phase 6, DHA, Karachi. E-mail: osmaniasif@yahoo.com

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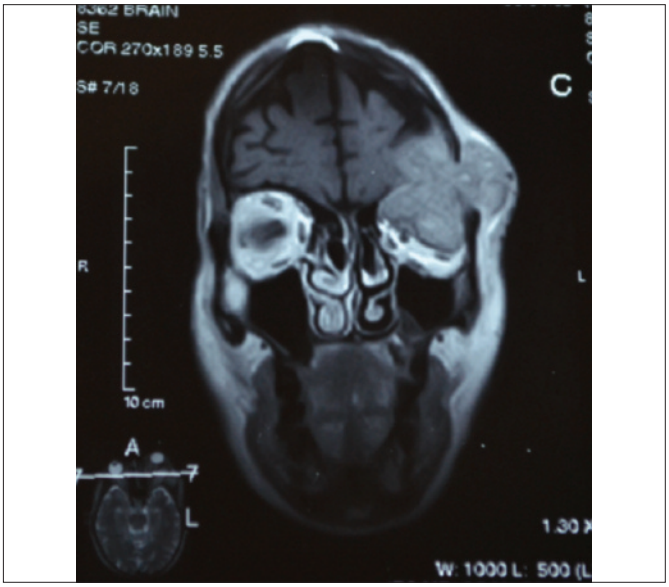

Figure 1: MRI brain and orbit: A large soft tissue mass in the left frontal region involving the skull vault and extraclavarial region with intracranial extension.The mass was occupying the left side of the orbit abducting the eyeball.

However, no infiltration was found in bulbus occuli. There was no evidence of haemorrhage or infarction in the brain (Figure 1).

With the intent of preserving the patient's sight, surgery was performed. The intracranial mass was removed in order to achieve palliation. Histopathology of the specimen revealed poorly differentiated malignant neoplasm favouring metastatic carcinoma. Immuno-histochemistry showed positivity for cytokeratin AE1/AE3 and CD 10. Cytokeratin CAM 5.2 was diffuse strong positive. LCA, Desmin, Neurofilament, CD 138, Synaptophysin, Cytokeratin 7, Cytokeratin 20, p63, GFAP and Vimentin were found to be negative. EMA stain was non-contributory. Postoperative radiotherapy was administered with a palliative intent. Primary site of the tumor was not discernible without clinical correlation.

CT chest, abdomen and pelvis identified an enlarged prostate with a nodular lesion. Left pelvic, para aortic and mediastinal lymphadenopathy was also seen. A soft tissue density lesion was found in the left lung apex, involving the pleura. Serum PSA level was 149 µg/L. Bone scan showed increased tracer uptake involving the superior margin of left orbit with photon deficient area involving frontal bone. Focal areas of increased tracer uptake were noted over left sided 3rd rib, right sided 5th rib anteriorly and trochanteric region left femur. Hormonal treatment with androgen deprivation therapy along with intravenous bisphosphonates was commenced later.

DISCUSSION

Metastasis from primary prostate cancer to the brain is a rare and terminal event with an expected survival of less than one year. Death frequently occurs due to advanced systemic disease. Most patients with brain metastasis have a solitary lesion, although two or more lesions are also found.[4] Metastasis are more commonly from small cell and primary transitional cell carcinoma of the prostate as compared to adenocarcinoma of prostate.[6] Orbital or ocular metastasis is reported in 2 - 5% of all cancer patients, usually in the setting of diffuse metastatic disease. In 25% of the cases, it is the first sign of malignancy.[3]

Clinical presentations are commonly non-focal and included cognitive changes and headaches, possibly related to increased intracranial pressure or diffuse cortical dysfunction. Many patients with intracranial metastasis were asymptomatic when alive, and their cerebral disease was discovered only retrospectively at autopsy.[4,6] The clinical presentation of metastases to the orbital region depends on the structures affected. Pain, diplopia and decreased visual acuity may be present if the orbital bone, soft tissue or globe is affected respectively. These symptoms may progress over weeks to months.[7] The role of Prostate Specific Antigen (PSA) in the early detection of brain metastases from prostate carcinoma is unclear. Due to the rarity of brain metastasis CT or MRI is not indicated for raising PSA levels, which should be used instead if there are neurological signs and symptoms.[6]

Treatments available for intracranial metastasis include neurosurgery, external beam radiation and hormonal manipulation. Untreated, these patients have a grim survival of few months.[4] Surgical removal of the lesion followed by whole brain radiotherapy has shown in studies an estimated survival of approximately 9 months.[5] In another study, surgery plus radiation showed a mean survival of 16 months as compared to 6 months for patients receiving radiation alone.[8] Therefore, for solitary lesions, recommended approach is surgery followed by whole brain radiotherapy. It has also shown improved quality of life and duration of survival more than either modality alone. Treatment with hormonal agents with anti-androgens and LHRH agonist have shown improvement clinically and marked reduction in PSA levels.[9]

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