

Sudden vision loss as a presenting feature of optic nerve compression in a patient with breast cancer: a case report

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Abstract

48 year old female patient presented with complaints of loss of vision, pain and drooping of right upper lid for 25 days. On right eye examination patient had perception of rays in four quadrants, severe ptosis with mild restriction in extra-ocular movements inferiorly and medially and relative afferent pupillary defect. Dilated fundus examination was normal. Left eye examination was normal with best corrected visual acuity 6/6. MRI revealed myositis/ edema with bulky inferior rectus and medial rectus muscles with ill-defined enhancing lesions in soft tissue in right orbit suggestive of inflammatory/thyroid orbitopathy. To start injection Methylprednisolone, Chest X Ray was done which revealed sclerotic metastases. Ultrasonomammography revealed mass in right retro areolar region with right axillary lymphadenopathy. Ultrasound Abdomen with Pelvis showed liver metastases. X ray skull and pelvis with hip joints was suggestive of metastases. True cut biopsy of the breast lump revealed Lobular carcinoma (T4b N1 M1).

Keywords: First presentation, Metastatic Breast Cancer, Optic nerve compression, Orbital metastasis, Vision Loss

Introduction

Orbital and ocular adnexal metastases are rare in comparison with other secondary sites. Orbital metastasis comprises 1% to 13% of all orbital tumors.^[1] 2%-3% of cancer patients develop orbital metastases.^[1] Presence of orbital metastasis carries poor prognosis.^[1,2] Incidence of orbital metastasis among patients with breast carcinoma varies between 8% and 10%.^[3] We report a case of loss of vision as presenting symptom in a female patient with advanced breast cancer.

Case Report

48 year old female presented in Ophthalmology OPD of a tertiary care Hospital with complaint of sudden loss of vision, severe diffuse eye ache in right eye associated with headache and drooping of right upper lid for 25 days. No systemic symptoms, significant past medical, surgical or family history.

Patient had perception of rays in all four quadrants, severe Ptosis with mild restriction in extra-ocular movements inferiorly and medially in right eye. Anterior segment examination revealed relative afferent pupillary defect. Dilated fundus examination was normal. Left eye examination was normal with best corrected visual acuity 6/6.

MRI revealed myositis/ edema with bulky inferior rectus and medial rectus with ill-defined enhancing lesions in soft tissue in right orbit suggestive of inflammatory/thyroid orbitopathy. To start Injection Methylprednisolone, Chest X-ray was done which revealed sclerotic metastasis. With suspicion of malignancy Ultrasonomammography was done which revealed a 2.3×2.1 cm² sized ill-defined irregular echo texture in retro areolar region with enlarged lymph nodes in the right axillary region. Ultrasound abdomen

with pelvis showed liver metastases. X ray skull and pelvis with hip joints suggested metastases.

On repeatedly asking leading questions for presence of any lump, patient gave history of painless lump in right breast for 10-12 years for which no consultation was taken. On examination 5×4 cm² single, non-tender, irregular shaped, hard lump with ill defined, irregular margins in right retro areolar regions spanning all four quadrants in right breast, with skin fixity, nipple retraction, no chest wall fixity, no discharge was present with no palpable lymph nodes in axilla.

True cut biopsy of breast lump revealed Stage 4 invasive Lobular carcinoma (T4b N1 M1).

Discussion

Breast and lung carcinomas in women; lung, prostate and gastrointestinal carcinomas in men are most common primary malignancy metastasizing to the eye and orbit.^[1] Approximately one-third patients have no history of primary cancer at the time of ocular diagnosis. ^[1]Primary tumor can remain undetected in 10% patients.^[1] In a patient with history of cancer presenting with orbital mass, metastases should be the leading diagnostic consideration.^[1]

Tumor cells reach eye via pulmonary circulation causing seeding of tumor emboli in lungs or via Batson Vertebral System of Vessels bypassing the pulmonary circulation. Major blood supply to orbit is through ophthalmic artery branch of internal carotid artery. Ocular and adnexal metastases occur rarely as relatively small percentage of body's blood flows through the ophthalmic artery. Initial tumor emboli can lodge in muscle, fat, bone or involves the orbit diffusely. Breast carcinoma most frequently involves orbital fat and

muscle tissue initially,^[1] whereas prostate and adrenocortical carcinoma involves bone.^[4] Primary and metastatic tumors produce nodular muscle enlargement with sharp borders and frequent bone changes. After initial seeding, most tumors progress to infiltrative non-encapsulated growth. In such situations, inflammatory and infiltrative conditions like Graves' disease, idiopathic orbital inflammation, acromegaly, amyloidosis, trichinosis, carotid-cavernous fistula, rhabdomyosarcoma, orbital lymphoid tumors and systemic vasculitic disease-causing enlarged or 'bumpy' muscles^[5] should be considered. Therefore, Metastatic lesions discretely involving the muscles are most challenging lesions to diagnose.

Choroid is the most common site for uveal metastasis.^[6] Metastases can travel directly to optic nerve, involving the optic nerve anywhere along the course including the optic canal, sheath or the optic nerve head.^[6] Vision loss occurs as a consequence of tumor compression, bone hypertrophy, direct invasion, and secondary to choroidal metastases or from contiguous spread from less common retinal metastases.^[6] Most likely cause of vision loss in this patient is optic nerve compression due to bulky medial and inferior rectus muscles. Metastatic carcinoma to the optic disk may appear as a swollen disk without a distinct mass or as a discohesive cellular infiltration of the superficial aspects of the optic disk.^[6]

Breast cancer metastasizes to involve right or bilateral orbit in 15% patients in comparison with 2–5% as in other metastatic carcinomas. Orbital metastases are noticed after a mean interval of 5 years from primary diagnosis and can occur 2.5 years prior or as long as 25 years after diagnosis of a primary tumor.^[2] Eyelids can also be involved.^[7]

Abrupt and disproportionate number of symptoms should cause suspicion of metastasis.^[1] Common symptoms and signs are limited ocular motility (54%), proptosis (50%), blepharoptosis (49%), palpable mass (43%), blurred vision (23%), pain (17%), visible lump (17%), enophthalmos (11%), and diplopia (9%).^[1] Other signs include exophthalmos, nonconcomitant eye deviation, conjunctival infection, disc edema and retinal folds.

Patients with inflammatory presentation are most often misdiagnosed as having pseudotumor^[2] or orbital cellulitis.^[8] Patients with ophthalmoplegia are frequently misdiagnosed as myasthenia gravis^[2] and those with mass lesions as lacrimal gland tumor. Detailed history, eye examination followed by complete physical examination including breast examination in females, prostate in males, stool test for occult blood, complete blood count for anemia due to gastrointestinal bleeding, etc. should be done. Orbital imaging with CT and MRI should be done. Pattern of orbital involvement on imaging modalities may suggest primary neoplasm. Breast metastases tend to be diffuse and irregular and may grow along rectus muscle or

fascial planes. Orbital biopsy should be done in patients with accessible tumors and in those where a primary malignancy is unknown. Mainstay of treatment is radiotherapy for local involvement,^[1] and chemotherapy for systemic treatment.

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