

Uveoscleral metastasis in laryngeal carcinoma

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Ocular metastatic lesions from head to neck region are rare. 55 years old male patient presented with loss of vision, pain, and proptosis of the left eye. The patient was known case of laryngeal squamous carcinoma underwent laryngectomy 1 and half years back followed by chemoradiation. Well-defined scleral nodule extending from limbus to optic nerve was noted. In view of no other metastatic focus other than left eye on positron emission tomography (PET) scan, left eye enucleation was performed. Histopathological examination (HPE) showed squamous cell carcinoma. The patient received external beam radiotherapy (EBRT) for left eye orbit. This is the first well-documented proven case of uveoscleral metastasis from laryngeal carcinoma.

Key words: Laryngeal carcinoma, orbit metastasis, scleral metastasis, Uvea metastasis

Uveal metastasis is now proved to be the most common tumor of uvea contrary to old belief when it was considered as a rare occurrence. The metastases are hematogenous and are commonly from breast cancer, lung cancer, prostate, and melanoma. In children, the metastasis is from neuroblastoma, Wilm's tumor, Ewing's sarcoma of testis, kidney, or ovary has been reported.^[1]

The first case of orbital metastasis was described by Horner in 1864 where the primary site was the brain.^[2] Metastasis to the eye and adnexa are generally found in the intraocular structures (64%), orbit (29%), optic nerve (3%), and eyelids (2%) and usually present in the late course of the disease.^[1,3] Metastasis in the orbit presents with rapidly progressing proptosis. It can cause infiltration of muscles and tissues causing limitation of movement, ptosis, and diplopia. Fundus changes such as optic disc edema can occur due to the mass effect of secondaries. Other findings include erosion of orbital bone.

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Case Report

A 55-year-old male patient presented with the gradual painful loss of vision in the left eye for 4 months associated with rapidly progressive proptosis. Best corrected visual acuity in right eye was 20/40 and no perception of light in left eye. Left eye pupil was dilated and not reacting to light, cataractous lens with proptosis of 4 mm. Single well-defined yellow-red, elevated partially spherical, firm mass with diameter 1.5 cm in superonasal quadrant without any conjunctival and episcleral adhesion was noted [Fig. 1a]. The anterior border was 4 mm superior to the limbus and the posterior edge could not be visualized. B-scan ultrasonography of the left eye revealed hyperechoic lesion superiorly, sub-Tenon's fluid, hemorrhagic choroidal detachment. The right eye was within normal limits. The patient was a diagnosed case of laryngeal carcinoma with a history of laryngectomy 1.5 years back followed by three cycles of chemoradiation. The patient had no other significant past medical or surgical history.

Computerized tomography showed a well-defined homogeneous isodense mass in the superior part of orbit extending till optic nerve base; complete infiltration of the sclera was seen along with ill-defined heterogeneous mass in vitreous cavity s/o left eye vitreous or choroidal hemorrhage. No bony erosion was noted [Fig. 1b].

Positron emission tomography (PET) scan showed the left eye scleral hyperplastic lesion along with weekly metabolic

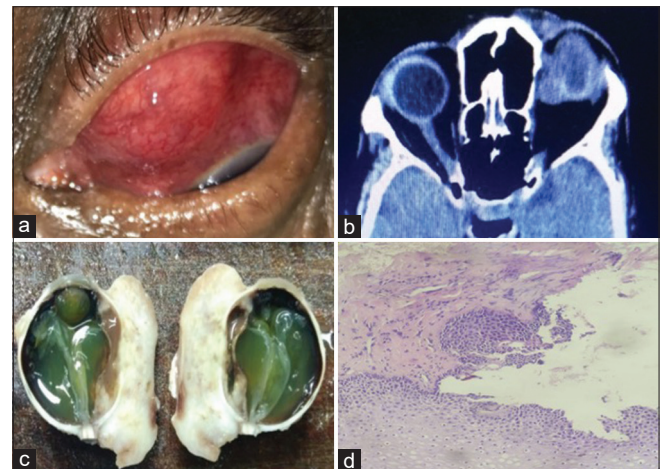


Figure 1: (a) Clinical appearance of solitary uveoscleral nodule in superonasal quadrant with increased vascularity (b) CT scan depicting well-defined homogeneous isodense mass in superior part of orbit extending till optic nerve base; complete infiltration of sclera (c) Enucleated specimen cut section showing large scleral nodule with choroidal hemorrhage and mass (d) Histopathology showing poorly differentiated squamous cell carcinoma

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Table 1: Primary site of uveal metastasis

Study and Year	Ferry <i>et al.</i> , 1974 ^[5]	Freedman and Folk <i>et al.</i> , 1987 ^[6]	Shields <i>et al.</i> , 1997 ^[1]	Shields <i>et al.</i> , 2018 ^[4]
Total patients	227	112	420	1111
Breast	39%	49%	47%	37%
Lung	29%	14%	21%	27%
Kidney	4%	NA	2%	4%
Prostate	NA	4%	2%	2%
Testis	3%	NA	NA	NA
GI tract	NA	4%	4%	4%
Thyroid	NA	NA	NA	1%
Skin	NA	4%	2%	2%
Lung carcinoid	NA	NA	NA	2%
Others (uterus pancreas, ovary, bile duct, bone, adrenal gland)	NA	3%	16%	4%
Undetermined	18%	NA	17%	16%

GI=Gastrointestinal

thoracic node with no other systemic lesions. In view of a single metastatic focus after consultation with a medical oncologist plan for the left eye, enucleation was made. The patient underwent left eye enucleation. Histopathological examination (HPE) revealed an invasive poorly differentiated malignant tumor of squamous differentiation with full-thickness choroidal and scleral invasion and conjunctiva free of tumor [Fig. 1c and d]. The optic nerve was free of tumor. Immunohistochemistry was positive for CK5/6 (specific for squamous epithelial differentiation) and negative for Vimentin. HPE of incision biopsy laryngeal mass (poorly differentiated squamous cell carcinoma) was compared and diagnosis of metastasis was confirmed.

The patient underwent repeat chemotherapy with cisplatin and external beam radiation for left eye orbit of 54 Gy in 27 divided fractions. He developed multiple systemic metastasis 6 months posttreatment and expired a year after diagnosis of orbital metastasis.

Discussion

Uvea being highly vascular structure is also a common site of metastasis in systemic malignancies. Cases of uveal metastasis have been reported from almost all the organs of the body with breast and lung being the most common primary origin.^[4] Nelson *et al.* in their prospective study reported the incidence of ocular metastasis as 4% in patients dying of carcinoma out of 716 eyes autopsied. Subdividing further in the uvea, metastasis occurs most commonly in the choroid (88%) followed by iris (9%), ciliary body (2%).^[1]

Data regarding the primary site of uveal metastasis are comparable among large series of cases reported to date. Ferry *et al.* in 1974 reported 227 cases evaluated in the Armed Forces Institute of Pathology (AFIP) showing the primary site as breast (39%), lung (29%), kidney (4%), and undetermined (18%).^[5] Shields *et al.* in their series of 420 cases in 1997 reported breast (47%) and lung (21%) constituting major primary sites for uveal metastasis followed by gastrointestinal in (4%), kidney (2%), cutaneous melanoma (2%), prostate (2%), and undetermined (17%).^[1,5] [Table 1]

Prognosis

Systemic survival in uveal metastasis patients has been reported variedly in few reports published depending on the origin of the tumor. Survival in patients with lung metastasis ($n=276$ days) was reported significantly less than breast metastasis ($n=666$ days) by Freedman and Folk.^[6] Demirci *et al.* analyzed 264 cases of choroidal metastasis from breast cancer and showed a Kaplan-Meier survival of 1 year in 65% and 5 years in 24% of patients.^[7] The mean survival time of breast cancer metastasis to orbit is better than breast cancer metastasis to the uvea.^[6]

Shields *et al.* in their largest series of 1,111 patients with uveal metastasis showed 5-year survival is better for primary from breast, prostate, cutaneous melanoma compared to lung, GI tract, and thyroid. Worst life prognosis was noted for uveal metastasis with primary tumor from the kidney (2 years—26%) and pancreas (6 months—25%).^[4]

Larynx represents one of the rare primary sites for uveal metastasis with till now only two cases being reported in the literature. These two cases reported were of laryngeal adenoid cystic carcinoma and squamous cell carcinoma. Metastasis in both cases involved choroid and optic disc. In both the abovementioned cases, a biopsy of mass could not be done.^[8,9] In contrary to our patient, who presented with single but large uveoscleral metastatic lesion, diagnosis of metastasis was confirmed with primary from laryngeal carcinoma. Also, metastasis was choroidal and on the optic disc, in reported cases but in our case we had large choroidal hemorrhage with mass along with scleral nodule. All three cases report poor systemic survival after ocular metastasis of laryngeal carcinoma.

This represents a very rare case of laryngeal squamous cell carcinoma with uveoscleral metastasis. Clinical presentation in such a case includes visual loss, orbital pain, exophthalmos, diplopia, and ptosis. Diagnosis is made by histopathological examination of biopsy specimen and whole-body PET-CT scan to rule out distant metastasis.

Conclusion

Laryngeal carcinoma can metastasize systemically even after successful treatment of primary lesion, therefore, whole-body

screening with PET-CT scan and follow-up with the oncologist is very important even post-treatment. Laryngeal carcinoma carries a poor systemic prognosis post metastasis. As per the best of our knowledge, this is the first well-documented case of uveoscleral metastasis from laryngeal squamous cell carcinoma.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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