Cutaneous melanoma with metastasis to the extraocular muscles: a case report

Anshul Radotra[1], Elizabeth Mahon[1], Miss Reena Kumari[1]

1 Ophthalmology Department, University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK.

Background

Metastatic Orbit Tumours are rare: Account for 1-13% of orbital tumours and occur in 1-3% of patients with systemic cancer. Primary neoplasm are more common.[1,2]

Extraocular Muscle Metastasis: Extremely rare, only in 5% of metastatic orbital tumours. Usually from lung, prostate, breast.[2]

Melanoma in Orbit: Represents 5-15% of orbital metastases.[2]

Case Presentation

Patient History:

- 81-year-old male: well-controlled rheumatoid arthritis (on methotrexate) and history of melanoma (Breslow 2.6 mm, stage IIA) over the left forearm.
- The melanoma was managed successfully with wide local excision and a negative sentinel lymph node biopsy. The patient remained in remission for 3 years.

Clinical Examination:

- During a routine follow-up, the patient reported an asymptomatic firm, mobile, well-circumscribed subcutaneous nodule located above the medial aspect of the left elbow crease.
- Excision biopsy of the nodule was performed, revealing metastatic melanoma in a subcutaneous lymph node, with extracapsular extension.

Investigations:

- **Staging computed tomography (CT) scan:** indeterminate intraconal lesion arising from the body of the lateral rectus muscle of the left orbit. Multiple small lung nodules were also detected, suspicious for metastases
- **Ophthalmology Review**: Patient was asymptomatic clinically
- **Intraoperative findings:** A cystic lesion with brown/black discolouration was found within the lateral rectus muscle. On puncture, the lesion released brownish fluid
- **Histopathology**: Biopsy of the lateral rectus muscle spindle cells infiltrating skeletal muscle and fibro-connective tissue, with immunohistochemical staining positive for Melan-A, S100, and HMB45, **confirming metastatic melanoma to the lateral rectus of left eye.**
- **MRI brain:** multiple small sub-centimetric enhancing lesions confirming systemic spread.

Management

Systemic Therapy:

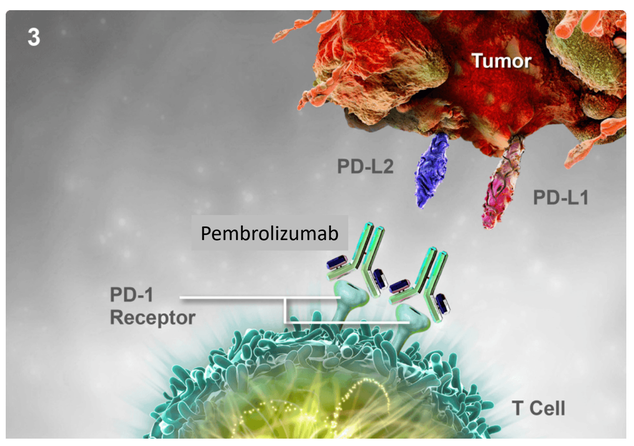
Patient was started on immunotherapy with pembrolizumab, administered intravenously every six weeks in view of widespread systemic involvement.

Ocular Management:

Surgical excision of the lateral rectus muscle lesion was deferred, as the patient was asymptomatic with respect to his ocular status. The priority was placed on systemic therapy and stereotactic radiosurgery for the brain metastases.

Outcome:

Currently undergoing immunotherapy and stereotactic radiosurgery to address the brain metastases. Due to the advanced stage of the disease, the main aim of treatment is palliation and the maintenance of quality of life



Pembrolizumab prevents PD-1 interaction with PD-L1/PD-L2 allowing T cells to be active and attack the cancer cell

Figure 1: Mechanism of action of Pembrolizumab[3]

Discussion

EOM Involvement: Rare in metastatic melanoma due to th constant movement of EOMs and the unfavourable environment for tumour cells.[4]

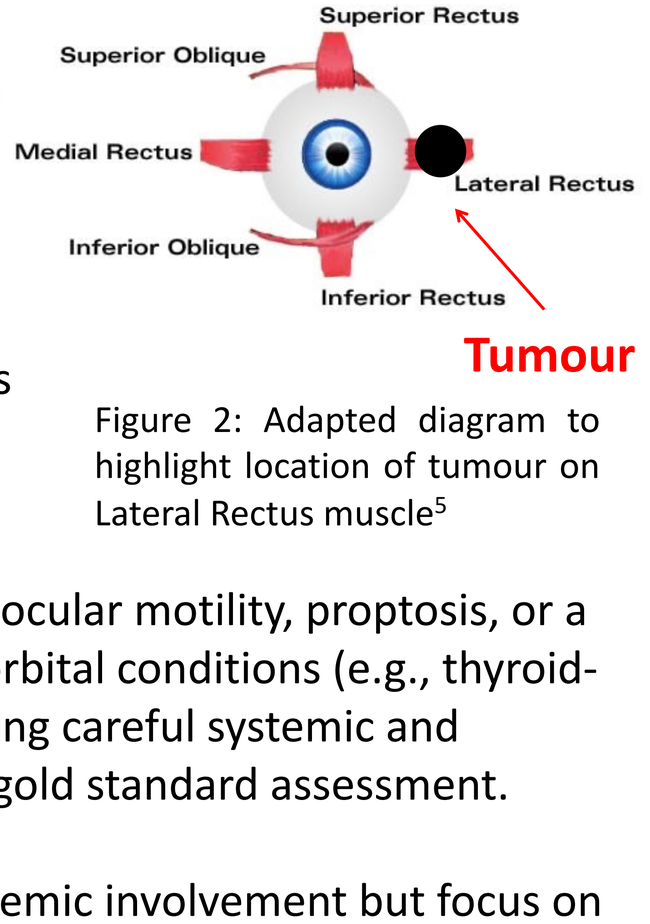


Figure 2: Adapted diagram to highlight location of tumour on Lateral Rectus muscle[5]

Diagnostic Challenges: This was a rare presentation and an incidental finding. Orbital metastasis often present with symptoms such as limited ocular motility, proptosis, or a palpable mass.[2] Mimics other orbital conditions (e.g., thyroid-associated orbitopathy), requiring careful systemic and histological analysis.[2] Biopsy is gold standard assessment.

Management: Depends on systemic involvement but focus on visual function is important.

Conclusion

- This case emphasises the importance of considering metastatic melanoma to the EOM in patients with a history of melanoma presenting with orbital signs, even if asymptomatic.
- Early detection and diagnosis are crucial for optimal management and improved outcomes.

References

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