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DEFINITIVE RADIOTHERAPY FOR MULTIFOCAL OCULAR ADNEXAL MALT LYMPHOMA WITH SYNCHRONOUS FLOOR-OF-MOUTH INVOLVEMENT: A RARE CASE REPORT

Radiotherapy

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ABSTRACT

Extranodal marginal zone lymphoma of mucosa-associated lymphoid tissue (MALT lymphoma) is an indolent B-cell lymphoma. Ocular adnexal disease is well recognized, whereas synchronous involvement of another non-contiguous head-and-neck mucosal site is uncommon. We report a 50-year-old woman presenting with painless right lower-eyelid and infraorbital swelling with intermittent blurring of vision. Imaging demonstrated bilateral inferior orbital preseptal soft-tissue thickening, greater on the right, with bilateral lacrimal gland enlargement. Right orbital biopsy confirmed extranodal marginal zone lymphoma of MALT type. During evaluation, a painless right floor-of-mouth swelling was detected; biopsy demonstrated concordant marginal zone lymphoma involving minor salivary gland-associated tissue. Bone marrow examination showed no lymphoma involvement and gastric evaluation was negative for Helicobacter pylori. Definitive intensity-modulated radiotherapy was delivered on an Elekta Versa HD using thermoplastic head-and-neck immobilization and daily cone-beam CT. A dose of 24 Gy in 12 fractions was prescribed. Acute conjunctivitis resolved with symptomatic management within two weeks. PET-CT at six months showed complete metabolic response, and the patient remained clinically disease-free at nine months. This case highlights the importance of multisite assessment and the efficacy of moderate-dose definitive radiotherapy in multifocal MALT lymphoma.

KEYWORDS

MALT lymphoma; ocular adnexal lymphoma; floor of mouth; radiotherapy.

INTRODUCTION

Marginal zone lymphomas are indolent B-cell non-Hodgkin lymphomas comprising extranodal marginal zone lymphoma of mucosa-associated lymphoid tissue (MALT lymphoma), splenic marginal zone lymphoma and nodal marginal zone lymphoma. MALT lymphoma may arise in the stomach, ocular adnexa, salivary glands, thyroid, lung, skin and other extranodal sites (Cheah et al., 2022; Walewska et al., 2024). Ocular adnexal MALT lymphoma commonly presents as a slowly progressive painless lesion involving the conjunctiva, orbit, eyelid or lacrimal gland. Most patients have localized disease and achieve excellent local control with moderate-dose radiotherapy (Lim et al., 2011; Zucca et al., 2020). Multifocal involvement of separate mucosal or gland-associated sites is less common and is relevant to staging, treatment and surveillance. We describe ocular adnexal MALT lymphoma with synchronous floor-of-mouth involvement, focusing on diagnostic confirmation and definitive radiotherapy.

CASE REPORT

A previously well 50-year-old woman presented with painless, gradually progressive swelling of the right lower eyelid and infraorbital region for approximately six weeks. She reported intermittent blurring of vision but no diplopia, pain on eye movement or proptosis. There were no B symptoms. Examination showed diffuse right inferior orbital soft-tissue fullness with mild downward displacement of the lower eyelid and mild left inferior preseptal fullness. Visual acuity was preserved bilaterally and extraocular movements were full. The lacrimal glands were mildly bulky bilaterally.

Approximately eight weeks after onset of orbital symptoms, she noticed a painless swelling beneath the tongue on the right. Intraoral examination showed a soft, non-tender submucosal swelling measuring approximately 1 × 0.5 cm anterior to the lingual frenulum, with intact overlying mucosa and no impairment of speech, chewing or swallowing.

Contrast-enhanced CT of the orbits demonstrated bilateral inferior orbital preseptal soft-tissue thickening, right greater than left (0.75 cm versus 0.45 cm), with mild enhancement and bilateral diffuse lacrimal gland enlargement. There was no bony erosion or extraocular muscle involvement. Whole-body 18F-FDG PET-CT demonstrated hypermetabolic right infraorbital soft-tissue thickening (SUVmax 5.3), without convincing FDG-avid nodal or distant lymphoma. Mild hepatosplenomegaly was present without focal FDG-avid lesions. Ultrasonography of the floor-of-mouth/submental region showed an ill-defined heterogeneous hypoechoic lesion measuring approximately 2.5 × 1.6 cm with internal septations and vascularity.

Right orbital biopsy demonstrated monomorphic monocytoid small B cells. Immunohistochemistry showed diffuse CD20 and Bcl-2 positivity with negativity for CD10, Bcl-6, Cyclin D1 and CD23; Ki-67 was approximately 8–10%, supporting extranodal marginal zone lymphoma of MALT type. Floor-of-mouth biopsy showed a subepithelial atypical lymphoid infiltrate involving minor salivary glands with lymphoepithelial lesions. The cells were positive for CD20 and Bcl-2 and negative for CD10, Bcl-6, Cyclin D1, CD43 and MNDA, with Ki-67 approximately 20%, supporting concordant marginal zone lymphoma.

Table 1. Comparative immunohistochemical profile of the two biopsy sites.

Marker	Right orbit	Floor of mouth
CD20	Diffuse positive	Positive
Bcl-2	Positive	Positive
CD10	Negative	Negative
Bcl-6	Negative	Negative
Cyclin D1	Negative	Negative
Ki-67	8–10%	~20%
Lymphoepithelial lesions	Absent	Present
Interpretation	Extranodal MZL (MALT type)	Marginal zone lymphoma

Complete blood count showed mild thrombocytopenia (128 × 10^3/μL) with otherwise preserved counts. Renal and liver biochemistry, serum lactate dehydrogenase and β2-microglobulin were within normal limits. Oesophagogastroduodenoscopy showed normal upper gastrointestinal mucosa and testing for Helicobacter pylori was negative. Bone marrow aspirate and trephine biopsy showed trilineage haematopoiesis without morphological lymphoma involvement.

RADIOTHERAPY AND OUTCOME

Following multidisciplinary evaluation, definitive radiotherapy was selected. The patient was immobilised with a thermoplastic head-and-neck mask and treated with intensity-modulated radiotherapy (IMRT) on an Elekta Versa HD linear accelerator. Gross tumor i.e., right lacrimal gland and right side Floor of the mouth (minor salivary glands) volumes were defined from clinical, imaging and pathological information. Clinical target volumes encompassed the involved anatomical compartments and potential microscopic disease while respecting anatomical boundaries. A planning target volume margin was applied of 3 mm according to institutional setup practice. Daily cone-beam CT was used for image guidance.

A total dose of 24 Gy in 12 fractions of 2 Gy per fraction was delivered

over approximately three weeks. Treatment was completed as planned. Acute conjunctivitis developed 1 week followed by treatment, was managed symptomatically and resolved completely within two weeks.

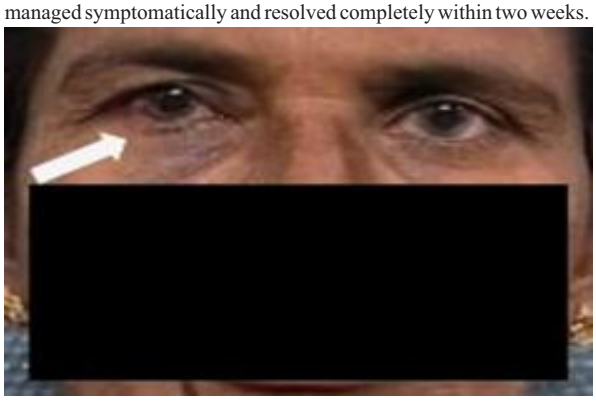

Figure 1: Before Radiotherapy- Swelling of right lower eyelid and infraorbital region.

Figure 2: At 1 month follow up after completion of radiotherapy.

PET-CT at six months demonstrated complete metabolic response with no residual FDG-avid disease. At nine months, the patient remained clinically disease-free without evidence of local or distant recurrence.

DISCUSSION

Ocular adnexal MALT lymphoma generally has an indolent course and favourable prognosis. In a series of 95 patients, most presented with localised disease and radiotherapy produced excellent outcomes (Lim et al., 2011). The unusual feature in the present patient was synchronous involvement of minor salivary gland-associated tissue in the floor of mouth. Histological concordance at both sites supported multifocal extranodal marginal zone lymphoma rather than two unrelated processes.

Multifocal extranodal involvement is clinically relevant because MALT lymphoma can disseminate between mucosal sites and may relapse at distant extranodal locations. Multifocal disease has also been associated with an increased risk of progression and histological transformation in some series (Alderuccio et al., 2018). Therefore, an apparently localised ocular adnexal lesion warrants appropriate systemic evaluation, and new lesions should be biopsied whenever feasible.

MALT lymphoma is highly radiosensitive. Guidelines support moderate-dose involved-site radiotherapy for localised extranodal marginal zone lymphoma, with doses around 24–30 Gy providing durable local control (Walewska et al., 2024; Zucca et al., 2020). In this patient, 24 Gy in 12 fractions was used. IMRT was advantageous for conformal treatment of anatomically complex ocular and head-and-neck targets, while daily CBCT improved treatment reproducibility. Complete metabolic response at six months and absence of clinical disease at nine months are consistent with the expected radiosensitivity of MALT lymphoma. Acute toxicity was limited to transient conjunctivitis.

The relatively short follow-up is a limitation because late extranodal relapse and late radiation effects cannot yet be assessed. Molecular studies for recurrent MALT lymphoma-associated abnormalities were not performed. Continued long-term surveillance is therefore required.

CONCLUSION

Multifocal MALT lymphoma involving the ocular adnexa and floor of mouth is an uncommon presentation requiring careful clinical, pathological and systemic assessment. Biopsy confirmation of separate lesions is valuable for defining disease extent. Definitive IMRT to 24 Gy in 12 fractions achieved complete metabolic response with limited acute toxicity in this patient. Long-term surveillance remains important because of the potential for late or multifocal extranodal recurrence.

DECLARATIONS

- **Patient consent:** Written informed consent for publication of clinical details and images obtained before submission.
- **Conflict of interest:** The authors declare no conflict of interest.
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- **Ethical approval:** Not applicable

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