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Orbital signet-ring cell lymphoma of diffuse, large, B-cell type

Signet-ring cell lymphoma (SRCL) is a rare morphologic variant of non-Hodgkin lymphoma with a “signet-ring cell” appearance. It has been described in both B-cell and T-cell lymphomas.¹ We report an orbital SRCL of diffuse large B-cell type in a 60-year-old male, which, to the best of our knowledge, is only the second case to be described in the literature.

A 60-year-old male presented to our clinic with complaints of painless, gradually progressive protrusion of his left eye for 18 months. External examination of the left eye showed a firm swelling superomedial and inferomedial to the globe associated with lid swelling (Fig. 1A). The distinct masses were nodular, and the posterior extent could not be ascertained. Orbital rims were intact and the overlying skin was normal. The masses were not freely mobile. Anterior segment evaluation, visual acuity, and fundus examination were normal. Computed tomography showed a well-defined hypodense to isodense, lobulated soft tissue lesion on the left side extending from the preseptal plane to the mid-orbit nasally and into the extraocular muscle cone within the orbit

preseptal plane to the mid-orbit nasally and into the extraocular muscle cone. Anteriorly the mass extended up to the bridge of the nose; the bony orbit showed no change, and there was no involvement of the nose or sinuses (Fig. 1B, 1C).

Microscopic examination of the incision biopsy from the orbital mass showed a diffusely infiltrating cellular tumour composed of large, noncohesive cells in a sclerotic stroma with foci of necrosis. Many of the tumour cells had large, round, cytoplasmic vacuoles and eccentrically placed atypical nuclei (Fig. 2A). Immunostaining was positive for leukocyte common antigen (Fig. 2B) and CD20 (Fig. 2C) in all tumour cells. Fifty-three percent of the cells were immunoreactive for Bcl-6. A positive reaction was seen for lambda light-chain restriction. Ki-67 activity was 70% to 80% (Fig. 2D). The tumour cells were negative for CD5, CD10, CD23, HMB45, pancytokeratin, S100, epithelial membrane antigen, smooth muscle actin, cytokeratin 7, and cytokeratin 20. They were also negative on periodic acid–Schiff (PAS) and Alcian blue staining. Systemic examination and bone marrow examination were normal. Our patient was thus categorized as Ann Arbor stage I and American Joint Committee on Cancer stage T3N0M0. He was started on a CHOP regimen composed of cyclophosphamide, hydroxydaunorubicin, Oncovin (Vincristine), and prednisolone. In addition, external beam radiotherapy (EBRT) of 4000 cGy was also given. A marked reduction in size of the tumour was seen after the first cycle, and a CT scan at the end of third cycle did not show any residual tumour.

Ocular adnexal lymphomas are rare, accounting for only 1% to 2% of all lymphomas.² Diffuse large B-cell lymphoma (DLBCL) is a high-grade lymphoma that commonly presents with systemic involvement.³ Most ocular adnexal lymphomas are low-grade extranodal marginal zone lymphomas of B-cell type. Morphologic variants of DLBCL include centroblastic, immunoblastic, T-cell/histiocyte-rich and anaplastic subtypes.⁴ SRCL, most commonly described as a variant of follicular lymphoma, has been rarely described in DLBCL.⁵ To date, only about 50 cases of SRCL have been described in the literature.⁶ Most commonly affecting the lymph nodes, SRCLs have been described to involve the skin, stomach, thyroid,¹ small bowel, and bone marrow.^{7–12} Orbital SRCL is rare, with only 1 such case described previously in the literature.¹³ Our case represents the second reported case of orbital SRCL. Based on the morphologic and immunohistochemical features, SRCLs are classified into 3 subtypes: clear vacuole type, Russell

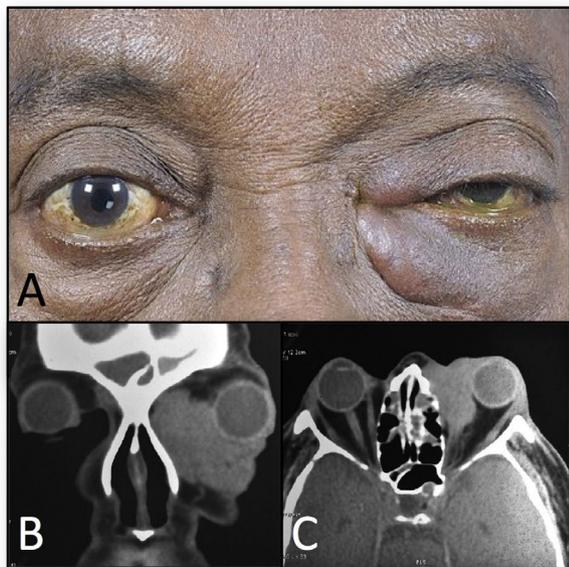


Fig. 1—External examination of the left eye showing a firm to hard swelling, superomedial and inferomedial to the globe associated with lid swelling (A). CT shows a well-defined hypodense to isodense, lobulated soft tissue lesion on the left side extending from the preseptal plane to the mid-orbit medially and into the extraocular muscle cone within the orbit (B, C).

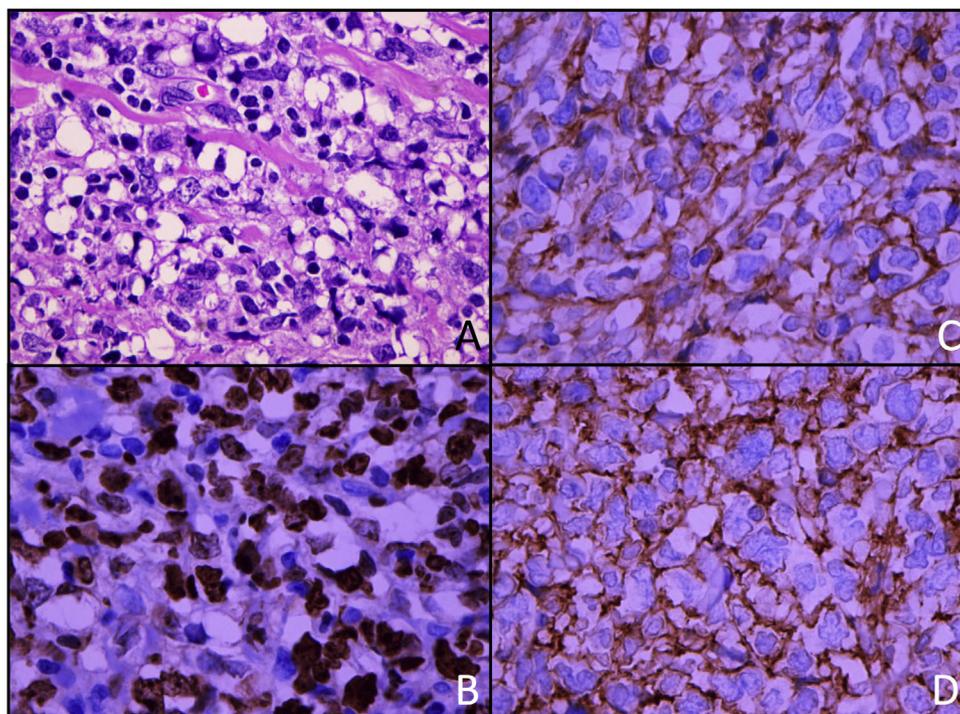


Fig. 2—Microscopic examination showing large tumour cells with abundant clear cytoplasmic vacuoles and atypical peripheral nuclei (A, hematoxylin and eosin $\times 400$). Immunohistochemical staining showing reactivity for Ki-67 (B), CD20 (C), and leukocyte common antigen (D). Original magnification $\times 400$.

body type, and hyaloplasmic deposit type.¹¹ Our patient has the clear vacuole type of SRCL. SRCLs have been described in both B-cell and T-cell lymphomas.^{6–11} Although more commonly associated with follicular type non-Hodgkin lymphoma, SRCL has been described rarely in large B-cell lymphoma.⁵ Our case was an SRCL of diffuse, large, B-cell type. The tumour cells in SRCL have been described to contain immunoglobulins, as was in our case.¹¹ Ultrastructural examination of SRCL has revealed giant multivesicular bodies and electron-dense crystalloids enclosed within expanded segments of rough endoplasmic reticulum.^{5,14} Mucin is absent in SRCL, as opposed to a signet-ring cell adenocarcinoma, with which it can be confused morphologically, and PAS and Alcian blue staining were both negative in our patient. No known associations or risk factors predisposing to SRCL exist. Clinical manifestations of SRCL are similar to non-SRCL.¹¹ The diagnosis relies on morphological findings and immunohistochemical features. The treatment for SRCL is similar to other lymphomas consisting of chemotherapy and/or radiotherapy depending on the location and stage of the tumour. Our patient was given EBRT and chemotherapy composed of a CHOP regimen. He responded significantly to the treatment administered.

In conclusion, this is an unusual case of orbital SRCL, a rare variant of DLBCL. It is important to know the morphologic and immunohistochemical features of this variant, and thus differentiate it from a metastatic signet-ring carcinoma and orbital liposarcoma, both of which can

be confused with and have different behaviour and management protocols.

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Invasive conjunctival squamous cell carcinoma presenting with serous retinal detachment

Conjunctival squamous cell carcinoma (SCC) typically presents with redness, irritation, tearing, and/or foreign body sensation, although 30% of patients are asymptomatic.^{1,2} Visual loss is unusual and typically from corneal involvement.^{1,2} Intraocular invasion and metastases to lymph nodes are rare.³ We report a patient with an unresectable laryngeal carcinoma who experienced development of an *independent* primary epibulbar conjunctival SCC with intraocular invasion and serous retinal detachment.

A 60-year-old heavy smoker presented with sudden, painless loss of vision in the right eye. Two years prior, he had undergone 3 cycles of chemotherapy and radiotherapy for unresectable, moderately differentiated T4N2cM0 invasive laryngeal SCC. One year later, CT scan demonstrated an unresectable oropharyngeal recurrence that was a poorly differentiated SCC on biopsy.

In the right eye, best corrected visual acuity was 20/200 with a relative afferent pupillary defect and superotemporal peaking of the iris. The sclerotic conjunctival lesion in [Figure 1](#) was noted. The anterior chamber was shallow with superotemporal angle closure gonioscopically. Dilated funduscopy showed superotemporal and inferior retinal detachments, with shifting fluid on B-mode ultrasonography. There was no lymphadenopathy. The left eye was normal.

Biopsy showed SCC, originally thought to be metastatic, but repeat CT of the neck showed no interval progression of the laryngeal cancer. The subsequent vision remained limited, and we proceeded with enucleation per the oncologist's request for definitive diagnosis.

Microscopic examination of the enucleated specimen revealed SCC in the perilimbal conjunctiva with lateral rectus muscle involvement. Islands of tumour cells had invaded the sclera, iris, and posterior uveal tract with an overlying serous retinal detachment ([Figs. 2, 3](#)). Portions



Fig. 1—Clinical photograph showing a minimally elevated, 8 × 5-mm, white, sclerotic, epibulbar lesion composed of thickened, irregular tissue that abuts the temporal limbus. Large dilated vessels surround the lesion. The iris is peaked superotemporally where gonioscopic angle closure was noted.

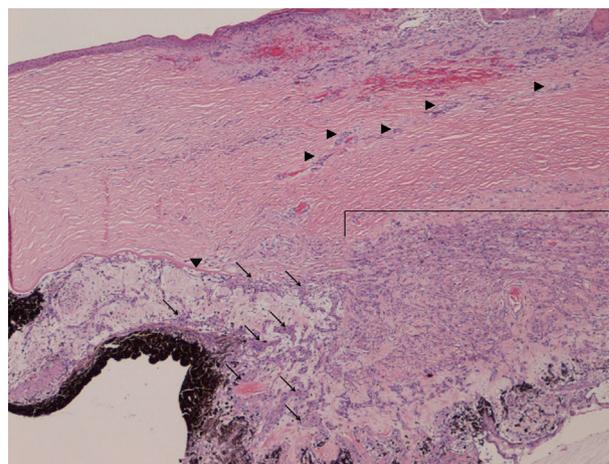


Fig. 2—Enucleated right eye specimen showing perilimbal conjunctival squamous cell carcinoma infiltrating the sclera (*horizontal arrowheads*) and uveal tract: Well-differentiated nests (*arrows*) are seen in the iris insertion and ciliary body, whereas a large area of moderately differentiated tumour (*bracket*) also occupies much of the ciliary body. Iris has been pulled against posterior cornea (*vertical arrowhead*) and normal angle architecture is obliterated. Hematoxylin and eosin stain. Original magnification ×33.