

Advanced Periocular Basal Cell Carcinoma with Orbital Invasion: A Case Report

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Abstract

Introduction: Basal cell carcinoma (BCC) is the most common eyelid malignancy, known for its slow progression and local invasiveness. In rare, neglected cases, it may invade the orbit, necessitating aggressive surgical management.

Case Report: A 62-year-old male presented with an 8-year history of a gradually enlarging, painless lesion over the right lower eyelid, accompanied by progressive diminution of vision and discharge. Clinical evaluation and imaging showed orbital invasion, and an incisional biopsy confirmed basal cell carcinoma (BCC). The patient underwent extended orbital exenteration of the right eye with medial maxillectomy, followed by reconstruction using a temporalis muscle flap and a paramedian forehead flap. Histopathological examination confirmed BCC with erosion of the underlying bone and tumor deposits suggestive of optic nerve involvement. Although all peripheral margins were clear, the posterior soft tissue margin was positive. Post-operative recovery was uneventful, and the patient was referred for adjuvant radiotherapy following multidisciplinary tumor board review to address residual disease and reduce the risk of recurrence.

Conclusion: This case shows the potential for severe local invasion in untreated periocular BCC and the importance of early diagnosis and multidisciplinary management to prevent extensive disfigurement and improve outcomes.

Keywords: Basal cell carcinoma, Periocular tumor, Orbital invasion, Orbital exenteration, Eyelid malignancy.

INTRODUCTION

Basal cell carcinoma (BCC) is the most common malignant neoplasm affecting the skin, predominantly occurring in sun-exposed areas such as the face.¹ Among periocular malignancies, BCC accounts for approximately 85% of cases, often presenting as a slow-growing, locally invasive tumor with a low risk of metastasis.² However, when neglected or left untreated for prolonged periods, periocular BCC can demonstrate aggressive behaviour, leading to extensive local tissue destruction, including invasion of the orbit and adjacent bony structures.³

Orbital invasion by BCC, though rare, significantly complicates management, often necessitating radical surgical procedures such as orbital exenteration, which carry profound functional and aesthetic consequences.⁴

Early diagnosis and appropriate treatment of periocular BCC are crucial to prevent progression and morbidity.⁵ Despite advances in surgical and adjuvant therapies, cases of advanced BCC with orbital involvement remain a therapeutic challenge.

This case report describes a 62-year-old male with a long-standing, neglected periocular BCC resulting in orbital invasion, showing the multidisciplinary approach required for optimal management and the importance of early intervention in such tumors.

Case Report

Clinical presentation

A 62-year-old male from Bijnor, Uttar Pradesh, a labourer by occupation, presented to our department with complaints of a painless nodular lesion on the right lower eyelid persisting for the past 8 years. He also reported progressive diminution

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Figure 1: Painless nodular lesion on the right lower eyelid

of vision in the right eye over the past year, accompanied by redness and discharge for the preceding two months.

The lesion was first noticed as a small mass in 2016, which remained asymptomatic until 2018, when he sought consultation with a local physician. He was prescribed oral medications and topical ointments, but these provided no significant relief. Over time, the lesion gradually increased in size, and by 2020, it had involved the entire lower eyelid. It eventually progressed to a fungating ulcer that extended from the medial to the lateral canthus and superiorly toward the upper eyelid. The progression was insidious and painless (Figure 1). There was no history of diplopia, trauma, prior ocular surgery, fever, or epiphora.

The patient gave history of long working hours in sunlight. He gave no history suggestive of systemic conditions such as diabetes mellitus, hypertension, asthma, thyroid disorders, or cardiovascular or neurological diseases. He denied any prior hospitalizations, prolonged fever, trauma, or exposure to radiation. There was no family history of similar complaints. His lifestyle included a non-vegetarian diet, with normal sleep patterns, appetite, and regular bowel and bladder habits. He did not consume alcohol, use tobacco, or engage in the use of any other substances.

On initial ophthalmologic examination, the patient's uncorrected visual acuity (UCVA) was recorded as 6/60 and 6/12, which improved to 6/36 and 6/9 as his best corrected visual acuity (BCVA) in his right and left eye, respectively. Intraocular tension was assessed digitally and found to be within normal limits. Extraocular movements (EOM) were restricted in all gazes in the right eye and were full and unrestricted in all directions in the left eye. Early cataractous changes were seen, whereas fundus examination was within normal limits for both eyes.

Ocular examination of the right eye showed a 4×2 cm ulcerative lesion extending from the nasal bridge to the lateral canthus, centered at the medial lower eyelid. The ulcer had well-defined rolled edges, with features including crusting, white plaque, congestion, sloughing, pigmentation, and tissue loss at the medial canthus. On palpation, the lesion was firm, non-tender, with surrounding induration and was fixed to the overlying skin and possibly the underlying bone medially. Periorbital sensation was intact, and there was no bleeding on touch. No cervical lymphadenopathy was appreciated.

Given the clinical features, differential diagnoses considered included basal cell carcinoma, squamous cell carcinoma, melanoma, and skin adnexal tumors. Routine blood investigations were within normal limits. An incisional biopsy performed at another center was suggestive of basal cell carcinoma (BCC) (Figure 2). Radiological imaging included contrast-enhanced CT of the orbit, which showed ill-defined soft tissue thickening in the right lower lid measuring approximately 6.5 mm.

Management

Following a comprehensive tumor board discussion and informed consent from the patient and his family, surgical management was planned for the locally advanced periocular tumor. The patient underwent extended orbital exenteration with medial maxillectomy and reconstruction, performed collaboratively by the departments of surgical oncology and

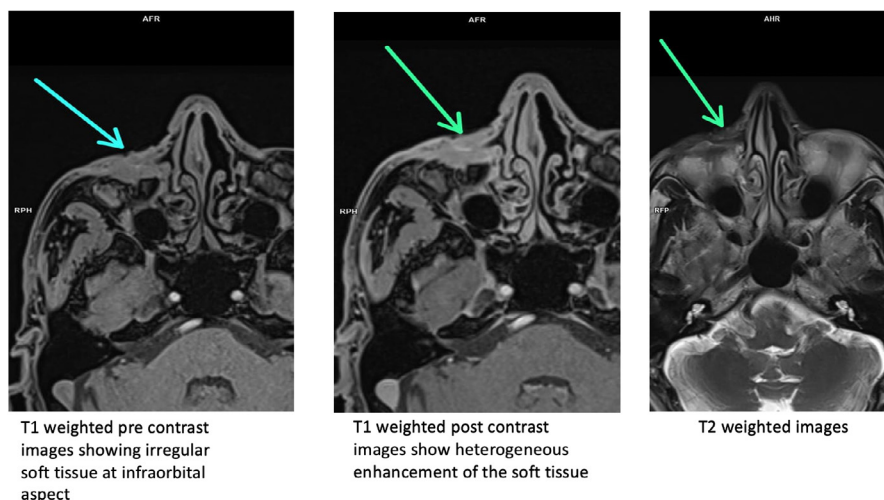


Figure 2: A contrast-enhanced MRI of the orbit showed a neoplastic lesion in the right lower eyelid with evidence of infiltration into the extraconal fat, right inferior rectus, and anterior medial rectus muscles, along with effacement of the intraconal space, showing orbital invasion

plastic surgery. Under general anesthesia, a skin incision with adequate oncologic margins was made, extending along the nasolabial fold to allow lateral rhinotomy access. Upper eyelid dissection was performed in the preseptal plane, followed by elevation of flaps. The periosteum was incised and elevated except at the lower medial orbital wall, which was resected en bloc with the orbital contents. Careful soft tissue dissection ensured margin clearance, and bony cuts were performed along the nasal bone and lateral to the infraorbital foramen. After transecting the orbital nerve, the specimen was delivered, and hemostasis was achieved using bipolar cautery and hemostatic agents. Reconstruction involved lining the orbital cavity with a temporalis muscle flap and covering the external defect with a paramedian forehead flap based on the left supratrochlear vessels. The entire surgical specimen was sent for histopathological analysis (Figure 3).

Postoperatively, the patient had an uneventful recovery. By day 3, the reconstructive flaps were viable with no signs of infection, and the patient was discharged on post-operative day 5 (Figure 4).

Gross pathological examination showed a right orbital exenteration specimen measuring $6.0 \times 5.0 \times 4.0$ cm, which included the eyeball, eyelids, orbital bone, and surrounding soft tissue. An ulceroproliferative growth involving the lower eyelid, medial canthus, and part of the upper eyelid measured $4.0 \times 1.7 \times 0.5$ cm, located 0.3–0.7 cm from peripheral margins. Microscopic examination confirmed a diagnosis of basal cell carcinoma (BCC) of the right periocular region,

unifocal in origin and showing orbital invasion. Although all peripheral margins were tumor-free, the posterior soft tissue margin was involved, and the tumor exhibited bone erosion. No lymphovascular invasion was noted. Perineural invasion was suspected due to tumor deposits seen in a cord-like structure showing peripheral S100 positivity, possibly the optic nerve (Figure 5).

Given the involvement of the posterior margin, a repeat tumor board review was conducted postoperatively. The patient was advised to undergo adjuvant radiotherapy to address the residual disease and minimize the risk of recurrence.

DISCUSSION

Basal cell carcinoma (BCC) is the most common malignancy of the eyelid, accounting for approximately 90% of all periocular malignancies. Although it is typically slow-growing and associated with a low metastatic potential, delayed presentation or inadequate initial treatment can result in local tissue destruction, orbital invasion, and significant morbidity, as seen in our case.

The prolonged history in this 62-year-old male labourer, who lived in a rural area and lacked early access to specialist care, shows a recurring issue in developing regions—delayed diagnosis and treatment of periocular malignancies. His initial presentation with a small asymptomatic lesion that eventually evolved into a large ulcerative mass is consistent with findings in studies by Cook *et al.*⁶ and Sun *et al.*⁷, which showed that

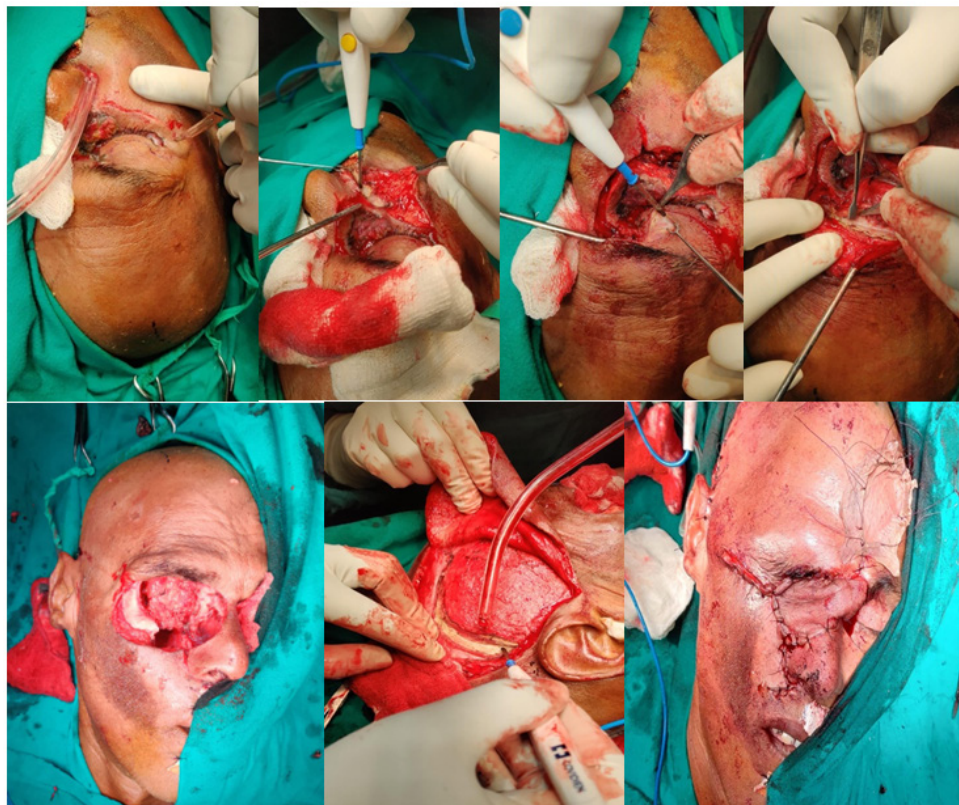


Figure 3: Intra-operative procedures



Figure 4: Post-operative presentation

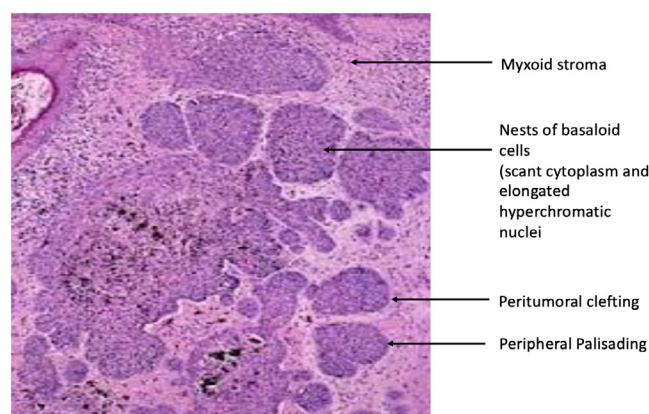


Figure 5: Histopathological finding

neglected BCCs can become locally aggressive, particularly in the periocular region, due to the complex anatomy and proximity to critical structures.

Orbital invasion by BCC, although rare, occurs in 1–2% of periocular BCCs and significantly alters the management strategy. As described by Dutton *et al.*, once the tumor extends beyond the eyelid into the orbital soft tissues or bone, conservative surgical excision is often insufficient, and more radical approaches such as orbital exenteration may be required to achieve oncologic control. In our case, the tumor had infiltrated the extraconal fat and ocular muscles, justifying the decision for extended orbital exenteration with medial maxillectomy.

Histopathologically, our patient's tumor showed classic features of BCC with bone erosion and suspected perineural invasion, both of which are considered high-risk features. Bone involvement is rare and typically indicates a long-standing lesion, as reported by Khayyat *et al.*,⁸ and necessitates aggressive management. The presence of tumor deposits in a cord-like structure with S100 positivity suggests perineural spread, which, though uncommon, portends a worse prognosis and increased risk of recurrence, necessitating adjuvant therapy.

The positive posterior margin in this case raised concern for residual disease despite macroscopically complete excision. In such scenarios, adjuvant radiotherapy is recommended to

improve local control, particularly when further surgery is not feasible or desired. A study by Mendenhall *et al.*⁹ supports the use of radiotherapy in cases of incomplete excision or high-risk histopathologic features, demonstrating acceptable control rates and functional outcomes.

Our case also shows the importance of a multidisciplinary approach, including ophthalmology, surgical oncology, plastic surgery, radiology, and pathology, in the management of complex periocular malignancies. This collaboration is essential for optimizing both oncologic and functional outcomes, especially when reconstructive needs are significant, as in post-exenteration defects.

CONCLUSION

In conclusion, this case describes an advanced basal cell carcinoma of the lower eyelid with orbital invasion in a 62-year-old male, managed by extended orbital exenteration with medial maxillectomy and complex flap reconstruction. The case shows the consequences of delayed diagnosis and shows the critical role of multidisciplinary collaboration in managing extensive periocular malignancies. Early identification and timely intervention are key to preventing disfigurement and reducing the need for radical surgeries. Adequate patient counseling on prognosis and the importance of early treatment remains vital in improving clinical outcomes.

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