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Case Series

Primary glottic malignant melanoma: a case series and literature review

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ABSTRACT

Primary glottic malignant melanoma (PGMM) is an exceptionally rare malignancy, with fewer than 30 documented cases in existing literature. Unlike cutaneous melanomas, PGMM typically lacks well-defined risk factors and presents at an advanced stage due to its insidious growth pattern. This study presents a case series of PGMM, emphasizing clinical presentation, histopathological findings, management strategies, and outcomes. Additionally, a comparative literature review highlights the challenges in diagnosis, treatment, and prognosis. PGMM is an exceptionally rare malignancy. Unlike cutaneous melanomas, PGMM typically lacks well-defined risk factors and presents at an advanced stage due to its insidious growth pattern. This study presents a case series of PGMM, emphasizing clinical presentation, histopathological findings, management strategies, and outcomes. A comparative literature review further highlights the challenges in diagnosis, treatment, and prognosis.

Keywords: Glottic melanoma, Mucosal melanoma, Laryngeal cancer, Malignant melanoma, Immunohistochemistry, Transoral laser microsurgery

INTRODUCTION

Mucosal melanomas account for approximately 1% of all melanomas, with head and neck variants constituting 6–20% of cases.[1-3] Among these, sinonasal and oral mucosal melanomas predominate, while laryngeal involvement remains rare. Glottic involvement is particularly unusual, comprising less than 5% of laryngeal malignancies.[4] This paper presents a case series of primary glottic malignant melanoma, discussing clinical characteristics, treatment modalities, and survival outcomes in comparison with existing literature.

Mucosal melanomas represent approximately 1% of all melanomas and are biologically distinct from their cutaneous counterparts. Within the head and neck region, mucosal melanomas most commonly affect the sinonasal tract and oral cavity, while primary involvement of the larynx remains extremely rare. Among laryngeal melanomas, the glottic subtype is particularly uncommon, comprising less than 0.5% of all laryngeal malignancies.[1] The rarity of glottic melanoma poses significant challenges in diagnosis, management, and prognosis due to limited clinical experience and lack of standardized treatment protocols.

Glottic malignant melanomas often present with nonspecific symptoms such as hoarseness, dysphagia, or throat discomfort, which can mimic more common laryngeal pathologies.[2] The diagnosis typically requires histopathological examination and immunohistochemistry for melanocytic markers such as S-100, HMB-45, and Melan-A.[3] Treatment modalities have not been standardized due to the limited number of reported cases; however, a combination of surgical excision, radiotherapy, and more recently, immunotherapy, has been utilized with varying outcomes.[4]

In this study, we present a case series of three patients with primary glottic malignant melanoma and compare our findings with the existing literature to contribute to the understanding of this rare entity.

CASE SERIES

Case 1

A 67-year-old man presented with progressive hoarseness over three months, accompanied by dysphagia and odynophagia. Flexible laryngoscopy revealed a dark pigmented polypoidal lesion on the left vocal fold extending to the plica vestibularis (Figure 1). Histopathology confirmed malignant melanoma with immunohistochemical positivity for Melan-A, S-100, and HMB-45 (Figure 2). The patient underwent total laryngectomy with radical neck dissection but developed lung metastases two months postoperatively, leading to palliative management. He succumbed three months after surgery.

Case 2

A 72-year-old woman with no prior history of melanoma presented with persistent throat discomfort and voice changes. Laryngoscopy demonstrated a non-ulcerative, pigmented lesion confined to the right vocal fold. Immunohistochemistry confirmed malignant melanoma. The patient underwent partial laryngectomy with adjuvant radiotherapy. Despite initial response, local recurrence was detected at 12 months, necessitating salvage total laryngectomy. She remains in remission at 18 months post-treatment.

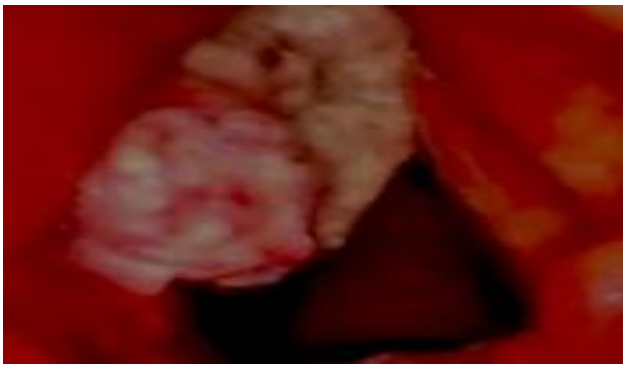

Figure 1: Flexible laryngoscopic image depicting a polypoidal, pigmented lesion on the left vocal fold, extending toward the plica vestibularis. The epiglottis and piriform sinus appear uninvolved.

Case 3

A 55-year-old male ex-smoker reported progressive voice changes and a lump sensation in the throat. Examination revealed a nodular pigmented lesion over the anterior commissure. Biopsy confirmed malignant melanoma. Due to early-stage detection, the patient was managed with transoral laser microsurgery and adjuvant immunotherapy. He remains disease-free at 24 months follow-up.

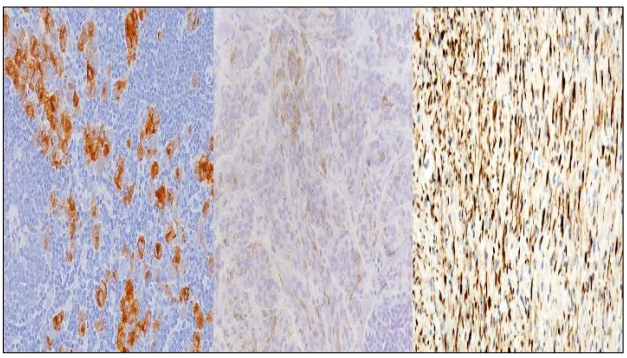

Figure 2: Histopathological analysis confirms malignant melanoma with strong immunohistochemical positivity for Melan-A, S-100, and HMB-45.

DISCUSSION

Comparison with literature

A review of published PGMM cases reveals common presenting symptoms, including hoarseness, dysphagia, and throat discomfort.[1,2,4] The literature indicates a median survival of 12–18 months post-diagnosis, with a five-year survival rate below 20% due to early metastatic spread.[2,3] Standard treatment remains undefined, with a combination of surgery, radiotherapy, and immunotherapy being the primary approach.[4]

Histopathological and immunohistochemical features

PGMM typically exhibits epithelioid or spindle-cell morphology with prominent pigmentation. Immunohistochemistry remains critical for diagnosis, with S-100, HMB-45, and Melan-A positivity distinguishing PGMM from other laryngeal malignancies.[5]

Treatment approaches

Surgery

Total or partial laryngectomy remains the primary curative option, particularly in localized disease.[3]

Radiotherapy

Often employed for adjuvant treatment or in cases where surgery is not feasible.[2]

Immunotherapy

Checkpoint inhibitors (e.g., pembrolizumab, nivolumab) show promise in extending survival in mucosal melanomas.[4,6]

Prognosis and outcomes

Despite aggressive management, PGMM has poor long-term outcomes. Early detection, multimodal therapy, and novel systemic treatments may improve survival.[2,6] The cases presented herein align with trends in the literature, emphasizing the aggressive nature and high recurrence rates of PGMM.

CONCLUSION

Primary glottic malignant melanoma is a rare and aggressive entity with a poor prognosis. This case series contributes valuable clinical insights and underscores the need for standardized treatment protocols. A multi-disciplinary approach combining surgery, radiotherapy, and immunotherapy remains the cornerstone of management. Future studies should focus on molecular profiling and targeted therapies to improve patient outcomes.

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