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Case Report

Primary malignant melanoma of the parotid gland: A case report ☆

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ABSTRACT

The primary malignant melanoma of the parotid is a rare and complex clinical entity, posing numerous diagnostic challenges due to the absence of melanin in the tumor and its histological similarities with other poorly differentiated lesions. Accurate diagnosis often requires advanced imaging techniques and immunohistochemical procedures to identify specific melanoma markers. Therapeutically, total parotidectomy with simultaneous cervical dissection is frequently recommended, although approaches combining surgery, chemotherapy, radiotherapy, or even immunotherapy are also being explored. Despite these advancements, malignant parotid melanoma continues to be associated with a grim prognosis, emphasizing the importance of ongoing research to improve therapeutic options and understanding of this rare pathology.

Introduction

Primary malignant melanomas of the parotid gland are rare, accounting for around 15% of all malignant neoplasms and ¼ of malignant melanomas occurring in the head and neck region [1]. We report a case of a primary malignant melanoma of the parotid gland revealed by a rapidly progressive parotid mass, while investigating the various clinical, radiological and histological features of this little-known tumor.

Case report

A 68-year-old man presented with a two-month history of a swelling in the right parotid region, increasing in size, painless, and without inflammatory signs.

Clinical examination revealed an approximately 3 cm mass, adherent to the deep and superficial planes, with a hard consistency and no pain on palpation. The underlying skin was normal in appearance. There were no associated

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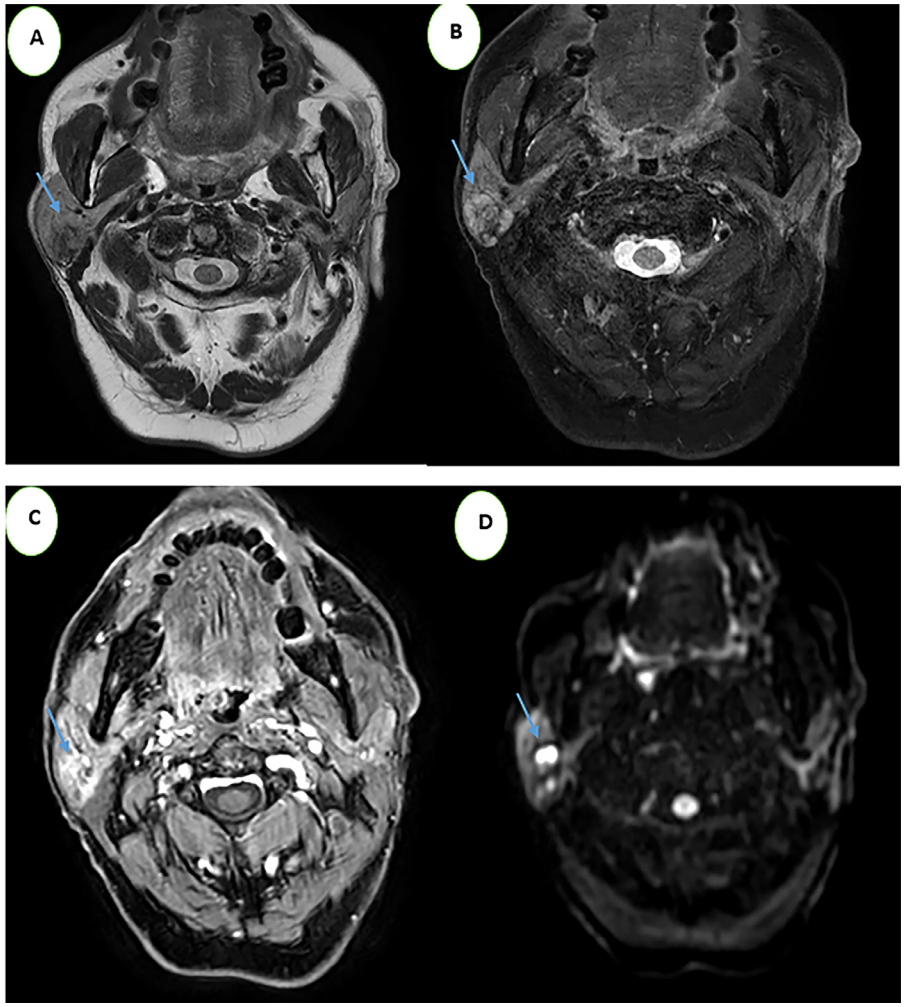

Fig. 1 – Cervical MRI in axial sections T1 (A), T2 FATSAT (B), T1 after gadolinium injection (C), Diffusion (D): well-defined right parotid mass with hypointensity in T1 and heterogeneous signal in T2, enhanced after gadolinium injection with restricted diffusion (blue arrow).

functional disorders of the facial nerve or skin lesions of the maxillofacial regions or oral cavity.

A cervical MRI scan revealed a well-limited, hypointense T1 and T2 heterogeneous right parotid mass, enhanced after injection of gadolinium with diffusion restriction and low ADC (Fig. 1).

Additional ultrasound confirmed the intraparotid location of the mass, which had a lobulated outline and heterogeneous echogenicity, with tissue containing anechogenous areas and poor color doppler response (Fig. 2).

No local or distant secondary sites were identified during extension studies.

The patient underwent a total right parotidectomy with resection of the contiguous soft tissues and preservation of the facial nerve. Postoperative management was straightforward.

Histological examination of the operative specimen confirmed the diagnosis of primary malignant melanoma of the parotid gland, finding a malignant tumor proliferation arranged in sheets, with tumor cells featuring abundant eosinophilic cytoplasm with mechanical pigment and atypical, highly nucleated nuclei (Fig. 3).

Progression was marked by the appearance, on follow-up imaging, of bone and lung metastases one year after surgery.

Discussion

The parotid gland is the only gland among the salivary glands that contains lymph node structures that can develop as early as the second week of embryonic life. This could explain that the onset of certain specific parotid pathologies is due to a symbiosis between the gland and the lymph nodes [2]. Primary malignant melanoma of the parotid is extremely rare. The vast majority of these tumors appear to be associated with lymph node metastases in or around the gland originating from a cutaneous primary in the region [3]. The consideration of malignant melanoma as primary is questioned by several authors.

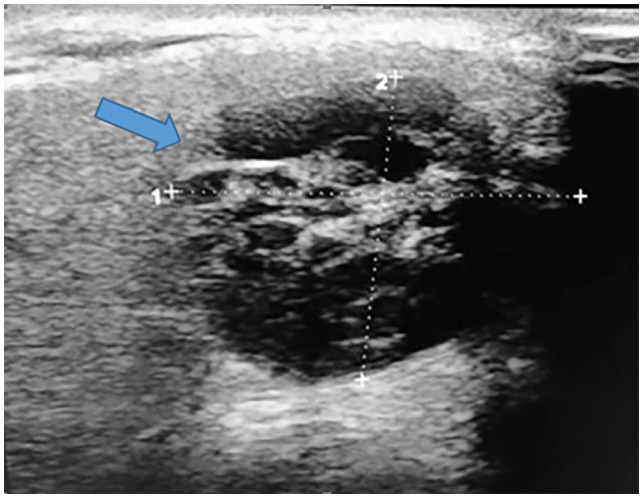

Fig. 2 – Ultrasound of the right parotid gland: well-defined mass with lobulated contours, tissue containing hypoechoic areas (blue arrow).

More recently, Lopez-Cedrun et al. have suggested the primary location of malignant melanoma in an internally challenging organ to explain a parotid melanoma without an apparent primary tumor [4].

This tumor typically presents with the development of a mass in the parotid region. Some clinical signs may be associated with or serve as the mode of discovery, suggesting its malignant nature, including facial paralysis, pain, skin infiltration, and lymphadenopathy.

Imaging plays a significant role in exploring the parotid gland. Ultrasound helps confirm the intra-parotid location of the lesion and distinguishes between cystic and solid lesions. MRI provides a more precise definition of the lesion, allowing better characterization to guide toward a malignant or benign nature. Several diagnostic criteria for primary melanoma have been established, including: the intra-parotid location of the predominant tumor mass, the absence of identifiable lymphoid tissue within the mass, no evidence of malignant melanoma elsewhere after diligent examination of the skin, eyes, nose, mouth, pharynx, esophagus, anogenital region, and meninges, and finally, no evidence of prior excision of a malignant melanoma or evolving pigmented lesion [5,6]. Our case met these criteria, leading to the suspicion of a primary tumor diagnosis.

Melanomas of the parotid gland do not contain melanin [7,8]; it is challenging to make a diagnosis based on conventional histological examination, not only for this reason but also because the tumor exhibits similar histological characteristics to other poorly differentiated tumors. Recent advances in monoclonal antibodies capable of recognizing melanoma-associated antigens have improved the ability to diagnose these tumors. In cases of suspicion of this type of tumor, as in our case, the diagnosis can be established using histochromic staining for melanin and immunohistochemical procedures testing for vimentin, S-100 protein, and other melanoma-associated antigens.

From a therapeutic perspective, the literature suggests performing a total parotidectomy associated with cervical and submandibular dissection [9]. Partial parotidectomy, in addition to being considered insufficient due to its high recurrence risk [10,11], is not recommended in light of the theory that considers deep and superficial lymph nodes as a single functional entity [12]. Due to the high incidence of hidden metastases in these lymph node groups; cervical dissection should always be performed simultaneously with parotidectomy [13]. Furthermore, some authors advocate a combination of surgery, chemotherapy, radiotherapy, and even immunotherapy with Bacillus Calmette-Guérin when applicable [10], while others, on the contrary, have not found any benefit in this combination [14].

Despite advances in the early diagnosis and therapy of malignant parotid melanoma, whether primary or secondary, this tumor still carries a grim prognosis, with an average survival that barely exceeds two years.

Conclusion

The primary malignant melanoma of the parotid remains a complex clinical rarity, requiring specific diagnostic and therapeutic approaches. Its grim prognosis underscores the importance of ongoing research to enhance understanding of this pathology and develop more effective therapeutic options.

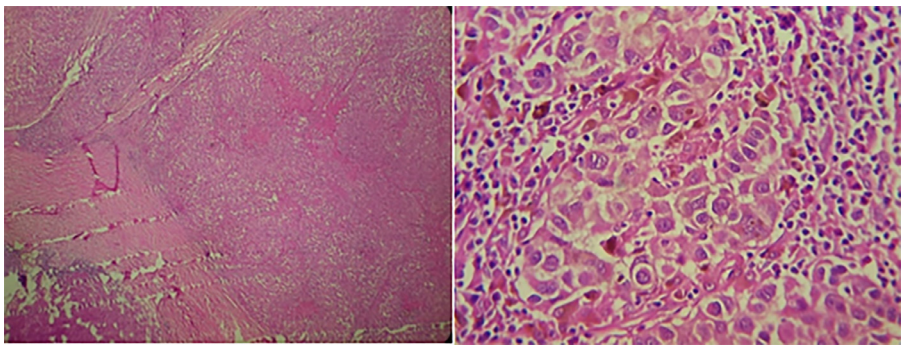

Fig. 3 – Histological appearance of malignant parotid melanoma: 1. Magnification x10 (left): Microphotograph showing a parotid gland harboring a malignant tumor proliferation arranged in sheets. 2. Magnification x40 (right): Tumor cells with abundant eosinophilic cytoplasm containing melanin pigment and featuring atypical nuclei with prominent nucleoli.

Patient consent

Informed consent for publication was obtained from patient.

REFERENCES

[1] Wang BY, Lawson W, Robinson RA, Perez-Ordonez B, Brandwein M. Malignant melanoma of the parotid. Arch Otolaryngol Head Neck Surg 1999;125:635–9.
[2] Barbieri M, Gentile R, Cordone MP, et al. Primitive malignant melanoma of the parotid gland. ORL J Otorhinolaryngol Relat Spec 2002;64:297–9.
[3] Prayson RA, Sebek BA. Parotid gland malignant melanomas. Arch Pathol Lab Med 2000;124:1780–4.
[4] Lopez-Cedrun JL, Aguirre Urizar JM, Martinez-Conde Llamosas R, Rodriguez P. Mélanome métastatique de la parotide: à propos de 5 cas. Rev Stomatol Chir Maxillofac 1988;89:44–8.
[5] Woodwards RT, Shepherd NA, Hensher R. Malignant melanoma of the parotid gland: a case report and literature review. Br J Oral Maxillofac Surg 1993;31:313–15.
[6] Greene GW Jr, Bernier JL. Primary malignant melanomas of the parotid gland. Oral Surg Oral Med Oral Pathol 1961;14:108–16.
[7] Henzen-Logmans SC, Meijer CJ, Ruiter DJ. Diagnostic application of panels of antibodies in mucosa melanomas of the head and neck. Cancer 1988;61:702–11.
[8] Young PN, Cassembon F, Houissa-Voung S. Melanome malin primitif de la parotide: etude anatomo-clinique. Ann Otolaryngol (Paris) 1986;103:45–55.
[9] Renaut AJ. Melanoma arising within the parotid salivary gland—a case report and review of management. Eur J Surg Oncol 1996;22:201–2.
[10] Bahar M, Anavi Y, Abraham A, Ben-Bassat M. Primary malignant melanoma in the parotid gland. Oral Surg Oral Med Oral Pathol 1990;70:627–30.
[11] Vuong PN, Cassembon F, Houissa-Vuong S, Koubbi G, Balaton A. Mélanome malin primitif de la parotide: étude anatomo-clinique. A propos d'une observation avec revue de la litérature médicale. Ann Otolaryngol Chir Cervicofac 1986;103:45–55.
[12] Batsakis JG. Pathology consultation: parotid gland and its lymph nodes as metastatic sites. Ann Otol Rhinol Laryngol 1983;92:209–10.
[13] Vaglini M, Belli F, Santinami M, Cascinelli N. The role of parotidectomy in the treatment of nodal metastases from cutaneous melanoma of the head and neck. Eur J Surg Oncol 1990;16:28–32.
[14] O'Brien CJ, Petersen-Schafer K, Stevens GN, Bass PC, Tew P, Gebski VJ, et al. Adjuvant radiotherapy following neck dissection and parotidectomy for metastatic malignant melanoma. Head Neck 1997;19:589–94.