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Case Report

Solitary jejuna metastasis from parotid gland malignant melanoma: a case report and literature review

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Abstract: Malignant melanoma of parotid gland is an extremely rare event, and the metastasis to jejuna presented with intussusception is especially unusual. In this case report, a solitary jejuna metastasis from a parotid gland malignant melanoma was discussed. The patient underwent a radical surgical excision. Biological immunotherapy was taken for four months after the surgery. After 7 months follow-up, he re-presented with a metastasis deposit of malignant melanoma in his jejuna. The patient lost connection from jejuna metastases 13 months after presentation. We also review reviewed a series of cases to conclude the characteristics and prognosis of primary malignant melanoma of parotid.

Keywords: Parotid gland, malignant melanoma, Jejuna metastasis, intussusception

Introduction

Primary malignant melanomas of parotid gland (PMMP) are relatively unusual, representing 0.68% of all malignant neoplasms of parotid gland, despite the fact that 25% to 35% of malignant melanomas arise in the head and neck area [1-3]. Management of these tumors is challenging due to their rarity, specific anatomic location, relative inaccessibility for preoperative diagnosis, and diverse histologic types. Because of the heterogenous and aggressive nature, most of them present with extensive invasion and recurrence, resulting in a high cause-specific death. The overall prognosis is poor and patients with unknown primary sites of the melanoma have a low survival rate, with only 29.1% alive at 5 years [4]. Here, we reported a case of metastasis of PMMP to jejuna that manifesting as intussusceptions, and tabulate the relevant cases in the literature [5-12].

Case presentation

A 22-year-old male was admitted to our Oral and Maxillofacial Surgery Department in October 2014 with a 2-month history of a progressively enlarging lump in the left parotid that had recently increased rapidly in size, accompanied by slight and sporadic pain. There were no other abnormal findings in his medical history except smoking. A left preauricular nodule mass measuring 5 cm×4 cm×4 cm was palpated in the left parotid. The mass was firm, noncompressible and fixed to the surrounding soft tissues. The overlying skin was normal in appearance and there was no sign of facial nerves involvement.

Magnetic resonance imaging (MRI) of the left parotid region revealed a large and lobulated mass measuring 4.5 cm×3.5 cm×6.5 cm with sharp edges closing to the posterior margin of masseter muscle (**Figure 1**). Irregular signals were displayed as isointensity in T1-weighted image, hyperintensity and hypointensity mixed in T2-weighted image. Sequentially, vivid though heterogenous enhancement was observed in this region. Routine chest radiographs and computed tomography (CT) of the thorax and abdomen failed to indicate existence of metastatic disease and laboratory examinations were within normal limits. Based on the above findings, patient received a total left parotidectomy without damaging the facial nerve.

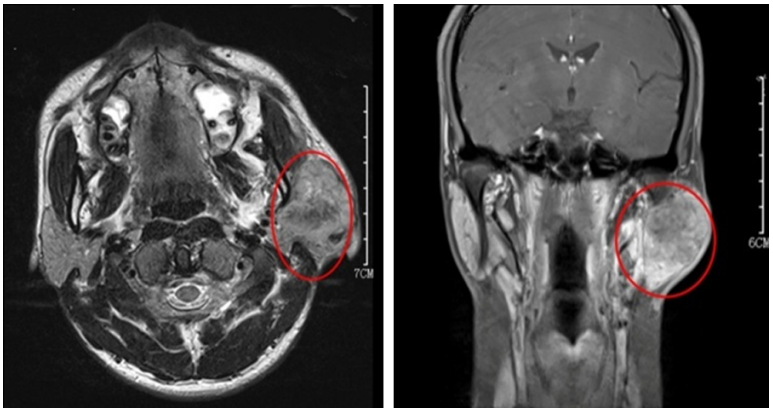

Figure 1. Magnetic Resonance Imaging showed an elliptic lobulated mass on the left parotid gland with clear boundary and uneven signal (oval).

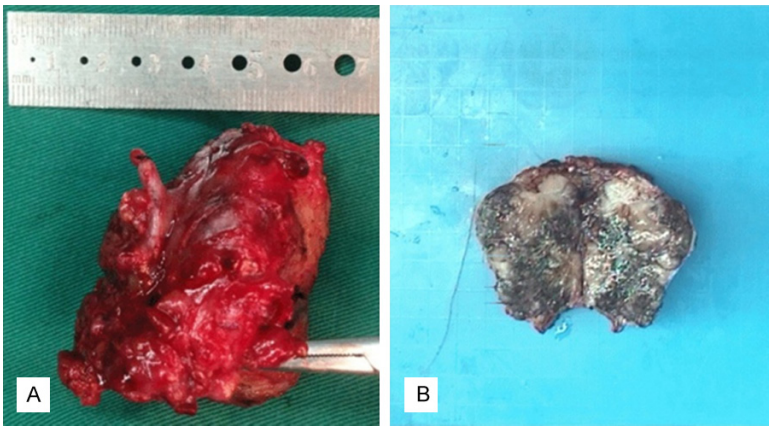

Figure 2. Specimen of parotid tumor (A) was medium hardness with complete capsule, and (B) presented a dark brown dissection.

Operative findings revealed that a brown-black tumor mass with a full capsule infiltrated the parotid gland and the facial nerve was close to the medial aspect of the tumor (**Figure 2A**, **2B**). Intraoperative frozen section analysis suspected that it was a malignant melanoma in the left parotid gland. Thus, the patient underwent a left functional radical neck dissection subsequently. Surgery and postoperative recovery were smooth.

Pathological examination of the specimen confirmed the lesion was a malignant melanoma, and 1 lymph node metastasis in left parotid region was positive. Microscopically, the tumor located as plaques, nest with infiltrating growth. Tumor cells revealed as transparent or light red staining cytoplasm. Nuclear pleomorphism was conspicuous and the nuclei were round to oval in shape. Intracytoplasmic pale brown pigment was well appreciated (**Figure 3A**). On immunohistochemistry, multiple sections were positive for S-100, HMB45 (**Figure 3B**), Melan-A and Ki-67. Melanoma has been ruled out by general check-up in other sites. Based on the results above, the final pathological diagnosis of PMMP was established.

After surgery, patient admitted targeted therapy in other hospital. He represented to our hospital in May 2015 with an abdominal pain and distention. The enchanced CT of total abdomen revealed that ileus and multiple nodules located at the root part of abdomen mesentery (**Figure 4A**). Patient was explored, and biopsy of the mass confirmed clinical suspicion of malignant melanoma recurrence (**Figure 4B**). Then a jejuna omentectomy along with tumor nodules was performed. The patient died 13 months later after being diagnosed of metastatic disease.

Discussion

Primary malignant melanomas involving the parotid gland are extremely rare. Roughly a quarter of malignant parotid tumors are metastasizing, most of which originate from the skin of the head and neck [13]. However, Takeda reported that melanoblasts may become a part of the parotid gland with the down-growth of oral epithelium during the development of the parotid [14]. We contribute a case report to supplement the clinical material.

This study enrolled patients with PMMP between 1910 and 2015. **Table 1** summarizes patient demographic characteristics, treatment details, metastasis sites, and outcomes of all 22 cases. Their ages at diagnosis ranged from 22 to 77 years, with a mean of 52.1 years; there were 8 females and 14 males. Most of parotid malignant melanomas present with solid mass, which are fast growing and associated with early symptoms like infiltrative growth, lymph node metastasis. Patients develop

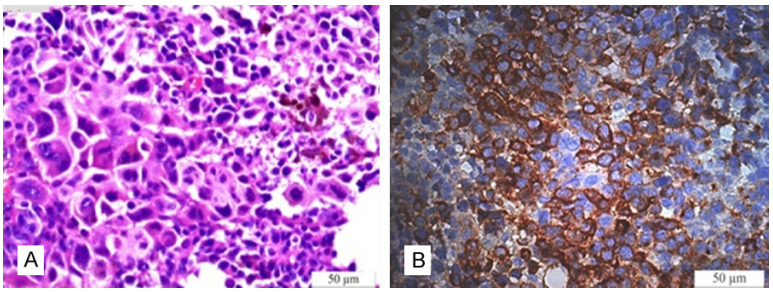

Figure 3. Histopathology of specimen of parotid tumor (A) consisted of nest clumps with invasive growth, and visible tan pigment substances can be seen in the cells (hematoxylin and eosin stain, ×400). And (B) showed positive immunoreactivity for human melanoma black 45 (HMB45) (×400).

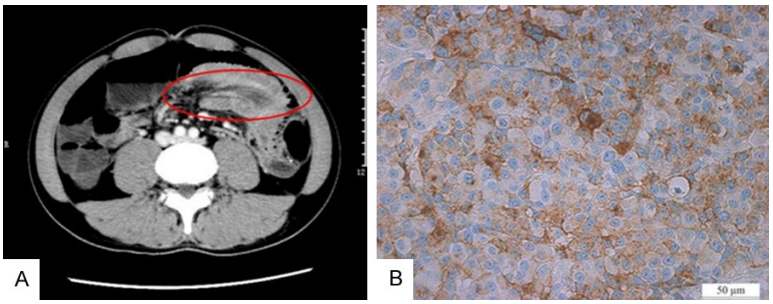

Figure 4. The enchanced Computed tomography of total abdomen (A) presented with jejuna intussusceptions (oval). And the mass of jejunum (B) showed positive immunoreactivity for human melanoma black 45 (HMB45) (×400).

neurological symptoms, such as paralysis and pain, occasionally.

Malignant melanomas usually metastasize to specific areas, such as (in decreasing order) regional lymph nodes, lung, liver, skin and brain [13]. In our study, metastases, either regional or distant, developed in 13 patients: 5 in the regional lymph nodes and 8 in other body sites. Among these metastases, only the patient in our case metastasizes to jejuna. According to the related reports, small bowel involvement by melanoma is almost metastatic, even with unknown primary focuses [15]. Common presentations of patients with intestinal malignancies are GI obstruction and bleeding, while jejuno-jejuna intussusception in this case is pretty rare [16].

There is no specific sign or symptom to define the presentation of PMMP. As an auxiliary examination, MRI can reveal the lesion sites and the adjacent structures to conduct a comprehensive assessment of tumor, which shows an extremely sensitivity to melanin. The display of low signal mass in T2WI is a characteristic sign for melanoma [17]. Terminal diagnosis of PMMP is established by histopathologic and immunohistochemical examination, both of which present positive results for melanoma cells. The presence of neuromelanin or characteristic cytologic features, such as intranuclear invaginations and prominent nucleations, can be helpful diagnostic clues to differentiate melanoma from carcinoma. However, it's difficult to distinguish spindle cell phenotype tumors from spindle cell carcinomas or even pleomorphic sarcomas, if neuromelanin pigmentation is not evident [18]. Given that, immunohistochemical stain was used to confirm the correct diagnosis [19]. Commonly used stains include S-100 protein, HMB45, Melan-A and Ki-67. S-100 is a nonspecific marker with a relatively high sensitivity [20]. HMB45 and Melan-A are 85% sensitive for primary and metastatic melanoma compared with other common markers [21]. Ki-67 is the specific marker for nuclear-restricted staining, which was reported to be higher in malignant melanomas than in benign nevi except in some low proliferative malignant tumors [22]. We can use Woodward's criteria as references to exclude metastases [8].

The mainstay of treatment on the basis of published papers suggests the need for total parotidectomy, with cervical and submandibular neck dissection [2]. A 2-cm excision margin is recommended for T4 melanomas by guidelines [23]. However, such an excision margin for thick melanomas which locate at the head and neck area may be associated with significant functional, cosmetic disabilities and complicated reconstructive procedures. According to the current studies, narrower excision margins for T4 melanomas of the head and neck are acceptable. In the majority of those cases, a margin of at least 1 cm may be adequate. Furthermore, compared to these margins, the wider margins (≥2 cm) offered no extra benefit

Table 1. Literature review of the Patients with PMMP

Authors	Gender	Age (years)	Treatment	Metastases	Outcome and follow-up time (months)
Delaini [5]	M	65	Excision	None	Died (7)
	M	62	Excision	None	Died (4)
Migneco [5]	M	77	P	Lungs	Died (6)
Marchegiani [5]	F	63	Enucleation	None	Alive (36)
Cirri and Andretta [5]	F	72	Enucleation, RT	Cervical lymph nodes	Not reported
Brocheriou et al. [5]	M	22	P, RT, RND, Chemotherapy, Immunotherapy	Cervical lymph nodes , Lungs	Died (36)
Konevalov [5]	F	47	P, RT	None	Alive (10)
Bahar et al. [5]	F	28	P, Immunologic stimulation	None	Alive (48)
Jorgensen [6]	M	77	P, RT	Cervical lymph nodes	Died (1.3)
Greene and Bernicr [7]	M	23	P	Multiple metastases	Died (2)
	M	67	P	Cerebral	Died (12)
	M	28	P	Widespread metastases	Died (42)
	M	41	P	None	Died (48)
	F	66	P	None	Alive (48)
Vuong et al. [8]	M	62	P	Cervical lymph nodes	Died (10)
Woodwards et al. [8]	F	51	P, RND, RT, Chemotherapy	Cerebral	Died (15)
Bussi et al. [9]	F	60	P, RT, RND	None	Alive (60)
Barbieri et al. [2]	F	64	P, RND	Parieto-occipital region; Lungs; Left submandibular region	Died (9)
Gao et al. [10]	M	37	P, RND	Left neck	Died (5)
Bangerter et al. [11]	M	55	P, RND	Supraclavicular lymph nodes	Not reported
Maier H et al. [12]	M	57	P, Elective radical neck dissection, RT, Immunotherapy	None	Alive (72)
This case report	M	22	P, RND, Targeted therapy	Jejuna	Died (10)

Abbreviations: M, Male; F, Female, P, Parotidectomy; RND, Radical neck dissection; RT, Radiotherapy.

in recurrence rates or melanoma-specific survival [24]. Lymphatic drainage patterns of the head and neck result in the high rates of occult metastasis, which is closely related to survival rate. Considering the above, prophylactic lymph node dissection of cervical and submandibular is recommended. In this study, the total parotidectomy was most commonly performed. And the significance of radical neck dissection has also been realized since 20C.

Malignant melanoma is considered as a radioresistant tumor due to cellular studies and clinical experience. While patients who performed radiotherapy have a little longer survival time compared with those without intervention. The current data also suggests that large radiation doses per fraction can achieve favorable local control safely [25]. Chemotherapy is mainly used for palliative purposes, which has slightly effect on survival rates and prognosis [26]. Biotherapy has significantly correlation with improving survival rates [27, 28]. Seven treatment therapies have gained market authorization since 2011, including 3 therapeutic immune checkpoint inhibitors and 4 BRAF-MEK blockers [29].

Patients with melanomas of the scalp/neck have poorer overall survival and melanoma specific survival [30]. The prognosis is closely associated with the metastasis of regional lymph nodes. False-negative sentinel lymph node biopsy is irrelevant to the primary site and lymphatic drainage pattern, which has a roughly equivalent effect on survival compared with patients who were initially sentinel lymph node positive [31]. In this study, the median follow-up time was 24.1 months (1.3-72 months) and overall survive rate was 27.3%. Six patients were alive and 13 patients died from progressive diseases. One patient was died from MI as Jorgensen reported [6]. Two patients had regional lymph nodes metastases and underwent secondary surgery and afterward they were lost to follow-up. Solitary jejuna metastasis from parotid malignant melanoma indicates a significantly poor diagnosis with a 5-year survival of 15.8% [4].

It would be more valuable to present this study with a larger number of cases and a longer follow-up time. By this means, we could make a more reliable conclusion about the effectiveness of various modalities of treatments. Low number and imperfect information of our cases were the limitations of this study.

PMMP is a rare variety of malignant parotid gland tumor. The total parotidectomy and radical neck dissection are the initial and mainstay of treatment. Radiotherapy and biotherapy are prominent adjuvant therapies for the treatment of metastatic melanomas. Given the poor survival rate in such patients, we must emphasize the importance of early treatment.

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Disclosure of conflict of interest

None.

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