ORAL MALIGNANT MELANOMA OF THE PALATE

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ABSTRACT
Background: Oral malignant melanoma (OMM) is a rare neoplasm of the oral cavity originating from melanocytes. OMM has a low prevalence, accounting for about 0.5% of all oral malignancies. OMM is a potentially aggressive tumour and with a worse prognosis than the cutaneous counterpart.

Case Report: A 36-year-old female was referred for a nodular lesion in the left cheek region noticed about 1.5 years prior to presentation. An extraoral examination revealed a palpable lymph node in the left submandible for three months. Intraoral examination revealed a black, 5x3×3 cm nodule exhibiting purple-coloured bleeding areas, pedunculated and with well-defined borders and a lobulated surface in the left hard palate extended to maxillary gingiva. The differential diagnosis included rhabdomyosarcoma and melanoma. Incisional biopsy of left submandibular lymph node and fine-needle aspiration biopsy revealed proliferation, hyperchromatic nuclei, and melanin-contained cytoplasm. Histopathological assessment was metastatic malignant melanoma to the left submandible lymph node. With a final diagnosis of malignant melanoma.

Conclusion: OMM is an aggressive disease, with a 5-year survival rate, between 15% and 38%. However, most physicians or dentists do not inspect the oral mucosa appropriately. The main treatment of OMM is surgery followed by chemotherapy and radiotherapy. Early diagnosis and aggressive multimodal treatment are the only means available to surgeons to provide a better outcome to patients with OMM.

KEYWORDS Oral malignant melanoma, pigmented lesions, hard palate

Introduction
Primary malignant melanoma in the head and neck region constitutes 1-8% of all malignant melanomas. This malignancy can also occur in the oral region but very rare, accounting for 0.2-8% of all malignant melanomas. The most common sites are the palate and gingiva in the maxillary region, by 80%. Oral malignant melanoma can occur in all races. The incidence of malignant melanoma on the mucosal surface is higher in Japan, India and Africa than in western countries (Kumar, 2010). Melanoma of the oral cavity is found in 80% of the mucosa of the palate and gingiva, and in other parts of the oral cavity, for example, the buccal mucosa, lips, tongue, base of the mouth, and uvula in 20% of cases. The presence of asymptomatic oral pigmentation at the OM site, on average, was found before diagnosis in one-third of the patients. This asymptomatic pigment represents the beginning of the radial phase of tumour development and is often not recognized by doctors and patients. This phase can last months or even years until signs of tumour or tumour invasion appear. The absence of a problem often causes patients to delay seeking medical care (Topic, 2014).

Since the onset is in a hidden region and its initial symptoms are asymptomatic, such as painless swelling, malignant melanoma of the oral cavity is often found in the late stages. The differential diagnosis for oral malignant melanoma clinically includes nevus, amalgam tattoo, melanotic macule, Kaposi’s sarcoma, and lymphoma. From a histopathological examination, malignant melanoma, especially those with pigments, is quite easy to establish. Still, with many variants, malignant melanoma can be confused with a nevus (nevoid melanoma) or mesenchymal...
mal spindle cell tumour, so immuno-histochemical examination is needed to confirm the diagnosis (Miller, 2005).

The characteristics of oral malignant melanoma are different from those of the skin. They are more difficult to distinguish by microscopy between the papillary layer and the reticular layer of the oral mucosa. Almost all melanomas of the head and neck mucosa were detected in stage I. Prasad et al. defined this status using a 3-level micro-staging system, representing a micro-anatomical space different from a separate tissue barrier a significant predictor of survival rate.

The Melanoma Staging Committee of The American Joint Committee on Cancer (AJCC) has updated the final version of Tumor-Node-Metastasis (TNM) for melanoma classification. In this update, the TNM melanoma classification according to the AJCC does not define criteria for mucosal melanomas because no universal staging system exists for them. In the assessment of melanoma in the oral mucosa, a simplified system is used, including three stages, as follows: stage I, the main localization of the disease; stage II, a primary disease with metastases to the cervical lymph nodes; and stage III, distant metastases.

As already mentioned, in stage I, a 3-level micro-staging system has been defined, where each level represents a micro-anatomical space, defined by a boundary network. The destruction of all barriers (boundaries) from space correlates with decreased survival rates. Stage I has three levels: Level 1, mucosal in situ melanoma or microinvasion; Level 2, limited invasion of the lamina propria; and Level 3, melanoma with the deep invasion of neighbouring tissues, such as bone (in the oral mucosa), cartilage (in the larynx), or skeletal muscle.

This case report discusses a 36-year-old female patient who complained of swelling of her cheeks and palate for 1.5 years. A series of examinations have been done, including clinical, radiological, laboratory and anatomical pathology examinations. Based on the results of the anatomical pathology examination in the form of an incisional biopsy, a working diagnosis of malignant melanoma that has metastasized to the left submandibular lymph node was determined.

**Case report**

A 36-year old female patient came with complaints in the left cheek area. Approximately 1.5 years before being admitted to the hospital, the patient complained of changes in the palate, but as there was no pain, the patient did not go for treatment. Approximately three months before entering the hospital, the patient complained a lump sized of a quail egg on the left cheek. The patient went to a general practitioner clinic in the Surapati area and was given two types of drugs (amoxicillin and paracetamol). Approximately one month before being admitted to the hospital, as the lump was getting bigger (the size of a ping pong ball), then the patient went to the dentist clinic in the Surapati area, but nothing was done, and the patient went to the dental hospital in the area of Jalan Riau, and the patient was immediately referred to the oral surgery department of Dr Hasan Sadikin Hospital in Bandung. Pain (+), paresthesia (-), hard consistency, firm boundaries (+), pus (-). Right lymph nodes are palpable. Anatomical pathology examinations were carried out on 15/02/18, FNAB on 09/05/18 and incisional biopsy on 21/11/19 at the Anatomical Pathology installation of Dr Hasan Sadikin Hospital, Bandung.

In generalized clinical examination, it was found that the patient came with a compos-mentis awareness, blood pressure of 110/80 mmHg, a pulse of 82 x / minute, respiration of 20 x / minute, and temperature of 36.2 °C. On the extra-oral clinical examination, it was found that the patient’s facial profile was asymmetry with swelling in the left buccal region sized 5x3x3 cm with clear and firm boundaries, without pain and paresthesia, hard consistency, difficulty to move from the base, and the swelling had the same colour as the surrounding tissues. On the lymph node examination, it was found that the lymph nodes in the right submandibular region were palpable and painless.

On the intraoral clinical examination, there was a red-black mass on the hard palate extending to the gingiva and vestibule with a size of 3x3x3 cm, clearly defined, without pain. Laboratory tests did not show any abnormalities and chest x-rays that did not show any metastases to the lung area. Panoramic x-rays did not show any destruction of the teeth and maxilla as well as the mandible.

A CT scan examination shows a tumour that has infiltrated the left maxillary area and left maxillary sinus.

The FNAB anatomical pathology examination, done +/- 1 year before admission to the hospital showed a microscopic picture of large, round, oval to spindle cells clustered and scattered. The nucleus was polymorphic, hyperchromatic, cytoplasmic, and there were also necrotic masses, inflammatory lymphocytes...
and PMN cells. The results of the FNAB were: left submandibular a / r carcinoma with advice for a tissue biopsy of the tumour mass. Approximately three months before admission to the hospital, a biopsy was performed on the tumour tissue and the submandibular lymph node.

The results of the microscopic examination showed that the tumour mass consists of round, oval to spindle cells that grew hyperplastic, condensed, and diffuse. Pleomorphic cell nucleus, partly vesicular hyperchromation with clear nuclei, mitosis was found cytoplasm containing the pigment melanin. The stroma of the fibrocollagen-sized tissue includes PMN inflammatory cells with dilation and damaging of blood vessels. In other parts, the structure of the salivary gland is tubular covered with cuboidal epithelium, and the cell nucleus is within normal limits. The conclusion from the pathology examination is metastatic malignant melanoma a / r left submandibular lymph node.

Based on subjective, clinical examinations and supporting examinations in the form of laboratory, radiological and anatomical pathology, it was found that the working diagnosis is malignant melanoma at the palate region with metastases to the left submandibular lymph node. The prognosis of this patient is dubious ad malam because, according to the literature, oral malignant melanoma has a 5-year survival rate of less than 10%.

The overall treatment plan for this patient was not only carried out in the oral and maxillofacial surgery department but in collaboration with other disciplines, including surgical oncology, ENT-LN (ear nose throat-lymph node) health sciences, prosthodontics, medicine in the hemato-oncology division, and radiation oncology. The first phase of patient care was carried out through a surgical approach, namely hemimaxillectomy and lymphadenectomy by oral surgery and surgical oncology. Before the surgery began, a tracheostomy procedure was performed by the ENT-LN department to protect the airway during the surgical procedure.

After surgery, the patient was admitted to the inpatient room in a stable condition and received integrated follow-up by nurses and nutritionists. The next step was making an obturator by the prosthodontic section, which aims to try to replace the anatomy and function of the lost tissue.

On the fourth day after surgery, the patient was allowed to go home with several instructions. The instructions given when the patient returned home were recall for control to the oral surgery clinic on the seventh day after surgery, control to the ENT-LN clinic, continuing treatment via outpatient care to the hemato-oncology clinic to get chemotherapy treatment, and radiation oncology clinic to get radiotherapy.

Discussion

In the article reviewed by Mihajlović et al., it was quoted that oral malignant melanoma is a rare tumour with an annual incidence of 0.2 per 1 million, or 1 case per 5 million people (Mihajlović, 2012). Hicks and Flaitz classified several articles related to melanoma of the head and neck mucosa, including 703 cases of the oral mucosa. They managed to find that the most frequently affected area was the palatal mucosa (Table 1). Malignant melanoma has no gender predilection and frequently occurs in Asian, African, Hispanic, and Indian populations. The mean age of sufferers is 6 to 7 decades of age and is very rare in the pediatric population (Muller, 2019). In this case, malignant melanoma appeared in the palate region of a 36-year older woman.

At the time of discovery, malignant melanoma in the palate area was sized 3x3x3 cm, in contrast to the oral mucosa. The presence of asymptomatic oral pigmentation at lesion sites was found on average before diagnosis in 1/3 of the total patients. This phase can last months or even years until signs of tumour or
Table 1. Localization of 703 oral malignant melanoma cases (Hicks and Flaitz, 2000).

| Localization          | n  | %  |
|-----------------------|----|----|
| Palate                | 223| 32 |
| Hard palate           | 66 | 9  |
| Soft palate           | 7  | 1  |
| Gingiva               | 37 | 5  |
| Maxillary gingiva     | 114| 16 |
| Mandibular gingiva    | 50 | 7  |
| Oral cavity           | 82 | 12 |
| Buccal mucosa         | 46 | 6  |
| Lips                  | 45 | 6  |
| Tongue                | 18 | 3  |
| Base of the mouth     | 11 | 2  |
| Uvula                 | 4  | <1 |

Table 2. TNM Staging of mucosal melanoma in the head and neck (Breik et al., 2016).

| Primary Tumor | Nodal Status | Metastasis |
|---------------|--------------|------------|
| T1: mucosal disease | N0: regional lymph nodes cannot be assessed | M0: no distant metastasis |
| T2: moderately advanced disease—involving soft tissue, cartilage, bone, or underlying skin | N0: no regional lymph node metastasis | M0: no distant metastasis present |
| T3: regional lymph node metastasis present | N1: regional lymph node metastasis present | M0: no distant metastasis present |
| T4: direct invasion of cranial base, temporal bone, or cranial nerves | N1: regional lymph node metastasis present | M1: distant metastasis present |

Figure 10. Classification of maxillectomy according to Brown, which is used for determining the border of maxillectomy treatment (Brown, 2010).

Figure 11. Weber Ferguson incision pattern which is used as a surgical approach in a maxillectomy treatment (Andrew, 2018).

tumour invasion appear. The absence of problems often causes patients to delay seeking medical care (Topic, 2017). Initially, +/- 1.5 years before admission, the patient complained of a blackish lump on the roof of his mouth, but the patient did not seek treatment.

To determine the diagnosis and prognosis of a tumour, tumour staging must be carried out following the international standards of The American Joint Committee on Cancer TNM (tumour-node-metastasis) staging system, shown in table 2 (Breik, 2016). The patient’s primary tumour had invaded the mucosa, soft tissue and bone but had not yet reached the cranial base and brain, as seen on the CT scan examination results. The results of the lymph node examination also showed involvement of the left submandibular lymph node, and there was no tumour metastasis. In this patient, a T4aN1M0 stage was obtained. The prognosis for malignant oral melanoma is poor, with a 5-year survival of around 10%. The 5-year survival in patients with positive cervical lymph nodes was 16.4%, and in patients with negative cervical lymph nodes, the finding is 38.7% (Collins, 2010). In this patient, the patient began to be finally diagnosed +/- 1.5 years after the complaint appeared with involvement of cervical lymph nodes at the level of IB (submandibular). It is expected that with adequate therapy, the patient will achieve a good survival rate.

The main treatment for malignant oral melanoma is surgery to remove the tumour, with or without neck dissection. The head region is the most complex anatomical part of the human body because there are vital organs in a small area, blood vessel structures, and nerves, but no less important in this region there is a dense network of lymphatic vessels and lymph nodes with the largest number (Bujas, 2010). Neck dissection aims to eliminate lymph nodes in order to limit the spread of malignant tumours. In this patient, the action taken was class IB maxillectomy surgery (Brown, 2010). Incisions made on the face are the Weber Ferguson approach often used in maxillectomy (Andrew, 2018).

Additional therapy for malignant oral melanoma must be delivered, including radiotherapy, chemotherapy, immunotherapy...
and immunomodulators (Bujas, 2010). In this patient, additional therapy was performed by the hemato-oncology department in the form of chemotherapy in several cycles and radiotherapy by the radiation oncology department.

**Conclusion**

The patient has received treatment following the standard of care for malignant tumours, and currently, the patient is still being followed up by the hemato-oncology and radiation oncology departments. We hope that the patient will get maximum treatment results and a good survival rate.

Oral malignant melanoma is a rare and aggressive malignancy. OMM occurs due to the abnormal growth of melanin pigmentation. Dentists and family physicians should suspect OMM in their differential diagnosis during the examination of pigmented oral mucosal lesions. Therefore, in any patient with an oral pigmentation, an oral biopsy specimen should be obtained as a diagnosis because the clinical appearance may not be sufficient. Histopathological diagnosis is the gold standard in the diagnosis of melanoma. About 80% of OM is located in the mucosal region of the palate and maxillary gingiva.

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**Conflict of Interest**

There are no conflicts of interest to declare by any of the authors of this study.

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