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Oral Amelanotic Malignant Melanoma: A Review and a Case Report

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Abstract

Introduction: Oral malignant melanoma is a rare poor prognosis tumor with the 5-year survival rate of <15% that may occur on maxilla and alveolar ridge. Melanoma divided in two forms of pigmented and non-pigmented.

Case report: 61-years-old woman with a painless, non-tender, non-pigmented exophytic lesion on lower right ridge was seen. Cone beam computed tomography and histopathologic examination of the excised tissue showed tumoral cells with features of mitosis. The patient underwent hemimandibelectomy with radical neck dissection.

Conclusion: We present a case of non-pigmented melanoma which appeared after extraction of lower right second molar. Hemi-dissection of the involved area is treatment.

Keywords: Oral; Malignant; Melanoma

Introduction

Melanoma is a malignant tumor containing derived from melanocytes that are originated derived from the neural crest. While most melanomas are present in the skin, mucosal surfaces may also be involved [1]. Mucosal melanoma (MM) is an infrequent type of melanoma with a destructive clinic-pathological actions with a 5-year survival rate of <25% [2]. Head and neck melanoma is a rare entity that can involve sinonasal cavity, oral cavity, larynx, salivary glands and upper esophagus [3]. About 55% of all MMs arise in the head and neck region [4]. Oral malignant melanomas (OMM) are very rare lesions and arise commonly in the maxillary gingiva more often on the palate with rarer incidences in the mandibular gingiva [3]. The prognosis of OMM is poor and the incidence slightly increases in male with a mean age of 56 years old (age range 7-95) [5]. These lesions if identified at an initial in situ stage are possibly treatable and surely have a well prognosis, but unfortunately as they are asymptomatic, consequently, late diagnosis makes the prognosis very poor [4]. Melanoma is separated into two forms: pigmented and non-pigmented. The non-pigmented type in oral fossa cannot be illustrated from other nonthreatening or tumoral lesions, so biopsy is imperative [6]. The mucosal melanoma of oral fossa is more frequently seen in African-American, Japanese and Asians Indians. There is a higher incidence of melanin pigmentation on oral surfaces of these groups [7]. In opposite to cutaneous melanoma, MMs have unidentified cause, since the affected locations of the lesions are not sun exposed [8]. Many researches showed some etiologies for Oral malignancies (OMs) like inappropriate dentures, smoking, amalgam tattoo, nevus, and cultural pigmentation [9]. While most OMs arise de novo, approximately one-third of these malignancies appear from nonthreatening melanotic oral disorders [10]. Histopathologic findings indicate the proliferation of atypical melanocytes at the epithelial-connective tissue interface, along with the transition to the upper epithelium and by invasion of the underlying connective tissues [11]. Oral melanomas are typically asymptomatic with asymmetrical shape and dark brown to black color. It is often identified by soft tissue swelling, loosed tooth, ulceration, or bleeding of the overlying epithelium [7,9]. Since a small number of cases of OM are painful, it leads to late diagnosis and late treatment [7,10]. Only 2.3% of all MMs are amelanotic in origin and this kind is very rare in oral fossa [12]. In order to confirm the diagnosis of amelanotic type, immunohistochemical staining with antibodies against certain melanocytic differentiation antigens are necessary [12]. According to clinical types, OMs can be divided into five forms including the pigmented nodular type, the non-pigmented nodular type, the pigmented macular type, the pigmented mixed type and the non-pigmented mixed type [12]. This report describes a clinical, histopathological, and immunohistochemical aspect of unusual oral exophytic amelanotic melanoma on the mandibular alveolar ridge of 61 years old female who came to oral medicine department.

Case report

A 61-years-old woman with a history of smoking and complaints of painless lesion that has emerged since last month after extraction of the mandibular right second molar has been referred to Oral Medicine Center of Shiraz Dental School. Tooth mobility was a major problem of the patient and she suffered from advanced periodontal disease due to extremely poor oral hygiene. The socket did not heal after extraction and lesion progressed gradually. She has given history of diabetes and high blood pressure. In clinical oral examination a non-tender, non-pigmented exophytic lesion on lower right ridge was seen that was nodular in shape with smooth surface (Figure 1). The lesion was extended from the tooth to retromolar pad area .The color of the lesion was pink in some site and red in other. On palpation, the lesion was rubbery to firm in texture. She also complained of paresthesia in lower right part of her face.

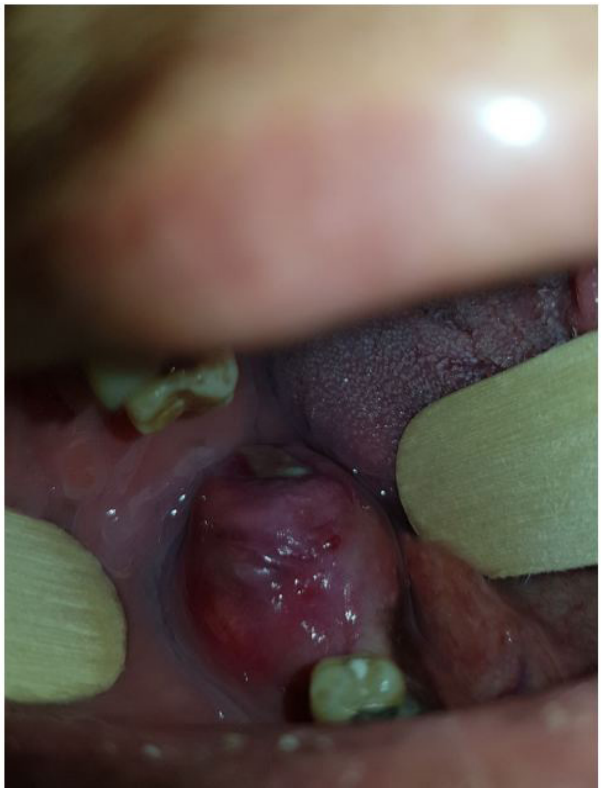

Figure 1: A Non-Tender, Non-Pigmented Exophytic Lesion on Lower Right Ridge

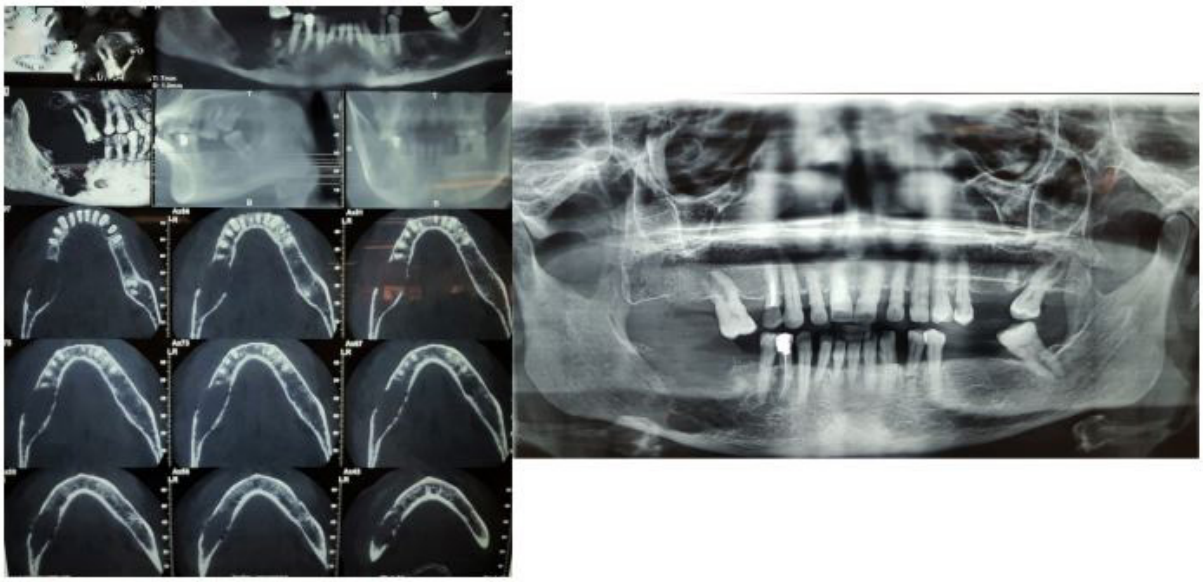

Figure 2: Cone Beam Computed Tomography of Lesion

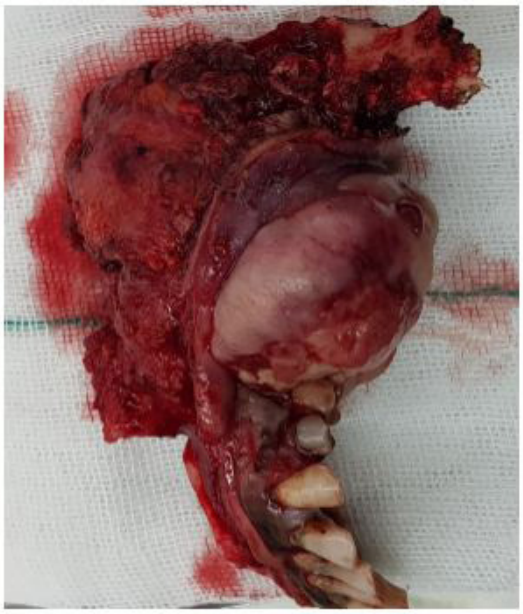

Figure 3: Hemimandibelectomy

On cone beam computed tomography (CBCT) an ill-defined lytic lesion in the posterior body of the mandible on the right side was detected which extended from 2nd premolar to the retromolar region. This lesion has destructed the buccal and lingual cortex of the mandible in mouth-eaten fashion. New bone formation on the buccal side was seen and alveolar canal was involved (Figure 2). Reactive lymph nodes were seen clinically and the involvement of lymph nodes in right jugular chain and left submandibular gland in ultrasound were observed. An incisional biopsy was performed to confirm the clinically diagnosed oral amelanotic melanoma. In histopathologic examination of the excised tissue (hematoxylin/eosin (H&E) stained sections), proliferation of spindle shaped pleomorphic cells and round cells were seen without any melanocytes. Tumoral cells with features of mitosis, multi nucleation, polymorphism, hyperchromatism, increased nuclear cytoplasmic ratio and prominent nuclei were seen. In order to achieve more adequate and distinct diagnosis, Immune histochemistry (IHC) was done on tissue specimen. The tumor cells exhibited positive Melan A, S100 and KI67 markers, so IHC confirmed and completed the diagnosis of malignant melanoma. The patient underwent hemimandibelectomy with radical neck dissection under general anesthesia (Figure 3). The patient was referred to the Department of Oncology for further treatment. All procedures performed in this study were in accordance with the ethical standards of the institutional research committee and the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Written consent form had taken from the patient as well.

Discussion

Melanocytes play a significant role in homeostasis of skin and mucosal membrane under physiological state and they play a protective role against UV radiation. They can produce melatonin and serotonin. Melanoma cells are transformed melanocytes that are round, spindle, and polygonal cells with hyper chromatic nuclei. They are empty of dendritic processes and have clonal expansion capacity. These properties can cause the capability of profound invasion to the superficial epithelium, connective tissue and regional metastasis to the lymph nodes and distant metastasis [13,14].

Oral malignant melanoma may establish significant diversity in the morphological aspects, developmental procedure and biological performance. A study [8] in India presented that 20.41 to 34.4% of all melanomas were on the mucous membrane and amongst them, 16% of the lesions were in the oral cavity. The most usual location for head and neck melanoma is conjunctiva and upper respiratory tract. Mucosal melanoma of the oral fossa is the uncommon malignancy and accounted for 0.2–8% of all the melanomas [15]. It has undesirable prognosis owing to numerous characteristics such as lasting asymptomatic for an extended time, which causes late diagnosis [15]. Accurate autologous pathogenesis is not well understood. Previous melanosis or unusual melanocytic hyperplasia may signify a proliferative stage before obvious tumor genesis happens [16]. Mechanical irritants such as dental trauma, use of tobacco, exposure to chemicals such as formaldehyde and alcohol use are the other possible causes [14]. The most common age of engagement of this disease is over the age of 40 years [17].

Physiologic pigmentation, oral melanotic macule, drug-induced melanosis, post-inflammatory pigmentation, smoking-associated melanosis, melanoacanthoma, nevus, amalgam tattoo and Kaposi's sarcoma should be clinically distinguished from malignant melanoma [7,15]. While some of these disorders are diagnosed according to medical history and clinical appearance, histological findings of all local pigmented lesions are mandatory for appropriate diagnosis [7]. The most usual site of OMs is palate and maxillary mucosa [15], but the present case was one of infrequent cases in which the disorder was placed in the mandibular mucosa. In Histopathological examination, MMs can show three forms including in situ pattern (15%) in which the tumoral cell is

restricted to the epithelium and the epithelial-connective tissue interface (junctional), an invasive form or nodular pattern (30%) in which the cells are found in the underlying connective tissue and a combined form (55%) which is aggressive melanoma with an in situ element that is characteristic in most progressive lesion [15]. The clinical feature of current case was very confusing due to the uncommon location and normal surface color without melanin induced discoloration.

In 2010 the American joint committee on cancer approved a new staging system for head and neck MM. This staging classification reveals the aggressiveness of this neoplasm. Stage 1 and 2 were omitted and the classification begins from stage 3 as mucosal form and stage 4 for moderate and advanced cases [18]. Most researches have described that OMs are very destructive tumor and many factors are associated with its invasion as well as late identification, inadequate resection, and metastasis capability [9]. Older age, size of primary tumor, poor surgical excision, non-pigmented (amelanotic) lesions and local lymph node involvement have an association with worse prognosis [7]. Furthermore, other factors related to poor prognosis are an increased mitotic frequency of the atypical melanocytes and vascular or neural involvement [8]. Regardless of the improvement of surgical methods, prognosis remains poor and five years' survival rate is 15%-40%. The palatal mucosa shows the worst prognosis in comparison to other intra oral locations. Fewer than 10% of cases with distant metastases live after five years. The 10-years survival rate is 0% [19].

The initial diagnosis of mucosal malignant melanoma can be made by H&E staining method and for further evaluation and better diagnosis IHC is recommended. In our case both methods were used and final impression was confirmed by IHC as amelanotic melanoma.

The best treatment modality is surgical excision with surgical safe margins. Zitelli [20] stated that the safety margins should be at least 1.5cm for proper management of head and neck melanoma or 2.5 cm for melanomas bigger than 3cm in diameter.

Conclusion

Oral melanoma is a very rare neoplasm and has a destructive behavior and poor prognosis. Most OMs are generally asymptomatic with rapid growing so they are identified in the final stages. Complete clinical oral examination by dentists and proper biopsy of pigmented and high risk non-pigmented disorders, have an essential role in higher survival rate and better management.

Conflict of interest

Not declared

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