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Mandibular Squamous Cell Carcinoma with Condylar Invasion: A Panoramic Case Study

drg. Ifa Ariefah*, drg. Dwi Putri Wulansari, M.BioMed., Sp.RKG*

*Department of Oral and Maxillofacial Radiology, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia

Corresponding author:
10, Perintis Kemerdekaan Street, Tamalanrea, 90245, Indonesia
dwiputri@unhas.ac.id
+62 811-4110-550

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ABSTRACT

Radiolucent lesions of the jaw can occur in various forms. These lesions may represent anatomical variations or inflammatory, benign to malignant lesion processes. The disease is a squamous cell carcinoma that arises in the jaw and develops from remnants of odontogenic epithelium, cysts, or pre-existing odontogenic tumors. This case report aims to describe the appearance of aggressive osteolytic lesions in the jaw on panoramic imaging. A 55-year-old female complained of enlargement in the mandibular gingival area and pain on chewing for ±1 month. Initially, ± 2 months after tooth extraction, a pea-sized enlargement appeared in the patient's mouth. There is no history of salty fluid in the patient's mouth. As the size increased, the patient took the initiative to go to the community health center and was referred to the Dental Hospital for a panoramic radiograph. The mandibular ramus was preserved until the lesion destroyed the right condyle. General anesthesia, debridement, incisional biopsy, control of bleeding and washing of the surgical area, then treatment of the open surgical wound and covering it with a bandage. A panoramic radiograph is the only support to see the characteristics of lesion expansion and is considered sufficient as a reference for patient management. However, histopathologic examination is still required for definitive diagnosis.

Keywords: Radiolucent lesions, Squamous cell carcinoma, Mandibular ramus, Condyle

Introduction

Malignant lesions are rare cases in the jaw; malignancy is known as the character of a cancer; malignancy has a growth that is not limited to its growth, can invade adjacent tissues, and can spread to other body tissues. Oral cancer usually begins with small, unusual, and unexplained growths or sores in various parts of the mouth, including the lips, cheeks, tongue, and hard and soft palate, and extends to the base of the mouth and oropharynx (1). Oral cancer is the eleventh most common cancer worldwide. Oral squamous cell carcinoma (OSCC) is the most recognized malignant mucosal neoplasm of the head and neck, accounting for more than 90% of all malignant neoplasms. Oral squamous cell carcinoma usually affects older age groups throughout the fifth to eighth decades of life, with fewer incidences reported in younger age groups below 40 years, and male patients are more affected than females (2). Oral squamous cell carcinoma is the most common malignant neoplasm of the oral cavity.

The buccal and gingival mucosa are the most common OSCC locations after the lingual part; the other anatomical location of OSCC is the labial part, especially the lower labial part, due to sun exposure (3). The lateral border of the tongue shows the highest incidence of OSCC, accounting for about 50% of all OSCC, followed by the floor of the mouth/ventral tongue, alveolar/gingival mucosa, buccal mucosa, lips, and palate (4). Etiology and predisposing factors of oral cancer include consuming alcohol, using tobacco or betel nut habit, and being infected with human papillomavirus (HPV) are the three most common causes of OSCC, and other causes can be through food (one of which is red chili), vitamins (vitamin A deficiency), and family history (genetic) (5,6). OSCC or oral cancer can also vary based on geographical location, anatomical location, race, age, and gender (7).

The characteristics of a pathological lesion often cannot be observed directly through clinical examination, so dentists need supporting examinations such as radiographs, one of which is panoramic radiographs, to determine the location of the lesion, the structure of the lesion and the condition of the teeth, and how the lesion affects the surrounding anatomical structures. Another consideration in choosing panoramic radiographs is that this modality is often performed in dentistry as a routine examination, can see the shape and extent of the lesion, and is more economical (8,9).

Case Presentation

A 55-year-old female complained of an enlargement of the right mandibular gingival area and pain when chewing for ±1 month. Initially, ±2 months after the patient underwent tooth extraction, a pea-sized enlargement appeared in the patient's mouth. There was no history of salty fluid in the patient's mouth. Due to the increasing size, the patient took the initiative to visit the Dental Hospital for panoramic radiography. An image of the mandibular ramus up to the right condyle destroyed by the lesion was obtained.

On intraoral examination, an enlargement is seen in the extra buccal region at the 45 - 47 tooth region with a size of 4 × 3 × 1.5 cm with rubbery consistency, irregular shape, palpation pain (+), induration (+), mobile (-), does not bleed easily on touch, color is redder than the surrounding tissue and the enlargement area is accompanied by white plaque, crepitation (-), pus discharge (-), there is calculus, oral hygiene is in the moderate category. On extraoral examination, the face is asymmetrical with standard mouth opening. Enlargement of the dextra buccal ar with a size of ±8 × 7 ×1.5 cm with a soft consistency, palpation pain (-), temperature and color are the same as the surrounding tissue (Figure 1). Panoramic radiograph of the patient was made for once (Figure 2).

Figure 1. (A) An extraoral photograph shown asymmetrical face. (B) Enlargement of the dextra buccal with a size of ±8×7 ×1.5 cm with a soft consistency

Figure 2. Panoramic radiograph of the patient showing widespread bone destruction in the dextra mandible (red arrow)

Panoramic radiographs showed soft tissue enlargement that decomposed the mandibular dextra bone from the angulus to the ramus, extending to the coronoid process and condyle process, and extending in all directions with irregular margins.

An irregular, ill-defined radiolucent lesion was seen in the posterior mandibular dextra in the edentulous region of teeth 47,48. The lesion appeared to deconstruct the ramus area reaching the angulus and the position of the dextra condyle appeared inferior due to the insistence of the irregular ill-defined radiolucent lesion corticated in the dextra condyle extending superior to the articular eminence, the lesion appeared to displace tooth 46 toward the mesial.

Case management was general anesthesia, debridement with incisional biopsy, control of bleeding and washing of the surgical area, then open surgical wound and closure of the surgical wound with a bandage. The results of histopathological examination of the tumor found tissue showed nests of malignant cells consisting of cells with round-oval, atypical, pleomorphic, hyperchromatic nuclei, prominent nucleoli, eosinophilic cytoplasm, 0-1/LPB mitotic activity and formation of keratin beads; there were also areas of hemorrhage, necrotic debris and scattered lymphohistiocytic cells around them, no vascular invasion was found in this specimen (LVSI negative) (Figs. 3).

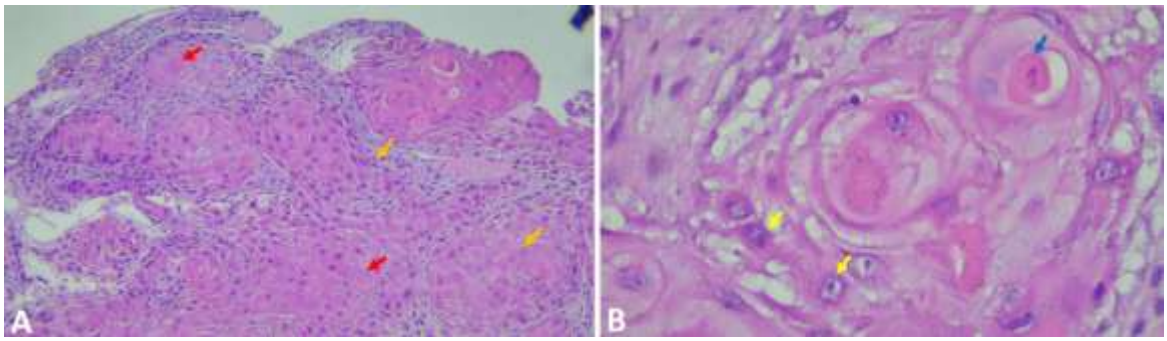

Figure 3. (A) Malignant cells of squamous epithelial cell origin growing infiltratively into the surrounding stroma (yellow arrow) and formation of keratin pearl (red arrow). (B) Malignant cells consist of cells with round-oval, atypical, pleomophic, hyperchromatic nuclei, prominent nucleoli, eosinophilic cytoplasm (yellow arrow) and keratin pearl formation (blue arrow).

Discussion

Oral squamous cell carcinoma (OSCC) is the most common type of cancer in the oral cavity, with the majority occurring in the glossy area. Complaints that occur in general patients include long-term thrush or lumps that cause asymmetric facial shapes (10). Based on histopathology, OSCC is classified as well-differentiated, moderately differentiated, or poorly differentiated squamous cell carcinoma. OSCC in males is mainly poorly and moderately differentiated, while in women, it is mainly well and moderately differentiated (11).

Symptoms of OSCC include pain, discomfort, swelling, dysphagia, and sore throat. OSCC has a specific clinical appearance. It appears as white or reddish mixed proliferative lesions with raised margins and ulcerated surfaces with yellowish-gray pseudomembranes, especially on the lateral and ventral sides of the tongue (12). This is by the research who stated that there is currently an increase in the incidence of squamous cell carcinoma of the tongue in the world. This finding is somewhat different from the findings of another study, where oral cavity OSCC is mainly found in the buccal mucosa (13).

Panoramic radiographs are widely used by dentists as an initial observation before using other modalities, and usually with the support of clinical diagnosis, panoramic radiographs are sufficient to show the occurrence of extensive infection. This is in line with the case report, which stated that panoramic radiographs were obtained at his initial visit and showed an indistinct radiolucent lesion posterior to the right third molar as well as irregularity of the inferior border of the mandible (14).

Examination of panoramic radiographs in this case was helpful in supporting the diagnosis. In addition, the evaluation of OSCC combined with histopathology is very important for the management of OSCC. This is almost in line with stated that some researchers recommend the use of two or more modalities that can complement each other. Clinical assessment and conventional radiography are accurate in cases of bone involvement, but are significantly less successful in detecting early bone invasion. However, a combination of panoramic radiography and bone scintigraphy is recommended in the early stages of invasion (15). However, this case report combines panoramic radiography with histopathology.

In this case, panoramic radiography showed an osteolytic lesion that disintegrated the dextra mandible from the angulus to the ramus, extending to the processus coronoideus and processus condyliloideus in all directions with irregular margins. This is in agreement with Lestari et al., who states that the borders of the lesion, which are not fixed, can be in the form of a blending edge between the formation of normal bone trabeculae with abnormal bone trabeculae, invasive lesion borders with finger-like formations (finger-like or bay-type extensions) describing malignant tumors accompanied by rapid bone destruction. In addition, it is added that radiographically, malignant tumors present a picture of damage/destruction of the bone margin (cortex) and radiolucent lesion boundaries that resemble honeycombs (11).

In this case, there was no history of tobacco and alcohol use, and the initial cause was tooth extraction. This is in line with the case report of Adachi et al., who reported a 59-year-old female patient with no history of tobacco and alcohol use. However, tooth extraction caused extensive bone reduction in the right mandible between the second premolar and ramus at the lingual and buccal cortex. However, two modalities were used in this case: panoramic radiograph as an initial observation and computed tomography (15).

Conclusion

Squamous cell carcinoma is a fairly slow-growing skin cancer that can spread to nearby tissues, bones and lymph nodes, making it difficult to treat and can spread to nearby tissues, bones and lymph nodes, making it difficult to treat. Due to its rarity, it should be considered as a differential diagnosis of jawbone radiolucency, especially in older patients with a history of cystic lesions in the jawbone. Panoramic radiograph is the only support to see the characteristics of lesion

expansion and is considered sufficient as a reference for patient management. However, histopathologic examination is still required for definitive diagnosis.

Ethical considerations

Informed consent was obtained from the patient for all treatments and procedures. Consent was also obtained for the publication of this case report, and all efforts were made to maintain patient confidentiality.

Patient consent

We confirm that we have obtained written, informed consent from the patient for the publication of this case report. The patient has been thoroughly informed about the details that will be published and understands the implications of the publication. The written consent is stored securely and is available for review by the editorial team upon request.

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