

## Pedunculated Squamous Cell Carcinoma on the Tip of the Tongue

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### Abstract

Tongue cancers are the most frequent types of malignant tumors of the oral and maxillofacial regions, and their prognosis is usually worse than that of other oral cancers. Most tongue cancers occur on the lateral borders of the tongue, and their occurrence on the tip of the tongue is rare. Moreover, squamous cell carcinomas rarely show pedunculated growth, in contrast, oral verrucous carcinomas, which show external growth, are a distinct type of squamous cell carcinoma.

This report describes a rare case of pedunculated squamous cell carcinoma on the tip of the tongue in a 68-year-old woman. This pedunculated tumor with induration, tenderness, and an irregular surface was approximately 35 mm × 35 mm in size and could easily hemorrhage. The lesion was histopathologically diagnosed as a well-differentiated squamous cell carcinoma. A lichen planus-like white lesion was adjacent to the left of the tumor was pathologically diagnosed as a carcinoma *in situ*.

**Keywords:** Pedunculated squamous cell carcinoma; Tip of the tongue; Verrucous carcinoma; Carcinoma *in situ*

### Introduction

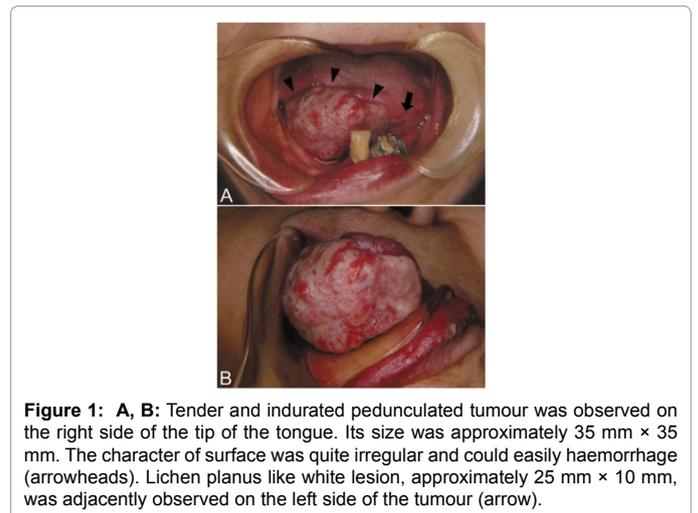
Oral tongue cancers are the most frequent type of malignant tumors of the oral and maxillofacial regions, with a prognosis not commonly better than that of other oral cancers. These tumors can also induce functional disorders of the stomatognathic system [1-5]. Many tumors occur on the lateral borders of the tongue, whereas their occurrence on the tip of the tongue is rare [6-9]. Moreover, oral squamous cell carcinomas rarely show pedunculated and tuberous growth, although oral verrucous carcinoma are a distinct type of squamous cell carcinoma [6,10-13].

This report describes a rare case of pedunculated squamous cell carcinoma on the tip of the tongue in a 68-year-old woman, as well as showing the progress with treatment.

### Case Report

A 68-year-old woman was referred to our department for a contact pain at the tip of her tongue. She had noticed a slight pain when the tip of her tongue touched her partial denture about 20 days earlier. She visited a local clinic, which identified the tongue lesion and referred her to our hospital. Her history included a fracture of the lumbar vertebra, but she showed no difficulty walking. The patient's father had died of stomach cancer.

Upon admission, her height was 142 cm and her weight was 44.4 kg. Her general condition, laboratory parameters, and extraoral findings were normal. A tender and indurated pedunculated tumor, approximately 35 mm × 35 mm in size, was observed on the right side of the tip of the tongue. The surface of the tumor was quite irregular and it could easily hemorrhage. The indurated area was limited to the tumor, and could not be felt elsewhere in the region. A white, lichen planus-like lesion, approximately 25 mm × 10 mm in size, was observed adjacent to the left side of the tumor (Figures 1A and 1B). Computed tomography (CT) of the tumor showed a homogeneously enhanced area on the tip of the tongue. Multiple lymph nodes were observed in the bilateral submandibular and submental regions, but none was suspected of being a metastasis from the original lesion (Figure 2). The patient was clinically diagnosed with a malignant tumor on the tip of the tongue (T2N0M0).



**Figure 1: A, B:** Tender and indurated pedunculated tumour was observed on the right side of the tip of the tongue. Its size was approximately 35 mm × 35 mm. The character of surface was quite irregular and could easily haemorrhage (arrowheads). Lichen planus like white lesion, approximately 25 mm × 10 mm, was adjacently observed on the left side of the tumour (arrow).

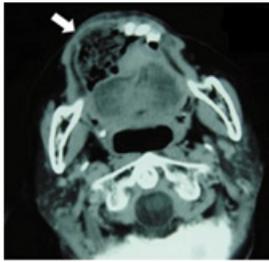
The lesion was biopsied to determine the final diagnosis and the right lower first premolar, which was in contact with the tumor, was extracted. The histopathological diagnosis was squamous cell carcinoma. Tumor cells showing dysplasia were found to proliferate and to infiltrate the stroma. Two weeks later, the patient underwent surgery under general anesthesia. Prior to excision of the tumor, the left lower second incisor and canine teeth were removed. The tongue tumor was excised en-bloc with margins of 10 mm, along with the white lesion

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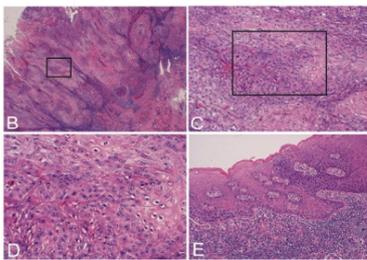
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**Figure 2:** CT imaging showed the tumour like homogeneous enhanced area on the tip of the tongue.



**Figure 3:** A: The en block section after the excision of tongue tumour. The pedunculated tumour was excised on the 10-mm safety margin (left side) and the adjacent white lesion on the tumour was also excised on the 3-mm safety margin (right side); B, C, D: Histopathological findings in the tumor. In the tumor cells showed hyperkeratosis, the N/C ratio was increased. They also had nuclear showing dysplasia and eosinophilic follicles, and infiltrated into the muscle layer. Haematoxylin and eosin; Original magnification,  $\times 12.5$  (B),  $\times 100$  (C), and  $\times 200$  (D); E: The adjacent white lesion on the left side of the tumor. It showed dysplasia and hyperkeratosis limited in epithelial cells and the infiltration of the lymphocytes in lamina propria under the epithelium. Haematoxylin and eosin; Original magnification,  $\times 40$ (E).

adjacent to the left side of the tumor with margins of 3 mm (Figure 3A). After hemostasis, the wound was sutured simply. There was no evidence of postoperative infection, and the patient was discharged after satisfactory wound healing. To date, the tumor has not recurred, and there have been no metastases to cervical lymph nodes or distant metastases. The patient is being carefully and periodically followed-up.

Histopathological analysis demonstrated that the tumor cells showed pedunculated growth and hyperkeratosis, increasing the N/C ratio. Their nuclei showed evidence of dysplasia and the tumor showed eosinophilic follicles. Moreover, tumor cells were found to infiltrate into the muscle layer, resulting in the lesion being diagnosed as a well-differentiated squamous cell carcinoma (Figures 3B and 3C). In contrast, the white lesion adjacent to the left side of the tumor was diagnosed as carcinoma *in situ*. This lesion showed dysplasia and hyperkeratosis limited to epithelial cells, as well as infiltration of lymphocytes into the lamina propria under the epithelium (Figures 3D and 3E).

## Discussion

Tongue cancer is the most frequent type of oral cancer, constituting 25% to 40% of all oral cancers. Approximately 60% of tongue cancers show internal growth, similar to ulcer formation, with fewer showing external growth [1-4]. Most of these lesions occur on the lateral borders of the tongue, especially the region corresponding to the

molars, with tumors on the tip of the tongue being rare [14]. Adenoid malignant tumors previously reported on the tip of the tongue include adenocarcinoma [7], squamous cell carcinoma arising from xeroderma pigmentosum [8,15], leiomyosarcoma [9], and malignant melanoma [16]. In addition, pedunculated squamous cell carcinomas have been reported on the tip of the tongue [6,13], as in our patient. The highest percentage of tongue cancers occur on the central third of the tongue, followed by the back third, with only approximately 6% of these tumors occurring on the forward third, including the tip region [14]. However, another study reported that two-thirds of tongue cancers occurred on the lateral borders and ventral surface of the anterior two-thirds of the tongue, with only one-quarter occurring on the posterior third [17].

Likely causes of tongue cancer include smoking, drinking alcohol, syphilis, poor oral hygiene, and chronic mechanical stresses caused by dentures and sharp teeth. The chronic mechanical stress experienced by our patient may have been caused by the right lower first premolar and the left lower second incisor and canine teeth, all of which had considerable calculus and were highly mobile.

Treatment of tongue cancer generally includes surgery or radiation. Although treatment plans differ in our institution [1-3], early cancers (i.e. less than the T2 level) in our department are generally treated surgically, with 10-mm safety margins. Our patient was treated surgically because the tumor showed pedunculated growth and minimal postoperative functional disorder was expected. At present, over 5 years after surgery, the morphological changes in the tongue have been small and functional disorders, including disorders in mastication, pronunciation, and deglutition, have not been observed.

Morphologically, the tumor was pedunculated, with histopathological analysis demonstrating a typical well-differentiated squamous cell carcinoma. Verrucous carcinomas, a distinct type of squamous cell carcinoma, are also pedunculated. These tumors grow locally, with lymph node and distant metastases rarely observed. Verrucous carcinomas are papillomatous or calculiform polypoid lesions, with club-shaped growth of well-differentiated epithelium [10-12]. These tumors are rare on the tongue [18]. Histopathology showed that the lesion in our patient was not a verrucous carcinoma but a typical well-differentiated squamous cell carcinoma. Although pedunculated forms of basaloid squamous cell carcinoma and spindle cell carcinoma, as well as adenocarcinoma and pleomorphic adenoma, have been observed on the tongue [13,19-23], squamous cell carcinoma is more likely [6].

Our patient also showed a white, lichen planus-like lesion on the tongue mucosa adjacent to the tumor. Histopathologic examination showed that this lesion was a carcinoma *in situ*. These lesions are precancerous, with malignant cells limited to the epithelium, but without proliferation or infiltration into the lamina propria under the epithelium [24]. Previous cases have also shown carcinoma *in situ* or epithelial dysplasia around squamous cell carcinomas of the oral, cervical, and esophageal mucosae [25,26]. Moreover, in the absence of leukoplakia, epithelial dysplasia was detected in seven of 37 patients with tongue and floor of the mouth squamous cell carcinoma with surgical margins over 5 mm [27]. Therefore, removal of these lesions should include surgical margins of at least 3 mm.

## Conclusion

The prognosis of tongue cancer generally depends on the stage of the original tumor and on metastasis to cervical lymph nodes, on the character of the tumor, and on the differentiation of tumor cells [1-4,17]. The 5-year survival rate was found to be significantly lower in

patients with cancers on the back third than on the forward and central thirds of the tongue, indicating that patients with tumors arising in the back third of the tongue have a very poor prognosis [14]. Our patient likely had a good prognosis, because the tumor was a pedunculated, well-differentiated carcinoma and arose in the forward third of the tongue. However, because the incidence of multiple oral carcinoma was about five-fold higher in tongue carcinoma patients with than without leukoplakia [28], careful and periodic follow-up is required.

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