

Verrucous carcinoma of the tongue – a rare case study

Case Report

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Abstract: Verrucous carcinoma is a slow growing, well demarcated, exophytic variant of squamous cell carcinoma with a characteristic verrucous presentation. It is a rare tumour and in 75% of cases it is localised in the oral cavity, and sporadically within the tongue. HPV infection is identified in 40% of patients. Good prognosis is characteristic for this tumour, since the 5-year survival is 93%. The authors describe a case of verrucous carcinoma localised in the tongue of a 62-year old patient. The clinical course, diagnostics and proposed treatment was described and discussed with the existing literature data.

Keywords: *Verrucous carcinoma • Oral cavity • Tongue*

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1. Introduction

Verrucous carcinoma is a rare tumour, first described by Ackerman in 1948. In 75% of cases it is found in the oral cavity. This tumour is predominantly seen in males with the peak of occurrence in the sixth decade. Smoking is the main recognised etiopathological factor. Additionally, human papilloma virus (HPV) type 16 and 18 was identified in 40% of patients [1].

Verrucous carcinoma is a slow growing, well demarcated, exophytic variant of squamous cell carcinoma with a characteristic verrucous presentation. Within the oral cavity it localises most commonly in the gingival and buccal mucosa and more rarely in the hard palate and floor of the mouth. Localisation within the tongue is very rare. The change is usually painless. Prognosis is very good and the 5-year survival is from 80 to 90%, although recurrences happen in 8% of patients. Metastases with verrucous carcinoma are very rare [2].

This tumour is characterised with a deep, penetrating type of growth, it creates thick, verrucas and blunt, wide stromal indentations, with the basement mem-

brane preserved. The tumour consists of a well-differentiated stratified epithelium with no characteristics of atypical cells. Mitoses are very rare and usually found only at the basement layer. The tumour's surface is usually covered with a thick layer of keratin, known as parakeratosis. The keratin covers the external surface and all indentations of the epithelium. A thick, lymphoid-plasmatic infiltration in the stroma is present. Sometimes micro-abscesses can be found within the epithelium and the abundantly produced keratin can induce a reaction to a foreign body [3,4].

2. Case description

Patient K.S. 62 yrs. (card no 508/07) was admitted on 6.02.2007 to the out-patient clinic of the Department and Clinic of Dental Surgery, SUM in Katowice. She was referred by a dentist due to a small nodule present in her tongue for more than a year, as she claimed in the history. At the beginning, the nodule was not growing, painless and without bleeding. She related its occurrence

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with new prosthetic restoration. The nodule had started to grow for the past three months. The patient was a non-smoker.

Clinical examination found no facial asymmetry, lymph nodes were not enlarged, and the endings of the facial nerves were painless. Speaking and swallowing remained undisturbed. Examination of the oral cavity showed the presence of a tumour with an uneven surface, a white coating, on a wide base, measuring 2.5x2.0 cm and localised on the right dorsal surface of the tongue at the level of last molars (Figure 1). Upon examination, the change was painless and without bleeding. Glossal movements were correct.



Figure 1. Patient K.S. 62 yrs. Tumour on the dorsal surface of the tongue.

The samples for histopathological examination were collected on the same day. Due to its exophytic localisation, the tumour was completely excised under a local anaesthesia with the healthy tissues margin of 5 mm (Figure 2). The site of the resulting defect showed no



Figure 2. Tumour 2.5x2.0 cm after a total excision.

macroscopic pathological characteristics. The wound was sutured in layers, closing the defect on the tongue's surface (Figure 3).



Figure 3. Wound after excision of the tumour.

Healing underwent without any complications and after a week, the sutures were removed to conclude a complete healing (Figure 4).



Figure 4. Dorsal part of the tongue after healing. Condition after 3 years from surgery.

Histopathological examination confirmed verrucous carcinoma, and the change was excised with a narrow margin of the healthy tissues. The tumour consisted of the well-differentiated stratified epithelium with no atypical cells, creating a thick claviform nodules and blunt, wide indentations growing into the stroma. The epithelium was covered with a thick layer of parakeratin. Parakeratin also filled all indentations of the epithelium. A thick, lymphoid-plasmatic infiltration in the stroma was present (Figure 5,6).

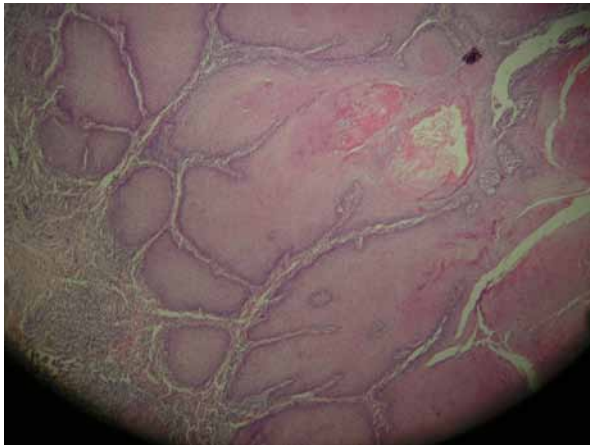


Figure 5. Penetrating growth in the form of thick, claviform verrucas and blunt, wide indentations into the stroma. Parakeratin fills indentations of the epithelium. Hematoxylin-eosin staining (HE). Magnification 40x

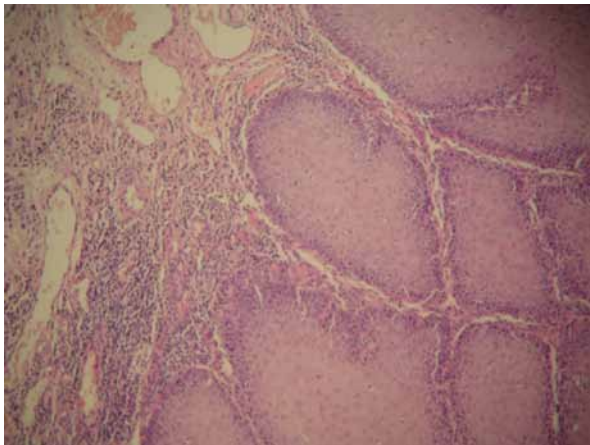


Figure 6. Thick, blunt indentations into the stroma, consisting of a well differentiated stratified epithelium with no atypical cells. Hematoxylin-eosin staining (HE). Magnification 100x

The patient was referred to the Oncology Center in Gliwice, M. Skłodowska-Curie Oncology Institute for a consultation. Irradiation was planned in case of recurrence. Additionally, the patient was referred to a gynaecological examination, which showed no pathological changes within the genital tract. The control examination in Oncology Institute also included an ultrasonography of the neck performed twice, with no changes in the neck's lymph nodes.

The patient has been subjected to follow-up for the past three years in the out-patient clinic of the Department and Clinic of Dental Surgery, with recommended visits every three months. During one of the follow-ups, 9 months from the surgery, changes within the oral mucosa in the form of excessive keratinisation on the gums and the floor of the mouth within the area of 37-32 and the left bucca were found. The material for histopatho-

logical examination was collected from the upper part of the mandibular dental process with the result of hyperplasia acanthotica et hyperkeratosis epithelii, visible signs of HPV infection. Examination of the tissues from the left buccal mucosa showed keratosis epitheli plani.

The patient was directed to test for the anti-HPV antibodies titers and to perform the qualitative and quantitative real-time PCR tests, detecting the most common genotypes of human papilloma virus. The biopsy specimen was collected from the mucosa of the upper part of the mandibular dental process within the 33-35 area. Genetic tests excluded the presence of HPV within the oral mucosa in this case. The mucosal changes were removed by cryosurgery, with a complete recovery after 3 months.

3. Discussion

According to the studies performed by Bouquot J.E. on the two selected populations of the USA citizens, verrucous carcinoma consists of 3% of all malignant tumours of the oral cavity. Koch *et al.* described 2350 cases of verrucous carcinoma within the head and neck in the USA in 1985-1996. 55.9% of tumours were localised in the oral mucosa and 35.2% in the larynx [3]. Oliveira D.T. *et al.* demonstrated 0.57% of verrucous carcinoma cases in the group of 3500 patients treated for malignancies of the oral cavity in the Sao Paulo region (Brasil). The available literature shows lack of data comparing the frequency of verrucous carcinoma incidence within the oral cavity and other regions [2].

Similarly, the available literature shows no separate studies upon verrucous carcinoma of the tongue, since such a localisation is very rare. In the studies performed by Oliveira D. T. *et al.*, verrucous carcinoma of the tongue was found in one patient [2].

Differential diagnosis of verrucous carcinoma is difficult and needs close cooperation between surgeon and histopathologist. Due to expansible growth and lack of cytological atypia, in differential diagnosis of verrucous carcinoma one should take into account papilloma, inverted papilloma or verrucous leukoplakia. Manifestation of cytological atypia and even small foci of infiltrated type of growth distinguish verrucous carcinoma from well differentiated squamous cell carcinoma. In such case differential diagnosis plays important role because of different clinical Progress of these two types of squamous cell carcinoma [4,10].

The most common localisation of verrucous carcinoma, apart from the oral cavity, is the skin of the genital area and limbs. The skin changes develop on the basis of verrucas, which tend to start growing after many

years. Kao *et al.* described 46 patients with verrucous carcinoma of the skin. The exophytic nodules covered with ulcerations difficult to heal, accompanied by pain, bleeding and difficulties in moving were localised on the feet, thighs and palms. These nodules measured 1-15cm [5]. Atypical localisation of verrucous carcinoma was described by Tajiri *et al.*, who diagnosed verrucous carcinoma in oesophagus [6]. Ram *et al.* described verrucous carcinoma in the maxillary sinus [7]. Due to the possibility of co-existing changes within the genital area, the described patient was referred to a gynaecological examination, the latter excluded the presence of any genital area pathologies.

The authors conclude that infection with HPV is a dominant cause of verrucous carcinoma development. It is commonly agreed that at the moment, HPV is connected with development of cervical cancer, anal and tonsil carcinoma [1,3,4]. HPV infection is found in persons with particular predispositions, due to expression of E6 and E7 oncogenes. Additionally, Lopez-Amado M. *et al.* described the increased expression of the p53 protein among the patients with verrucous carcinoma, in comparison with other head and neck malignancies [8]. In order to confirm a viral cause of a particular change, it is recommended to test for anti-HPV antibodies. Here, BIOPAP QTS test used in the described case allows for a precise quantitative evaluation of HPV in the tested samples and it detects 33 most common HPV genotypes (types: 6, 11, 13, 16, 18, 30, 31, 32, 33, 34, 35, 39, 40, 42, 43, 44, 45, 51, 52, 53, 54, 55, 56, 57, 58, 59, 61, 62, 64, 66, 67, 68 and 69). This test allows to differentiate an acute infection from a chronic one. Vaccination

against the four genotypes from the ones mentioned above (HPV type 6, 11, 16, 18) is available. However, the described case showed no presence of HPV in the collected fragment of the oral mucosa subjected to testing for the presence of this virus.

Verrucous carcinoma of the oral cavity develops slowly from the merging nodules, shows no infiltration into the neighbouring structures and causes no metastases to the lymph nodes. Van Nostrand and Olofsson showed cases of enlarged neck lymph nodes due to the inflammation caused by the presence of verrucous carcinoma in the larynx [9]. In this case, the patient had observed a slow growth of the tumour for 12 months. Two ultrasonographic examinations of the neck's lymph nodes showed no presence of metastases.

Due to a slow growth and the lack of infiltration into the neighbouring tissues, treatment of verrucous carcinoma consists of the surgical removal of a tumour with a narrow margin of the healthy tissues - about 2 mm. Koch *et al.* described a treatment in the oral cavity, consisting of the surgical excision. In 11% of cases it was supplemented with irradiation of the site of tumour removal and in 10% of cases, patients were subjected only to radiotherapy [4]. Surgery was more efficient from radiotherapy - 88.9% and 57.6% of the 5-year survivals, respectively. The literature review, including publications on the treatment of verrucous carcinoma published in 1948-1996 confirmed the above described results [10]. The tumour of the tongue was excised with a 5 mm margin of the healthy tissues. The patient follows regular control visits every 3 months. In case of recurrence, a radiotherapy is planned in the Oncology Institute.

References

- [1] Kaugars G.E., Oral verrucous carcinoma, *Oral Surg. Oral Med. Oral Pathol. Oral Radiol. Endod.*, 1999, 87, 268-269
- [2] Oliveira D.T., Vieira de Moraes, Filho J., Neto J.F., Landman G., Kowalski L., Oral verrucous carcinoma: a retrospective study in SaoPaulo Region, Brazil, *Clin. Oral Invest.*, 2006, 10, 205-209
- [3] Bouquot J.E., Oral verrucous carcinoma. Incidence in two US populations, *Oral Surg. Oral Med. Oral Pathol. Oral Radiol. Endod.*, 1998, 86, 318-324
- [4] Koch B.B., National survey of head and neck verrucous carcinoma, *Cancer*, 2001, 92, 110-120
- [5] Kao G.F., Graham J.H., Helwig E.B., Carcinoma cuniculatum (verrucous carcinoma of the skin): a clinicopathologic study of 46 cases with ultrastructural observations, *Cancer*, 1982, 49, 2395-2403
- [6] Tajiri H., Muto M., Boku N., Ohtsu A., Yoshida S., Kawahara H., Verrucous carcinoma of the esophagus completely resected by endoscopy., *Am. J. Gastroentero.*, 2000, 95, 1076-1077
- [7] Ram B., Saleh H.A., Baird A.R., Mountain R.E., Verrucous carcinoma of the maxillary antrum., *J. Laryngol. Otol.*, 1998, 112, 399-402
- [8] López-Amado M., García-Caballero T., Lozano-Ramírez A., Labella-Caballero T., Human papillomavirus and p53 oncoprotein in verrucous carcinoma of the larynx, *J. Laryngol. Otol.*, 1996, 110, 742-747
- [9] Van Nostrand A.W., Olofsson J., Verrucous carcinoma of the larynx. A clinical and pathologic study of 10 cases., *Cancer*, 1972, 30, 691-702
- [10] Ferlito A., Rinaldo A., Mannarà G.M., Is primary radiotherapy an appropriate option for the treatment of verrucous carcinoma of the head and neck?, *J. Laryngol. Otol.*, 1998, 112, 132-139