Wróbel Grzegorz. A tongue tumor as an example of oral cancer in MRI imaging - a case study. Journal of Education, Health and Sport. 2018;8(7):639-643. eISNN 2391-8306. DOI http://dx.doi.org/10.5281/zenodo.1438726

http://ojs.ukw.edu.pl/index.php/johs/article/view/6133

The journal has had 7 points in Ministry of Science and Higher Education parametric evaluation. Part B item 1223 (26/01/2017).

1223 Journal of Education, Health and Sport eISSN 2391-8306 7

The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 14.07.2018. Revised: 20.07.2018. Accepted: 30.07.2018.

A tongue tumor as an example of oral cancer in MRI imaging - a case study

Grzegorz Wróbel[1,2]

[1] Department of Anatomy, Faculty of Medicine and Health Sciences, Jan Kochanowski University, Kielce, Poland

[2] Department of Medical Imaging, Holy Cross Cancer Centre, Kielce, Poland

Correspondence: Department of Anatomy, Faculty of Medicine and Health Sciences, Jan Kochanowski University, Al. IX Wieków Kielc 19A, 25-317 Kielce, Poland.

Tel: 413496965. E-mail: grzegorz.wrobel@ujk.edu.pl

Abstract

Magnetic resonance tomography (MR) is a valuable source in the diagnosis of oral cancer due to: obtaining images in any planes and cross-sections, high tissue resolution and not subjecting the patient to ionizing radiation. In this case, presented a 66-year-old man with an

advanced visible change in the body of the tongue, symptoms associated with pain and difficulty swallowing, uncomfortable breathing, salivation, and a speech problem underwent MRI examination to determine the location and extent of neoplastic change. According to the World Health Organization (WHO) oral cancer is a global problem and is the sixth most common cancer among all types of cancer. In the last decade, an increase in the percentage of young patients with tongue cancer has been observed.

Keywords: tongue, tumor, magnetic resonance tomography

1. Introduction

Currently, head and neck cancer is often diagnosed in advanced stages, which usually prevents immediate and effective treatment. That is why imaging studies play an increasingly important role, which in many cases enables early diagnosis. Magnetic resonance tomography (MR) is a valuable source in the diagnosis of oral cancer due to: obtaining images in any planes and cross-sections, high tissue resolution and not subjecting the patient to ionizing radiation [1-5]. With the use of MR, the extent of neoplastic infiltration can be accurately determined, the coexisting inflammation distinguished from it, and the degree of infiltration of adjacent vessels and nerves; moreover, in some cases, a characteristic picture allows to make a preliminary pre-operative diagnosis which correlates well with the results of the histopathological examination [6-8]. According to the World Health Organization (WHO) oral cancer is a global problem and is the sixth most common cancer among all types of cancer [9].

2. Case presentation

A 66-year-old man with an advanced visible change in the body of the tongue, symptoms associated with pain and difficulty swallowing, uncomfortable breathing, salivation, and a speech problem underwent MRI examination to determine the location and extent of neoplastic change. Images were taken by a 3T MR scanner (Skyra, Siemens Healthcare AG, Germany). This study used T2-weighted spectrally adiabatic inversion recovery (SPAIR) and turbo spin echo (TSE) sequence were selected without the application of contrast media in

keeping with international recommendations. The result of the MRI examination of the craniofacial region and the neck with contrast made in transverse, sagittal and frontal cross-sections revealed a very large, polycyclic, nodular infiltration of the left and right tongue shaft and its root on the right side with penetration of the space of the rumen muscle (around the attachment of the pterygoid to the jaw), the space of the submandibular gland. Tumor size about 50x50x45 mm (Figure 1 A and B).

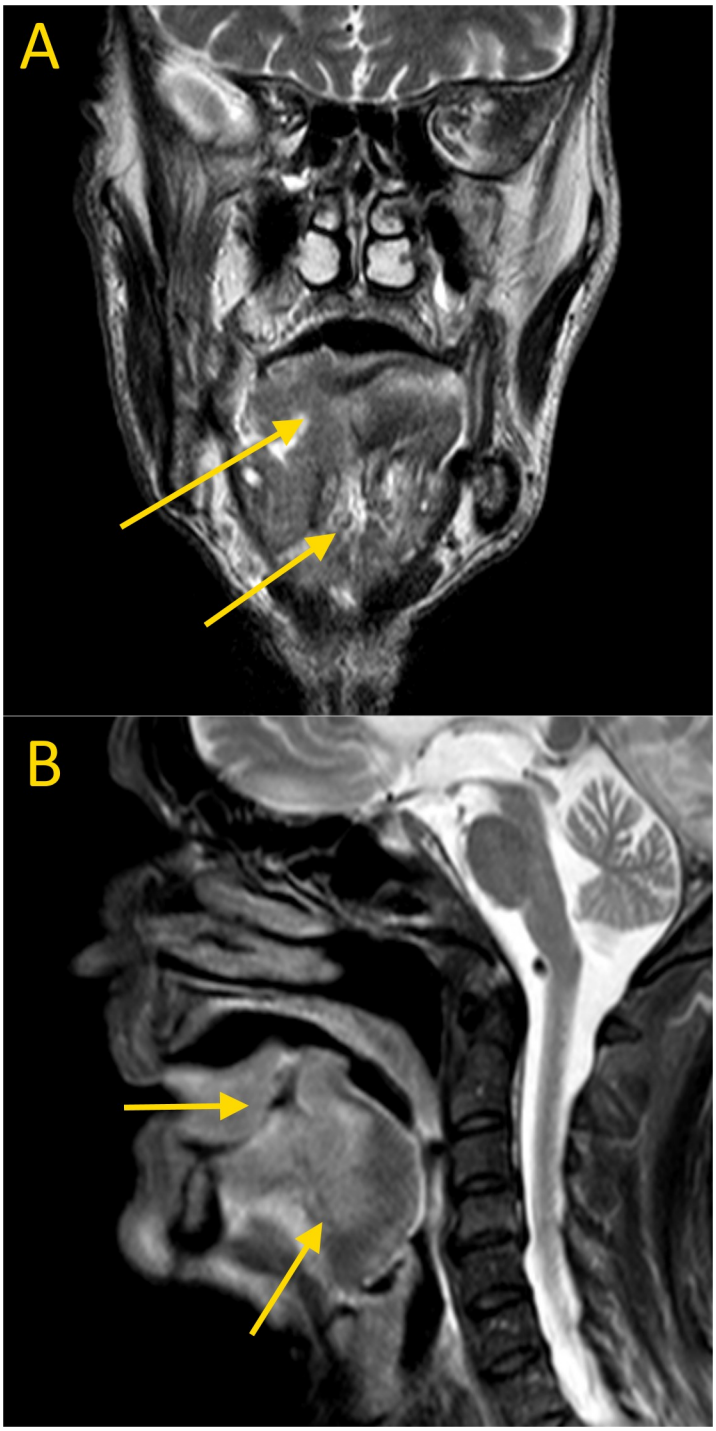

Figure 1. The tumoral mass (yellow arrow): A – coronal T2 W (TSE) images; B – sagittal T2 W (SPAIR) images.

3. Discussion

Oral cancer is one of the most common types of tumor in the head and neck (38%) with an incidence of 75% in male patients over age 60 years old, while about 95% of cases are

squamous cell carcinomas [10]. In the last decade, an increase in the percentage of young patients with tongue cancer has been observed. In general, the prognosis is approximately 55-65%, probably due to a late diagnosis. It is obvious that early diagnosis of oral cancer is the most important factor affecting overall survival and prognosis. In Europe, a significant increase in the incidence of this cancer has been observed, e.g. in Germany, especially in men. Similar behavior was also noted in the United States [11]. Genetic and epigenetic factors affect the development of oral cavity cancer. Among these factors are smoking, alcohol consumption, poor diet, and nutrition, virus effect, radiation, ethnicity, family and genetic predisposition, dental factors, occupational risk, and partner change [12].

4. References

1. Dillon W.P.: Magnetic resonance imaging of head and neck tumors. Cardiovasc. Intervent. Radiol., 1986, 8, 275-82.
2. Hayashi T., Ito J., Katsura K. et al.: Malignant melanoma of mandibular gingiva; the usefulness of fat-saturated MRI. Dentomaxillofac. Radiol., 2002, 31, 151-3.
3. Jeong A.K., Lee H.K., Kim S.Y. et al.: Solitary fibrous tumor of the parapharyngeal space: MR imaging findings. AJNR Am. J. Neuroradiol., 2002, 23, 473-5.
4. Leboldus G.M., Savoury L.W., Carr T.J. et al.: Magnetic resonance imaging: a review of basic principles and potential use in otolaryngology. J. Otolaryngol., 1986, 15, 273-8.
5. Leverstein H., Castelijns J.A., Snow G.B.: The value of magnetic resonance imaging in the differential diagnosis of parapharyngeal space tumours. Clin. Otolaryngol. Allied Sci., 1995, 20, 428-33.
6. Arakawa A., Tsuruta J., Nishimura R. et al.: MR imaging of lingual carcinoma: comparison with surgical staging. Radiat Med., 1996, 14, 25-9.
7. Ariyoshi Y., Shimahara M.: Relationships between dynamic contrast- enhanced MRI findings and pattern of invasion for tongue carcinoma. Oncol Rep., 2006, 15, 339-43.
8. Castaldi A., Arcuri T., Carta M. et al.: Primary leiomyosarcoma of the oral tongue: magnetic resonance and ultrasonography findings with histopathologic correlation. Acta Radiol., 2006, 47, 514-517.
9. Candia J, Fernández A & Kraemer K. Survival and mortality from oral cancer by anatomical location. Narrative review. J Oral Res 2016; 5(1): 35-42
10. Ayas B, Saleem K, Azim W, Shaikh A: A clinico-pathological study of oral cancers. Biomedica 27: 29–32, 2011.
11. Ghantous Y, Yaffi V, Abu-Elnaaj I. Oral cavity cancer: epidemiology and early diagnosis. Refuat Hapeh Vehashinayim. 2015; 32(3):55-63, 71.
12. Kumar M, Nanavati R, Modi TG, Dobariya C. Oral cancer: Etiology and risk factors: A review. J Cancer Res Ther. 2016; 12(2):458-63. doi: 10.4103/0973-1482.186696.