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Mandibular tori as an incidental finding in MRI

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Abstract

Tori (singular: torus) are among the most common benign jaw lesions. The magnetic resonance imaging (MRI) characteristics have not been reported yet. We present a 72-year-old patient with mandibular tori, which were detected as an incidental finding on MRI and provide an overview of the imaging features of tori.

Keywords
Torus, jaw, tumor, MRI

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Introduction

Benign jaw tumors may be of odontogenic or non-odontogenic origin and display a wide spectrum of imaging findings. The need of therapy in benign jaw lesions depends on lesion size and location. While some smaller benign jaw lesions do not require therapy, knowledge of their imaging features is important, especially in order to differentiate them from malignant masses. Tori (singular: torus) are benign, non-odontogenic lesions of the mandible or the hard palate which consist mainly of compact bone (1) and are usually detected incidentally.

Case report

A 72-year-old male patient underwent magnetic resonance imaging (MRI) of the head and neck for follow-up, 1 year after resection of a metastasis located in the right soft palate. The patient had initially a Merkel cell carcinoma of the right elbow with ipsilateral axillary lymph node metastases. The metastasis of the right soft palate mentioned above occurred 1 year after initial diagnosis. MRI was performed on a 1.5 T system (Avanto; Siemens Medical Solutions, Erlangen, Germany). The MRI examination was performed according to the standard protocol for head and neck examination used at our institution, which includes T1-weighted (T1W) images in axial orientation, turbo inversion recovery magnitude (TIRM) images in axial and coronal orientation, T2-weighted (T2W) images in coronal orientation, and contrast-enhanced T1W images with fat saturation in axial and coronal orientation.

No metastasis recurrence or new metastases were detected on MRI. However, two relatively symmetrical, irregular protuberances were identified on the lingual aspect of the mandible. The protuberances did not show contrast enhancement and were isointense to compact bone, demonstrating very low signal intensity in all sequences (Fig. 1). The lesions did not show signs of contrast media uptake. The maximum thickness of the lesions was 10 mm. Retrospectively, they were unchanged in comparison to a previous MR, which was performed for follow-up 6 months earlier. A CT scan performed 5 months after the MRI clearly identified the protuberances as solid bony structures (Fig. 2),

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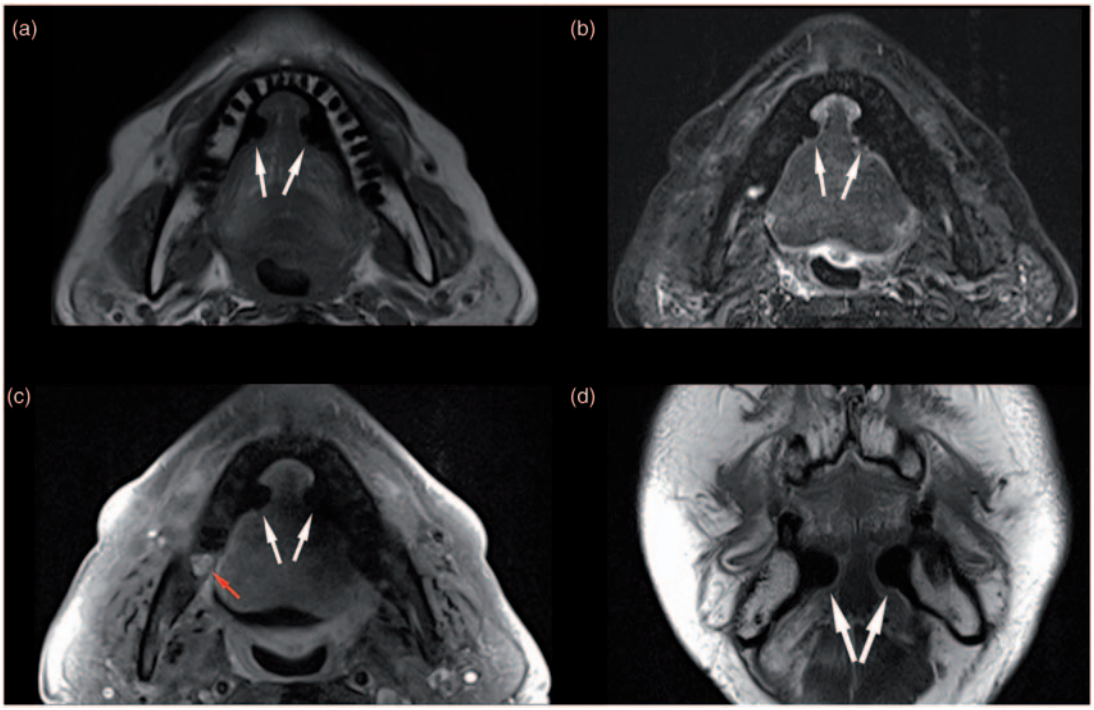

Fig. 1. MRI of the mandible. (a) Transverse T1W turbo spin echo (TSE) image; (b) TIRM TSE image; (c) T1W contrast-enhanced TSE image with fat saturation; (d) coronal T2W TSE image. In analogy to compact bone, the tori (white arrows) display very low signal intensity on all images and do not show contrast enhancement. Also note enhancing extraction pocket in the right mandible (red arrow).

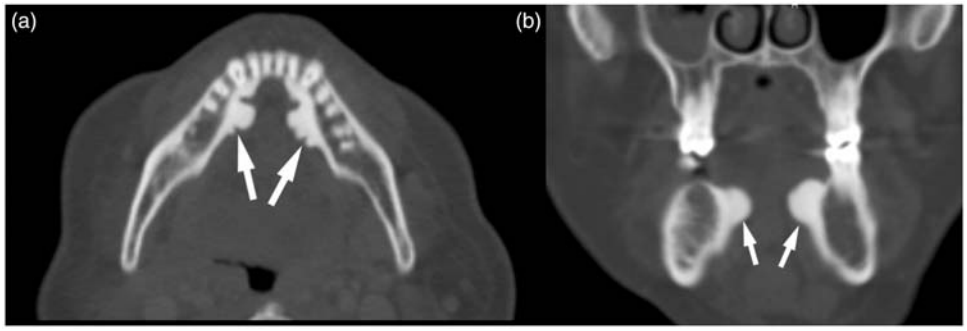

Fig. 2. CT of the mandible. (a) Axial CT image; (b) coronal CT reconstruction. The tori (arrows) present as irregular, homogenous protuberances, isodense to compact bone.

with densities as high as 1450 Hounsfield units (HU). They were also seen on a photograph made during a subsequent clinical examination (Fig. 3). Based on these cumulative findings a diagnosis of mandibular tori was made.

The patient reported no symptoms caused by the tori, which thus had no therapeutical consequence.

Discussion

While the etiology of tori is not well understood, some authors assume that there is a strong hereditary component (2,3). The reported prevalence of mandibular tori varies greatly between ethnic groups (4–6). Tori are found almost exclusively in adults. In more than 90% of cases, mandibular tori are bilateral (4). Although tori may grow slowly, they are usually asymptomatic, except for some edentulous patients, in whom tori may hinder the fit of dental prostheses.

Most tori do not require therapy. Large tori may be removed, especially if they are an obstacle for prosthetic treatment (1).

Tori are often incidentally identified on computed tomography (CT) scans. On CT, mandibular tori

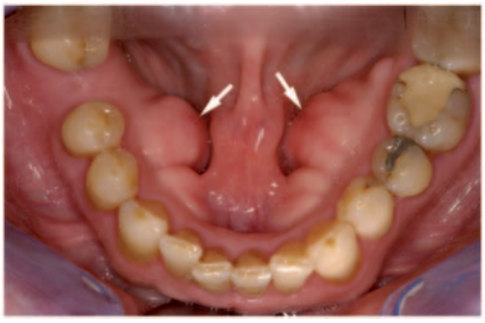

Fig. 3. Photograph of the tori (arrows) acquired during clinical examination.

present as bony protuberances, isodense to compact bone and typically located on the lingual aspect of the mandible. Choi et al. reported a thickness range of 4.3–11.3 mm for mandibular tori on CT (7). To our knowledge, the MRI characteristics of tori have not been described previously. As described above, the tori proved to have very low signal intensity on all MR sequences, as they consist of compact bone. It may be assumed that smaller tori are difficult to identify on MR because of their low signal. Furthermore, the detection of tori on MR may be problematic due to metal artifacts, which were nearly absent in the patient described in this case report. In our opinion, lesions which are isointense to compact bone on MRI and are located on the medial aspect of the mandible can be classified as tori without additional CT scans.

Most benign (e.g. neurofibroma, ameloblastoma) and malignant (e.g. lymphoma, squamous cell carcinoma, multiple myeloma) masses of the mandible are easy to distinguish from mandibular tori on CT or MRI because of bone destruction and lack of osteoblastic component. Chondrosarcoma or osteosarcoma of the mandible may have an osteoblastic component, but they also typically feature partial bone destruction and are unilateral. An important differential diagnosis of mandibular tori are exostotic osteoma found in patients with Gardner's syndrome (8). However, in contrast to tori these osteoma are typically numerous and asymmetrical, and often located on the buccal aspect of the mandible. In addition, patients with Gardner's syndrome often have tooth impaction and odontoma.

In conclusion, our case report summarizes imaging features of mandibular tori, with special emphasis on MRI. The characteristic MRI features of compact bone and the typical location of tori on the medial aspect of the mandible allows differentiation of mandibular tori from other jaw lesions.

References

1. Garcia-Garcia AS, Martinez-Gonzalez JM, Gomez-Font R, et al. Current status of the torus palatinus and torus mandibularis. Med Oral Patol Oral Cir Bucal 2010;15:e353–e360.
2. Eggen S. Torus mandibularis: an estimation of the degree of genetic determination. Acta Odontol Scand 1989;47:409–415.
3. Curran AE, Pfeffle RC, Miller E. Autosomal dominant osteosclerosis: report of a kindred. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 1999;87:600–604.
4. Al-Bayaty HF, Murti PR, Matthews R, et al. An epidemiological study of tori among 667 dental outpatients in Trinidad & Tobago, West Indies. Int Dent J 2001;51:300–304.
5. Ihunwo AO, Phukubye P. The frequency and anatomical features of torus mandibularis in a Black South African population. Homo 2006;57:253–262.
6. Jainkittivong A, Apinhasmit W, Swasdison S. Prevalence and clinical characteristics of oral tori in 1,520 Chulalongkorn University Dental School patients. Surg Radiol Anat 2007;29:125–131.
7. Choi Y, Park H, Lee JS, et al. Prevalence and anatomic topography of mandibular tori: computed tomographic analysis. J Oral Maxillofac Surg 2012;70:1286–1291.
8. Baykul T, Heybeli N, Oyar O, et al. Multiple huge osteomas of the mandible causing disfigurement related with Gardner's syndrome: case report. Auris Nasus Larynx 2003;30:447–451.