

Masticator Space

Imaging Anatomy for Diagnosis

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KEYWORDS

- Head and neck • Masticator space • Anatomy • Oral cavity • Schwannoma
- non-Hodgkin lymphoma • Odontogenic

KEY POINTS

- Differential diagnosis for disease of the masticator space depends largely on consideration of the structures that normally occupy the space, with the exception of infection, which tends to be from odontogenic causes.
- Noninfectious pathologic conditions may commonly involve neural structures, such as with schwannoma or perineural tumor spread.
- Neoplastic disease of the masticator space may arise from the musculoskeletal elements, such as sarcoma or non-Hodgkin lymphoma.
- Metastatic disease may affect the masticator space.
- Vascular disease is typified by vasoformative anomalies such as venous malformation, which has a propensity...such as lymphatic malformation or arteriovenous malformation.

INTRODUCTION

With the exception of infection, which tends to have odontogenic causes, the differential diagnosis for disease of the masticator space (MS) depends largely on consideration of the structures that normally occupy the space. Therefore, noninfectious pathologic conditions may commonly involve neural structures, with schwannoma or perineural tumor spread as representative examples. In addition to perineural tumor spread, neoplastic disease of the MS may arise from the musculoskeletal elements, such as sarcoma or non-Hodgkin lymphoma (NHL). Metastatic disease may also affect the MS. Vascular disease is typified by vasoformative anomalies such as venous malformations (VM), which have a propensity for the masticator muscles, and related entities such as lymphatic or arteriovenous malformations (AVM).

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Abbreviations: MASTICATOR SPACE	
AVM	Arteriovenous malformation
LM	Lymphatic malformation
MPNST	Malignant peripheral nerve sheath tumor
MS	Masticator space
NF1	Neurofibromatosis type I
NHL	Non-Hodgkin lymphoma
NPCA	Nasopharyngeal carcinoma
ONJ	Osteonecrosis of the jaw
PNS	Perineural spread of tumor
PPS	Parapharyngeal space
VM	Venous malformation

PSEUDOLESIONS

There are several conditions that may simulate the presence of a mass lesion on cross-sectional imaging, and some of these may also represent diagnostic pitfalls on physical examination. The most common entities to be considered in this category are accessory parotid tissue, asymmetry of the pterygoid plexus, denervation of the muscles of mastication, and unilateral masseter hypertrophy.

At imaging, these entities are usually easily distinguishable from true pathologic entities owing to their characteristic appearances. Accessory parotid tissue appears identical to orthotopic parotid tissue and lies along the lateral aspect of the masseter. Similarly a hypertrophied masseter, as in the setting of bruxism, will otherwise resemble the normal contralateral muscle. Asymmetry of the pterygoid venous plexus is common, and easily recognized once the physician is aware of its existence.

In the acute setting, denervation may result in transient enlargement and enhancement of the affected muscles,¹ which may mimic an acute inflammatory or neoplastic process. The finding of an associated lesion affecting the mandibular or trigeminal nerves should allow correct diagnosis (**Fig. 1**).

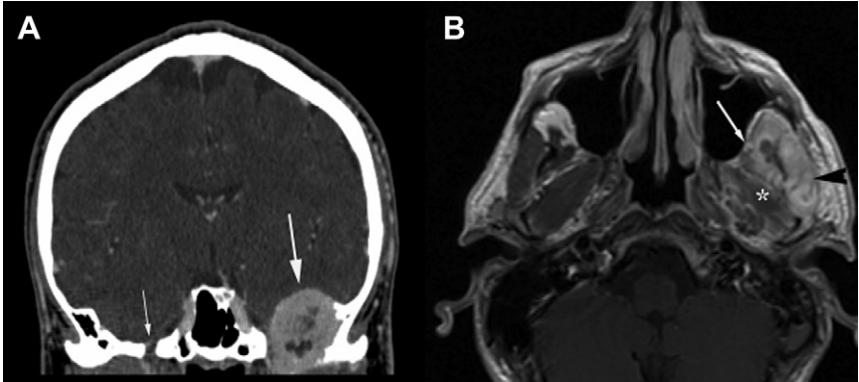


Fig. 1. Early denervation. A 36-year-old man with a left skull base mass that proved to be a giant cell tumor. (A) coronal soft tissue CT image shows an enhancing mass involving the left foramen ovale (*large arrow in A*). The contralateral normal foramen ovale is indicated for comparison (*small white arrow*). (B) Follow up at 3 months, post contrast T1-weighted MR image shows enhancement of the masseter (*black arrowhead*) and temporalis (*white asterisk*).

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