Intraosseous Neurilemmoma of the Mandible

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Summary: We report a rare case of intraosseous neurilemmoma of the mandible, with an emphasis on radiographic findings. The tumor, located mainly in the premolar region, presented as an expansive, unilocular, well-defined, radiolucent lesion on plain radiography. No dilatation of the mandibular canal was identified. MR imaging helped to identify the solid nature of the tumor. A biopsy was necessary to make the final diagnosis because of the relatively nonspecific nature of the lesion.

The neurilemmoma, also called a schwannoma or neurinoma, is a benign neoplasm originating from the peripheral neural sheath. Although the head and neck region is one of the most common sites for benign nerve-sheath tumors, intraoral lesions are unusual, particularly in the intraosseous region of the jaw. Previous literature related to intraosseous neurilemmomas of the jaw only includes discussions concerning panoramic and dental radiography and CT examinations (1). We describe a rare case of intraosseous neurilemmoma of the mandible evaluated by use of dental CT with curved- and cross-sectional reformatted images and MR images.

Case Report

A 19-year-old woman complained of experiencing crepitation in the right temporomandibular joint for 2 years. Neurosensory examination was normal, and the patient reported no previous episodes of pain or sensory disturbances. A physical examination revealed normal soft tissue of the oral cavity, and no facial swelling, percussion pain, or mobility of the molar teeth in the right mandible was noted. Her past medical history was essentially noncontributory. The patient underwent dental radiography, and later a dental CT scan and 1.5-T superconductive MR imaging. Panoramic radiography identified a well-defined, expansive, osteolytic lesion with no septation in the right temporomandibular joint for 2 years. Neurosensory examination revealed normal soft tissue of the oral cavity, and no facial swelling, percussion pain, or mobility of the molar teeth in the right mandible was noted. Her past medical history was essentially noncontributory. The patient underwent dental radiography, and later a dental CT scan and 1.5-T superconductive MR imaging. Panoramic radiography identified a well-defined, expansive, osteolytic lesion with no septation in the right posterior mandible. The lesion was located in the supraoral region of the jaw. Previous literature related to intraosseous neurilemmomas of the jaw only includes discussions concerning panoramic and dental radiography and CT examinations (1). We describe a rare case of intraosseous neurilemmoma of the mandible evaluated by use of dental CT with curved- and cross-sectional reformatted images and MR images.

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Fig 1. 19-year-old woman with intraosseous neurilemmoma of the right side of the mandibular body.
A, Panoramic radiograph shows a well-defined, unilocular, expansive lesion in the supracanal region. No evidence of dental root resorption or dilatation of the mandibular canal was noted (arrow).
B, Axial CT scan with 1-mm slice thickness shows an expansive lytic lesion associated with incomplete septae (arrows) and cortical thinning of the lingual plate.
C, Cross-sectional reformatted images from the second molar (image 25) to the second premolar (image 36) regions show the lesion located in the supracanal mandibular body associated with defect (curved arrow) of the upper cortical margin of the mandibular canal (arrows). Thinning and defect of the buccal cortical plate of the mandible are also seen.
D, Axial T1-weighted MR image shows a well-demarcated intermediate signal lesion in the mandibular body.
E, Axial T2-weighted MR image shows a lesion with bright signal intensity.
F, Contrast-enhanced sagittal T1-weighted image shows intensive enhancement.
G, Photomicrograph of a resected specimen (hematoxylin and eosin stains; original magnification $\times 100$) shows Antoni type-A tissue (fascicular type) consisting of palisading arranged nuclei (arrow) and Verocay bodies (acellular zones).
H, Photomicrograph of a resected specimen (hematoxylin and eosin stains; original magnification $\times 100$) reveals Antoni type-B tissue (reticular type) associated with irregularly arranged, dark-stained, atrophic nuclei and myxoid degeneration (arrow).

About 50% of cases (7). There is a female predilection, with a 1.6:1 female-to-male ratio. Seventy-seven percent of the patients were below the age of 50 at the time of diagnosis, and 46% were below the age of 30 (2).

Upon microscopic evaluation, Antoni-A and Antoni-B tissue are usually seen (8). In the Antoni-A region, homogeneous acellular zones known as Verocay bodies are sometimes noted. The Antoni-B region consists of a random arrangement of tis-
Neurilemmomas are typically well encapsulated, whereas encapsulation is seen in only 4% of neurofibromas (9). Nonetheless, Murphy and colleagues reported a rare case of nonencapsulated, atypical, intraosseous neurilemmoma of the mandible (2).

Radiographically, neurilemmomas are uniloculated or multiloculated, well-defined radiolucencies located in the posterior mandible, which are suggestive of a benign process such as odontogenic keratocyst, periodontal cyst, or ameloblastoma (4). Erosion of the adjacent roots is a common finding, and dystrophic calcification within the radiolucency has also been described (8). On CT scans, incomplete septae have been reported in the lesion. MR findings of intraosseous neurilemmoma of the mandible have not been reported to our knowledge, and it helps in differentiating solid from purely cystic lesions (eg, dentigerous cysts, periodontal cysts) (10). Minami et al reported strong gadolinium enhancement of the solid portions of the tumor in multicystic and unicystic ameloblastoma, including papillary projections, walls, and septa. Other hypervascular ameloblastomas and ameloblastohemangiomas may also reveal marked enhancement. CT features of ameloblastoma include shell-like bulging of the cortex and incomplete bone septae (11). These features of ameloblastoma on MR and CT images are similar to those of our case, and a definite diagnosis is difficult to make on the basis of radiography alone; a biopsy is usually necessary. Neurilemmomas arise rarely in the mandibular canal, and such lesions become rounded (12). On the other hand, neurofibromas tend to grow specifically in the canal, which typically become ovoid-shaped (13). The recurrence rate of a neurilemmoma is lower than that of a neurofibroma because of encapsulation (5). The differentiation between these two neoplasms is imperative because neurofibromas tend to recur frequently and have the potential for malignant transformation.

Conclusion

In conclusion, a rare case of intraosseous neurilemmoma of the mandible was reported. The radiographic features revealed a markedly enhanced solid mass, which may be distinguished from purely cystic odontogenic masses. It is difficult, however, to differentiate an intraosseous neurilemmoma from an ameloblastoma associated with a substantial solid component.

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