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CASE REPORT

Extraosseous schwannoma of the mental nerve clinically simulating intraosseous

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We report a case of a benign neurilemmoma arising from the right mental nerve. Schwannomas are rare neurogenic tumours that originate from Schwann cells of the peripheral nervous system. Frequent locations are the head and neck region. Most of the tumours occur in the soft tissue whereas intraosseous schwannomas are rare. This case report deals with a young patient who was referred to our hospital with an unidentified fast-growing tumour located mainly in the premolar region of the right mandible. The tumour presented as an expansive, unilocular, well defined, radiolucent lesion on orthopantomography. No expansion of the mandibular canal could be seen. Computerized tomography scans of the mandible helped to identify the solid nature of the tumour. A biopsy was necessary to make the final diagnosis and the tumour was then excised surgically. Postoperative magnetic resonance imaging scans and a histological examination of the surgical specimen showed no signs of neurofibromatosis type 2.
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Keywords: inferior alveolar nerve; neurilemmoma; neurofibromatosis type 2

Case

A 16-year-old female patient was admitted to our hospital with an unidentified fast-growing tumour in the right premolar region of the mandible. She presented a 3-week history of a painless swelling in the premolar region of the lower jaw on the right hand side. Neurosensory examination was normal and the patient reported no previous episodes of pain or sensory disturbances. Her past medical history was non-contributory. The patient herself had first noticed the swelling and had consulted a dentist who had put her on antibiotics for a few days, to no use. Physical examination revealed normal soft tissue of the oral cavity around the lesion. No facial swelling, percussion pain, or mobility of the teeth in the right mandible was noted. The tumour itself presented as a firm but relatively mass with a diameter of about 30×25 mm adherent to the mandible in the right premolar region.

Panoramic radiography identified a round, well-defined lesion with a sclerotic margin, making it look like a giant dental cyst (Fig. 1). However, there were no apparent signs of resorption or displacement of the roots of the adjacent teeth.

Computerized tomography (CT) scans of the mandible with a slice thickness of 1.5 mm revealed a large space-occupying mass with defined borders and a density slightly less than muscle tissue (Fig. 2). The mass appeared to be contiguous with the mandibular canal, although there were no apparent signs of dilatation or bone resorption.

Because of the fast-growing aspect of the tumour a biopsy was obtained the following day under local anaesthesia to rule out malignancy. A diagnosis of cellular schwannoma was made intraoperatively after microscopic examination of the surgical specimen, displaying Antoni A and Antoni B areas (Fig. 3). The mass was then separated from the surrounding tissue with sharp and dull dissection. As the mental nerve was

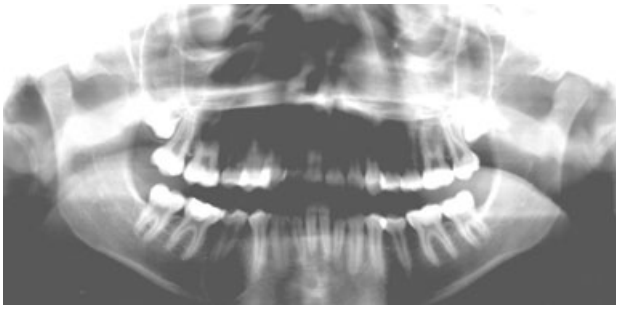

Figure 1 Panoramic view showing a well-defined unilocular cystic lesion with a thin sclerotic margin in the right premolar region.

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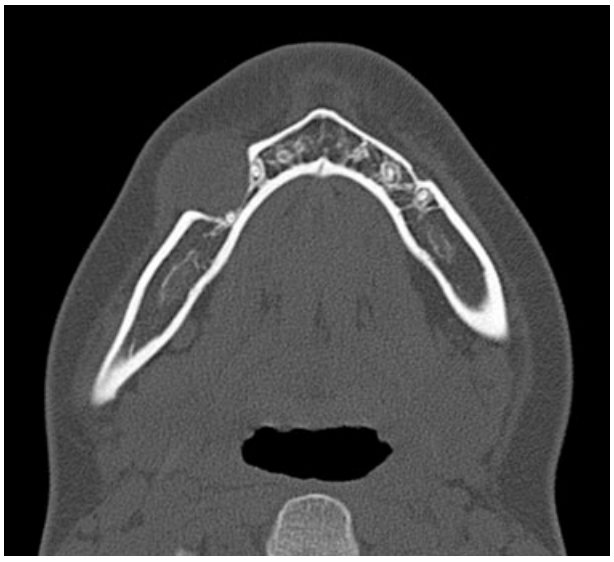

Figure 2 Contrast computerized tomography (CT) scan showing a large, space occupying mass with clear borders. Compressive resorption of the mandible can be observed.

completely engulfed by the tumour mass (Fig. 4) its preservation was impossible and an *en bloc* resection was performed. The cortical bone around the exit of the alveolar nerve was displaced in a circular shape obviously due to compression over a long period. The bone surface was smooth, showing no signs of infiltration. Postoperative radiographic follow up gave no signs of recurrence so far. However, the paresthesia of the lower lip has remained.

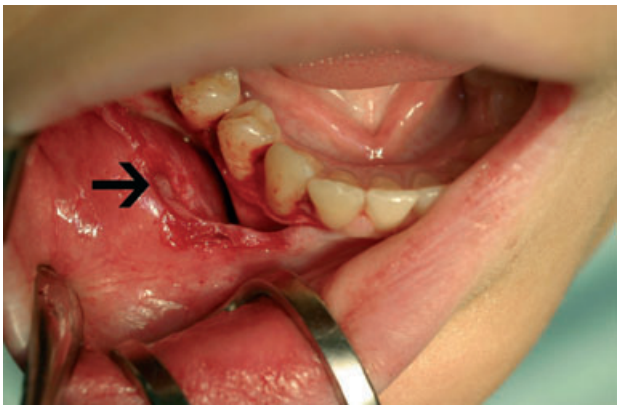

Figure 4 Operative photograph showing the right mental nerve surrounded by the tumour.

Comment

Schwannoma (neurinoma, neurilemmoma) is a solitary tumour that is derived from the Schwann cell sheath. It is usually found in women between 30 and 60 years of age, though any age group may be affected (1). The most common sites of origin are the retroperitoneum and posterior mediastinum whereas intra-oral neurilemmo-

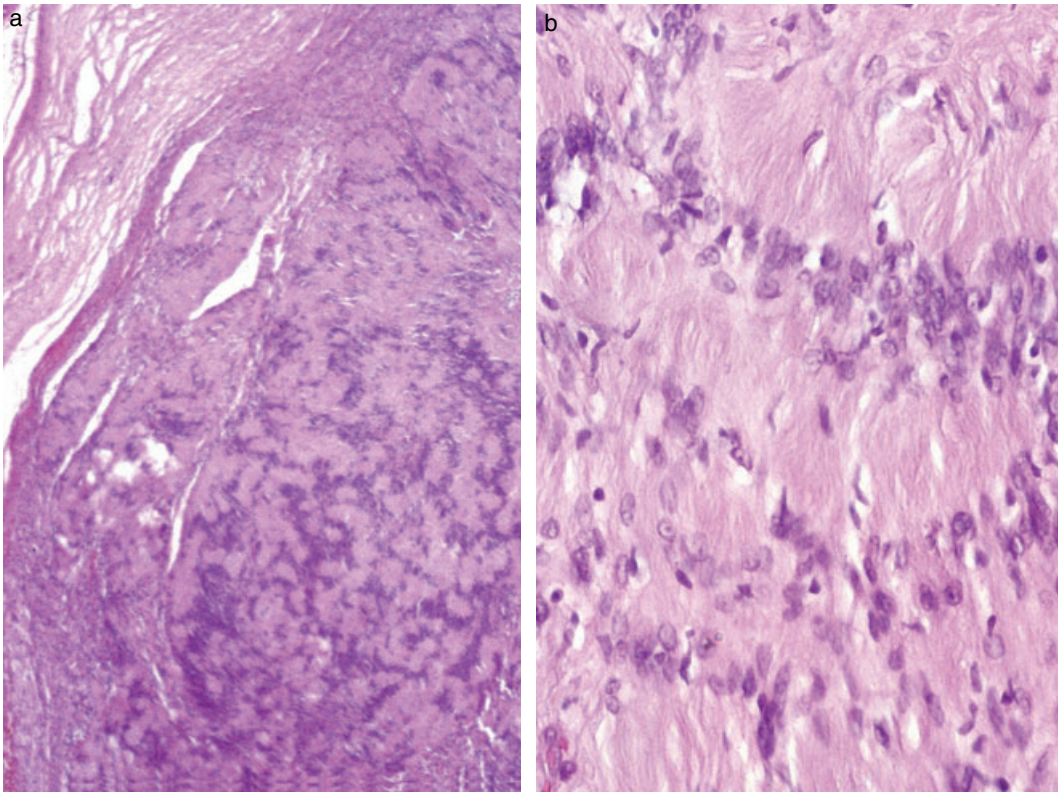

Figure 3 Photomicrograph of the tumour showing Antoni type A and type B areas [a: haematoxylin and eosin (H & E) ×60; b: H & E ×200].

Table 1 Diagnostic criteria for neurofibromatosis type 2 (NF2)

The following are diagnostic:
1. Bilateral vestibular schwannomas; or
2. A first-degree relative with NF2, and either
a. a unilateral vestibular schwannoma; or
b. two of the following: meningeoma, schwannoma, glioma, posterior subcapsular lens opacity, or cerebral calcification; or
3. Two of the following:
a. unilateral vestibular schwannoma
b. multiple meningeomas
c. either schwannoma, glioma, neurofibroma, posterior subcapsular lens opacity, or cerebral calcification

mas, especially intraosseous lesions are rare (2, 3). The most common site of intra-oral involvement is the tongue (4). Less than 1% of all neoplasms arising in the bone are intraosseous neurilemmomas (1). Radiologically the tumour is commonly unilocular and often associated with bone resorption. It may resemble many types of benign or malignant conditions such as odontogenic or periodontal cysts, ameloblastoma, angioma or in cases of extensive bone resorption it may resemble a malignant lesion (4, 5). CT and magnetic resonance imaging (MRI) have markedly increased the possibility of establishing a correct pre-operative diagnosis (4). However, a definite diagnosis is difficult to make on the basis of radiography alone and a biopsy is usually necessary.

Normally, neurilemmoma is a slow-growing tumour that may be present for some years before becoming symptomatic (6). Swelling is the most common symptom, followed by paresthesia (4). In the present case, a 16-year-old girl came to our department and reported about an increasing swelling in the right premolar region which she had noticed only a few days ago. The fast-growing aspect first led us to the diagnosis of a dental abscess. However, radiographically the tumour looked like a dental cyst. CT scans of the mandible finally revealed a solid tumour with impression of the cortical bone around the lesion. From this point of view the tumour obviously had been growing for a long time, displacing the surrounding bone before becoming symptomatic.

In younger patients, as in our case, neurilemmoma should be distinguished from neurofibromatosis type 2 (NF2)-associated schwannomas (7, 8) that are composed of neoplastic Schwann cells, but which differ from sporadic schwannomas in a number of ways. NF2 patients usually develop bilateral vestibular schwannomas and have higher proliferative activity. NF2 schwannomas may appear multilobular on both gross and microscopic examination. The diagnostic criteria for neurofibromatosis 2 are given in Table 1. In the present case, neither the microscopic examination nor a post-operative MRI examination revealed any further lesions.

Surgical excision is the treatment of choice and every effort should be made to preserve the integrity of the mental nerve. In our case, however, it presented itself like a twined ball of wool and preservation or even incomplete excision was impossible. Complete excision, however, has a good prognosis due to the low recurrence rate and the rarity of malignant transformation.

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