CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 49 (2018) 67–69

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Extraskeletal chondroma walling the temporomandibular joint: Report of a rare case and review of the literature

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ARTICLE INFO

Article history:
Received 5 February 2018
Received in revised form 3 June 2018
Accepted 16 June 2018
Available online 23 June 2018

Keywords:
Extraskeletal chondroma
Chondroma
Temporomandibular joint
TMJ

ABSTRACT

INTRODUCTION: Extraskeletal or soft-tissue chondroma is a rare benign cartilaginous neoplasm which usually affects hands and feet. Scientific literature only reports one previous case of this pathology in the preauricular region.
PRESENTATION OF THE CASE: This report describes a rare case of extraskeletal chondroma surrounding the temporomandibular joint of a 55-year-old female patient.
DISCUSSION AND CONCLUSION: Diagnosis of extraskeletal chondroma is challenging since tissue swelling, diagnostic imaging and even histopathological features may be misleading for other joint or gland pathologies.

1. Introduction

Extraskeletal or soft-tissue chondroma is a rare benign cartilaginous neoplasm which occurs in soft tissues. Unlike other types of chondromas, this lesion exhibits no attachment to underlying bone or periosteum [1–3].

Frequent locations of the extraskeletal chondroma are hands and feet [1]. The preauricular region is one of the rarest locations of this pathology. To the authors' knowledge, only one case of extraskeletal chondroma has previously been reported in this anatomic region [4].

The authors describe a rare case of an extraskeletal chondroma in the preauricular region, surrounding the articular synovium without invasion of the right temporomandibular joint (TMJ).

The following case has been reported in line with the SCARE criteria [5].

2. Presentation of case

A 55-year-old woman was referred to our department of Oral and Maxillofacial Surgery by her general medical practitioner. The patient noticed a progressive painless swelling in the right preauricular region during the past 1½ years. During medical examination, an impaired mouth opening of only 35 mm and a deviation of the lower jaw to the right side while opening the mouth became obvious. Neither sensitivity nor motor function was reduced on either side of the face. A previously performed orthopantomogram and CT scan showed a slightly ossified lesion surrounding the right temporomandibular-joint (TMJ) with a substantial soft tissue proliferation affecting the TMJ and parotid gland. An additionally performed ultrasound examination of the right preauricular region showed substantial vascularization of the unknown lesion (Fig. 1). Subsequently, an MRI scan of the head was performed. Here, the lesion had a diameter of approximately 40 × 30 × 25 mm. It surrounded the TMJ and the peripheral fibrous reaction induced an osseous arrosion of the processus articularis caput mandibulae as well as the early involvement of the meatus acusticus externus (Fig. 1). Following the MRI scan the suspicion of a synovialis carcinoma was raised and extraction of biopsy material was recommended. Subsequently, the histology was suspicious for a chondroma (Fig. 2).

In a second operation the entire benign tumor was resected by means of a preauricular incision. In the light of the histopathologic features and imaging findings an extraskeletal chondroma was diagnosed. Due to the extensive fibrous reaction, the condyle of the mandible had to be resected and replaced by a titanium

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https://doi.org/10.1016/j.ijscr.2018.06.012

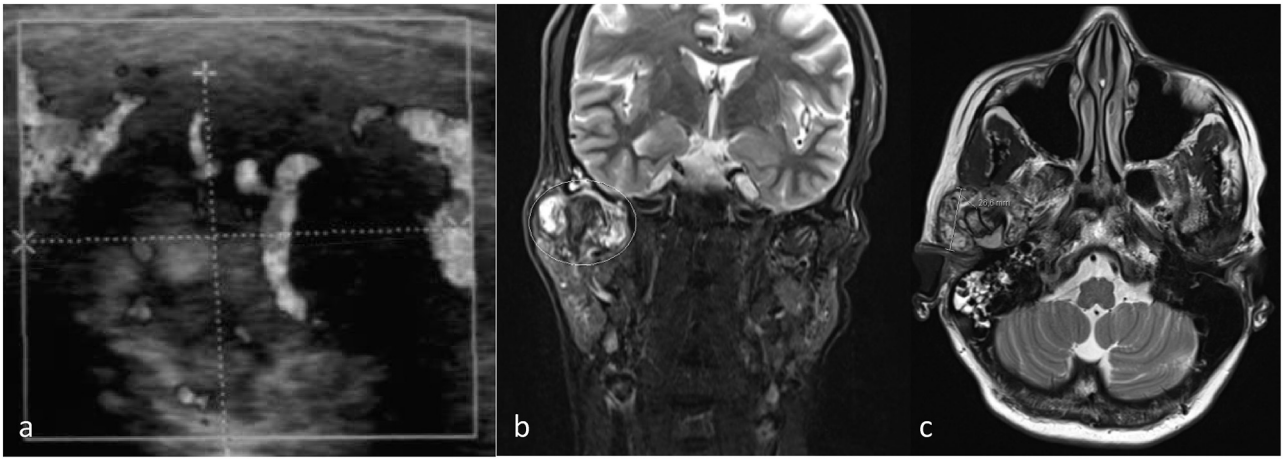

Fig. 1. The ultrasonic scan (a) shows the intense vascularization in the area. Axial (b) and coronal (c) T2-weighted magnetic ressonance images show a hyperintense mass surrounding the TMJ, in intimate contact with the synovium. The lesion also extends to medial of the joint (c).

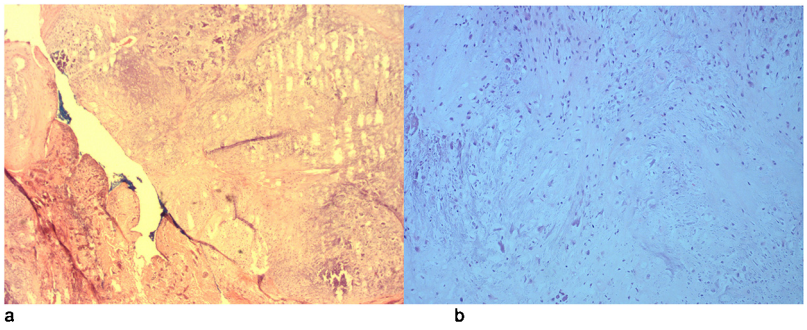

Fig. 2. Soft tissue with parts of a chondroid proliferation and partly increased cellularity (a: H.E., 4×; b: H.E., 10×).

condyle-implant. While the tumor could be removed en bloc the patient suffered a peripheral facial nerve palsy of the forehead and cheek on the right side of the face which later could be improved by physical therapy. To date clinical and radiographical follow-up appointments (over three years) have not revealed any signs of tumor recurrence.

3. Discussion

A chondroma is a benign tumor of mesenchymal origin, composed of a lobulated nodule of hyaline cartilage [5]. It is classified according to the location either as an enchondroma (if within the medullary bone), a juxtaarticular/periosteal chondroma (if within the subperiosteal space) or as an extraskeletal/ soft-tissue chondroma (if within the soft tissues) [3,4,6]. Furthermore, the term para-articular chondroma has been used to describe solitary tumors associated with joints. These chondromas are believed to arise from the articular synovium or from the connective tissue adjacent to the joint capsule [2]. Numerous additional classifications have been proposed by the literature without international consensus [2–4,6].

Extraskeletal chondroma is a rare condition which is more frequent in the hands and feet of adults in their third and fourth decade of life [6]. Within the head and neck area the tongue is primarily affected [5]. Extraskeletal chondroma has also been described within the buccal mucosa, the cheeks, the parotid glands, the nasal cavity, the paranasal sinuses, the larynx, the parapharyngeal space, the tonsils, the auricle, the soft and hard palate, the masticatory space, the masseter muscle, the dura mater and the scalp [3,6–10]. Only one other case of extraskeletal chondroma has been reported in the preauricular region so far [4]. One case of juxtaarticular/periosteal chondroma within the TMJ has also been reported [6].

The etiology of extraskeletal chondroma is unknown. It is believed that the tumor originates from residual embryonic tissue or pluripotent mesenchymal stem cells [4,10].

The usual clinical manifestation involves a progressive slow-growing preauricular mass that occasionally causes local tenderness or pain [1]. Due to the low incidence of the pathology, especially in the preauricular region, symptoms may be misinterpreted as internal temporomandibular joint disorders or parotid gland lesions.

CT and MR imaging typically shows a well-demarcated, partially calcified mass. Remodeling of the adjacent bone with signs of atrophy caused by the tumor may also be a found [1,4]. Distinct features of MR imaging are (1) a delineated lobulated mass with hypo- to isointense signaling in T1-weighted images, (2) hyperintense signaling in T2-weighted images and (3) disseminated enhancement patterns after infusion of contrast medium [2].

The histological analysis may reveal areas of ossification, focal fibrosis and myxoid change within the hyaline cartilaginous mass surrounded by a fibrous capsule [1,3]. Increased cellularity, mild-to-moderate nuclear pleomorphism and scattered mitosis may be findings which are observed in chondrosarcoma as well. Nevertheless, in contrast to osseous and synovial cartilaginous tumors, malignant transformation and metastasis has not been shown for the extraskeletal chondroma [1,8,9]. Clinical features suspicious of malignancy include older age, rapid tumor growth and invasion of surrounding anatomical structures. Synovial chondromatosis may have similar histological features as extraskeletal chondroma, however, it is characterized by multiple intra-articular nodules [4].

4. Conclusion

Important differential diagnoses for pathologies of the preauricular region include TMJ and parotid gland tumors, such as extraskeletal chondroma, chondromyxoid fibroma, chondroblastoma, chondrosarcoma, osteochondroma, pleomorphic adenoma and synovial cysts [4,6].

The treatment of extraskeletal chondroma involves complete resection, including removal of the fibrous capsule. Recurrence rates of 10%–15% are reported [7,8]. In these cases, a second resection is recommended [6]. Furthermore, long-term follow-up is recommended [4].

Conflict of interest

None declared.

Funding source

None.

Ethics approval

Single case reports are exempt from ethical approval in our institution.

Consents

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Henrik Holtmann and Julian Lommen collected data and wrote the manuscript. Christos Analytis provided and corrected histological features. Tim Rüggeberg, Daman Singh, Christoph Sproll and Norbert Kübler corrected and approved the manuscript. Henrik Holtmann additionally submitted the work.

Registration of research studies

The person described is no study patient.

Guarantor

Henrik Holtmann.

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