International Poster Journal IPJ of Dentistry and Oral Medicine

Int Poster J Dent Oral Med 2006, Vol 8 No 04, Poster 332

Juxtaoral organ of Chievitz found in an atypically located cyst. A case report.

Language: English

Authors:
Assist. Prof. Dr. Dr. Stefan-Ioan Stratul,
Prof. Dr. Marius Raica, Department of Histology,
Assist. Prof. Dr. Rodica Jianu, Department of Paedodontics-Orthodontics,
Assist. Prof. Dr. Aurel Bold, Department of Oral Pathology,
Faculty of Dental Medicine,
Victor Babes University of Medicine and Pharmacy Timisoara, Romania

Date/Event/Venue:
11-14 May, 2005
The 10th Congress of the Balkan Stomatological Society
Belgrade, Republic of Serbia

Introduction

The juxtaoral organ of Chievitz (JOOC) is located normally in the buccotemporal space, deep in the wall of the cheeks. In adults, it may measure 0.7 to 1.7 cm in length and 0.1 to 0.2 cm in diameter. As structure, the Chievitz organ is multilobulated, has a dense fibrous capsule, and consists of round or elongate nests of squamouslike epithelial cells embedded in fibrous stroma, which is rich in small nerves. The minute JOOC has considerable importance for the surgical pathologist, because the presence of squamous epithelial nests intimately admixed with numerous small branches of the buccal nerve has been misinterpreted on frozen sections biopsy as perineural invasion by squamous cell carcinoma (Sternberg 1992). The JOOC is a small structure located within the soft tissue overlying the angle of the mandible in the buccotemporal space. As described by other authors, the JOOC is composed of an epithelial parenchyma embedded in a highly organized connective tissue stroma rich in nerves and sensory receptors innervated by the buccal nerve. This metabolically active structure presumably serves as a mechanosensor in the lateral wall of the oral cavity. Needless surgical removal of this juxtaoral structure is to be avoided. In children, the normal organ may be discovered as a small mass in the cheeks, which may lead to extensive and unnecessary investigations. Hyperplasia of the parenchyma may occur, but carcinoma originating from this organ has not been reported. Awareness of this normal anatomic structure is important, because the finding of epithelial islands intimately admixed with nerves could be misinterpreted as perineural invasion by carcinoma (Pantanowitz, Balogh 2003). Some authors describe the JOOC as "the Chievitz juxtaparotid organ", which represents a macroscopic longitudinal formation, developed from the oral cavity ectoderm in its lateral wall. The information coming from its sensors takes part in different activities of the lateral wall of the oral cavity during sucking, swallowing, mastication, speech, protecting reflexes and wall tonus (D'Andrea et al. 1999)

Case Report

The 42-year old man, moderate smoker, suffering of chronic generalized severe periodontitis was first seen in a private periodontal practice. The radiologic examination revealed both on panoramic as on retroalveolar incidence a semicircular radiotransparent image, with relatively diffuse borders, located distally to the tooth 38 in anterior aspect of the ascending ramus of the mandible (Fig.1). Despite the relative lack of periodontal support for the distal root on its distal aspect (PPD = 10), the tooth 38 showed moderate mobility. The patient underwent initial therapy according to the One Stage Full Mouth Disinfection concept (Quirynen, 1995). Root canal treatments were performed using the rotary system ProTaper® and the root canal filling system Thermafill® from Dentsply-Maillefer, and the coronal parts of the teeth were rebuilt using intracanalar screws and core-composite materials. The patient was reevaluated four weeks later and persistent periodontal pockets of more than 5 mm were found in all sextants. Periodontal surgery aiming to reduce the pockets was decided on the upper arch and on both mandibular quadrants. As the intriguing semicircular radiotransparent image persisted, the patient was referred to the Department of Periodontology of the Faculty of Dental Medicine of the Victor Babes University of Medicine and Pharmacy of Timisoara, where the periodontal surgery for the left lower quadrant was scheduled.

Fig.1 Radiographic image of the regio 38.
Note the diffuse radiotransparent contour on the distal aspect of 38.

During the surgery, intracrevicular incisions were performed and full thickness-flaps were reflected. A distal-wedge procedure was performed on the distal aspect of 38. When reflecting the flaps, an elastic fibrous yellowish mass of cca 2 cm in diameter was found partially attached to the vestibular flap. As a cystic formation was suspected, the mass was carefully dissected from the margins of the flap and of the bone margins. The formation was easily enucleated using a periosteal elevator and pulled out using a tweezer. A circular bone defect of cca 2 cm with sharp margins and smooth inner surface remained on the anterior aspect of the ascending ramus of the mandible (Fig.2). There was no need of curretage of the defect, as there was no granulation tissue and the lesion underwent thorough and total enucleation. The defect was filled with Osteoinductal® (Osteoinductal GmbH, München, Germany), an oily Calcium hydroxide suspension, known to enhance the healing by its mild alkalic Ph and to promote bone regeneration in closed defects (Fig.3). The rest of the quadrant underwent an open flap surgery. The wound was closed by horizontal mattress sutures in the distal-wedge procedure area, and by a continuous suture for the rest of the quadrant. Postsurgical care included antibiotherapy for one week (3x500 mg Amoxicyllin daily) and 0,2% Chlorhexidin (Dentaton®, Ghimas, Casalecchio di Reno, Italy) mouth rinses, twice a day, for the following two weeks, as gentle debridement of the operated area every second week, during one month.

Evolution, Histologic Procedures and Results

The healing occurred uneventful. Sutures were removed two weeks after the surgery, no dehiscence of the wound was noted.

Fig. 2 The cyst removed. Note the sharp margins of the bone defect.

Fig. 3. The defect filled with Osteoinductal®

The removed specimen was immersed in buffered formalin and sent to histopathological examination. After dehydration, the specimen was embedded in paraffin and sections of 5 microns were obtained, that were stained with HE. Aspects of extensive fibrosis with moderate, predominantly lymphocytic inflammatory infiltrate and cystic wall parts were found. Within the cystic wall, moderate lymphocytic infiltrate with perivascular disposition was noticed. The Chievitz organ was discovered within the specimen as round nests of squamouslike epithelial cells embedded in fibrous stroma with some nerve fibers. A basal membrane was less visible on the sections (Fig.4). A follicle filled with keratinized material was present (Fig.5). Details showed epithelial strands with keratinised islands, the majority of the cells had hyperchrome nuclei and some nervous fibers were present in the vicinity (Fig.6).

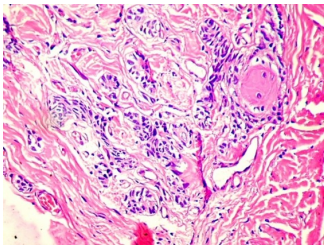


Fig. 4. The Chievitz organ - general aspect (HE, x 200)

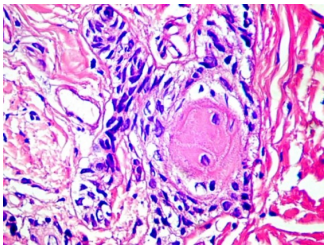


Fig. 5. Detail - epithelial strand and keratinised islands (HE, x 400)

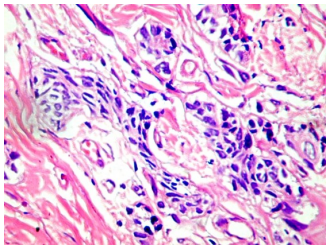


Fig. 6. Detail - epithelial strands; the majority of the cells have hyperchromic nuclei and an adjacent nerve fiber is visible.

Conclusions

The present case report states the importance of the correct identification of the JOOC found in cysts of jaws with various locations, in order to avoid misinterpretations like squamous cell carcinomas and extensive unnecessary surgeries in the head and neck.

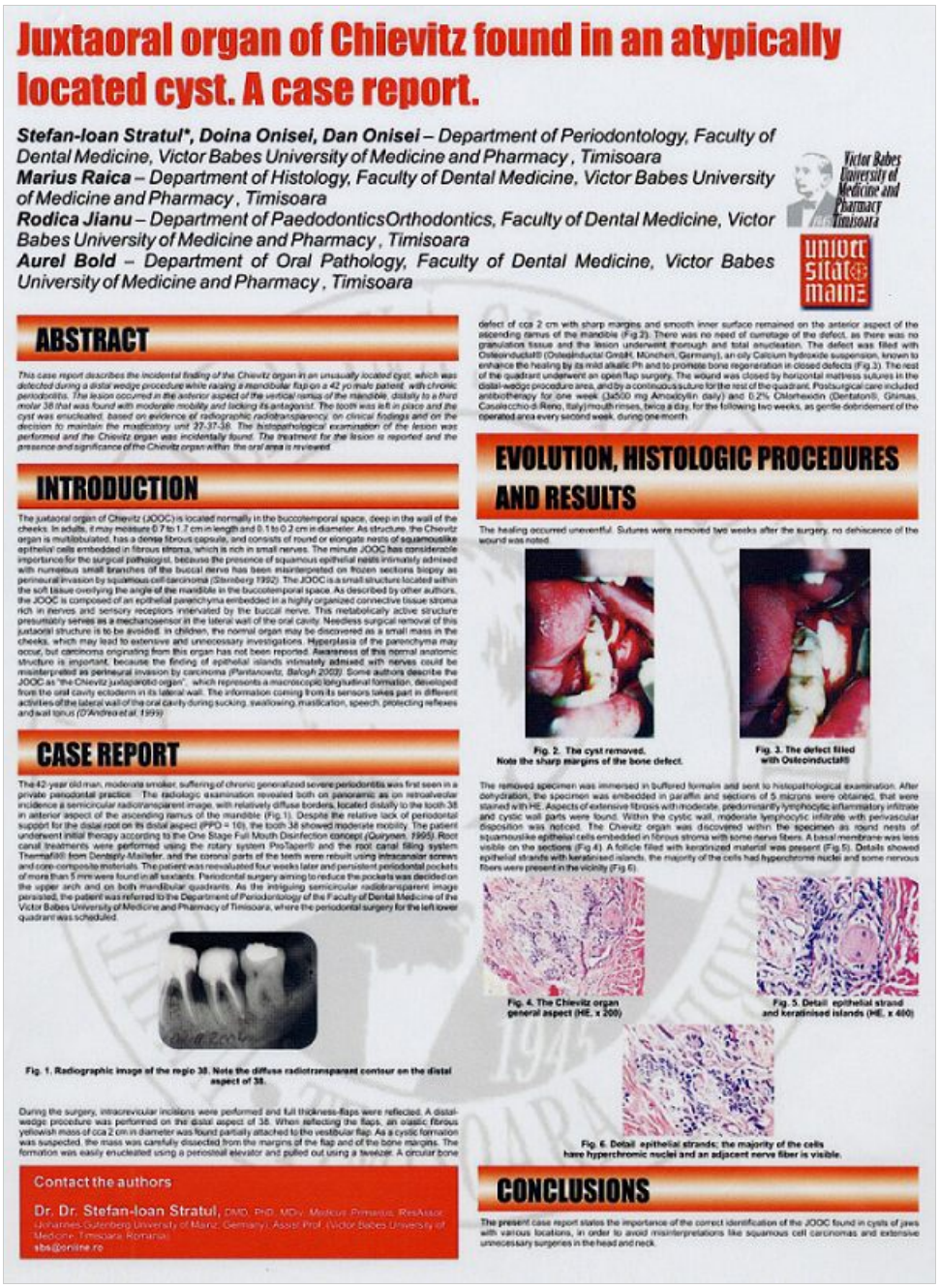
Abbreviations

PPD - periodontal probing depth
JOOC - juxtaoral organ of Chievitz

This Poster was submitted by Assist. Prof. Dr. Dr. Stefan-Ioan Stratul.

Correspondence address:
Assist. Prof. Dr. Dr. Stefan-Ioan Stratul
str.Em.Gojdu
no.5
300176 Timisoara
Romania

Poster Faksimile:



Juxtaoral organ of Chievitz found in an atypically located cyst. A case report.

***Stefan-Ioan Stratul**, Doina Onisei, Dan Onisei* – *Department of Periodontology, Faculty of Dental Medicine, Victor Babes University of Medicine and Pharmacy , Timisoara*
Marius Raica – *Department of Histology, Faculty of Dental Medicine, Victor Babes University of Medicine and Pharmacy , Timisoara*
Rodica Jianu – *Department of PaedodonticsOrthodontics, Faculty of Dental Medicine, Victor Babes University of Medicine and Pharmacy , Timisoara*
Aurel Bold – *Department of Oral Pathology, Faculty of Dental Medicine, Victor Babes University of Medicine and Pharmacy , Timisoara*

ABSTRACT

This case report describes the incidental finding of the Chievitz organ in an unusually located cyst, which was detected during a distal wedge procedure while raising a mandibular flap on a 42 yo male patient with chronic periodontitis. The lesion occurred in the anterior aspect of the vertical ramus of the mandible, distally to a third molar 38 that was found with moderate mobility and lacking its antagonist. The tooth was left in place and the cyst was enucleated, based on evidence of radiographic radiotransparency, on clinical findings and on the decision to maintain the masticatory unit 37-37-38. The histopathological examination of the lesion was performed and the Chievitz organ was incidentally found. The treatment for the lesion is reported and the presence and significance of the Chievitz organ within the oral area is reviewed.

INTRODUCTION

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CONCLUSIONS

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Contact the authors

Dr. Dr. Stefan-Ioan Stratul, DMD, PhD, MDv, Medicus Primarius, ResAssoc. Johannes Gutenberg University of Mainz, Germany | Assist.Prof. (Victor Babes University of Medicine Timisoara, Romania)
sbs@online.ro