A CLINICAL CASE REPORT OF AN EPIDERMOID CYST OF THE MANDIBLE

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ABSTRACT
Epidermoid and dermoid cysts are slow-developing formations of ectodermal origin and their most common location is underneath the skin. Epidermoid cysts of the jaw bones are extremely rare, with only several cases documented in the dental literature. Their most common intraoral location is the floor of the oral cavity, the tongue, lips, palate and cheeks. They are slow-growing painless formations, usually discovered incidentally when imaging scans, as well as histopathological examinations, are performed. A patient sought assistance from us, presenting with painful swelling in the right side of the mandible, without added infection. The radiograph and the CBCT scans revealed a lesion in the region of tooth #48, extending halfway into the mandibular ramus, which was surgically removed under general anesthesia. The surgical technique was cystectomy- complete removal of the cyst with the fibrous capsule. The mucosa above the bone defect is then tightly sealed. The histopathology report described an epidermal cyst. It follows that this type of lesions, though extremely uncommon in the jaw bones, must be considered in the differential diagnosis with odontogenic cysts like follicular odontogenic cyst and odontogenic keratocyst.

Keywords: epidermoid cyst, intraosseous, mandible, cystectomy.

INTRODUCTION
Epidermoid and dermoid cysts are slowly growing formations developing out of ectodermal tissue that can occur throughout the human body but their most common location is underneath the skin. Their incidence varies from 1.6% to 6.9%, with only 1.6% found in the oral cavity [1]. Epidermoid cysts of the jaw bone are considered very infrequent, and only a few cases have been reported in the literature so far [2, 3, 4, 5, 6]. Their most common intraoral location is the floor of the oral cavity [7, 8, 9, 10]; however, other documented sites of the lesion include the tongue, lips, palate and cheeks [11, 12]. Several mechanisms have been proposed for their formation, such as the proliferation of ectodermal remnants during embryogenesis, obstruction of pilosebaceous units or traumatic implantation of epithelial cells [13, 14].

Even though they are congenital in origin, they appear and are most often diagnosed in the second or third decades of life [14]. These overgrowths enlarge slowly and painlessly, and depending on their intraoral location, they may give rise to disturbances in chewing, speaking or swallowing abilities. Epidermoid cysts are typically lined by keratinizing multilayered squamous epithelium, with no skin appendages in the fibrous connective tissue layer, while dermoid cysts also contain hair follicles, sebaceous and sweat glands [13, 14, 15, 16]. Although malignant transformation is a rare occurrence for this type of pathological formation, several cases disclosing malignancy in the head and neck have been well-documented [13, 15, 16, 17].

CASE PRESENTATION
A male patient, aged 37 years, presented for treatment at the University Medical Dental Centre of the Faculty of Dental Medicine, Varna, Bulgaria. The patient complained of persistent severe pain and discomfort in the region of the right-side mandibular jaw. The extraoral and intraoral examinations confirmed moderate swelling and redness, with no evidence of restricted mouth opening. The CBCT scans revealed a unilocular lesion distal to tooth #48, extending halfway into the mandibular ramus, measuring 30.21 mm in craniocaudal dimension, 7.8 mm- vestibulolingual dimension, 18.09 mm- mesiodistal dimension, and causing marked thinning of the cortical plate. No periosteal reaction was observed on the CBCT imaging. Considering both clinical and paraclinical tests, the preliminary diagnosis was for a Follicular odontogenic cyst. (Fig. 1, 2.)
Fig. 1. CBST-cyst lesion distal to tooth #48

Fig. 2. Dimensions of the cyst lesion

Differential diagnosis with odontogenic kerato-cysts (OKCs) was made since its most common occurrence in the body is in the area of the mandibular ramus as well as in the proximity of retained teeth and in most cases OKCs are multilocular. Tooth #48 was mesially inclined. The patient was operated on under general anesthesia. First, an intrasulcular incision was conducted vestibular to teeth #46 and #47, followed by a distal vertical incision along the plica pterygomandibularis where a mucoperiosteal flap was dissected. Tooth #48 was extracted and the cystic formation was excised without rupturing the cystic sac. The surgical technique was cystectomy - complete removal of the cyst with the fibrous capsule. The mucosa above the bone defect is then tightly sealed. The presence of a fibrous capsule facilitates the complete surgical excision of the cyst. The material was subsequently prepared and sent for histological examination. The macroscopic view indicated the presence of an elastic capsule, filled with cottage cheese-like matter in gray color. Following surgery, the therapy prescribed included antibiotics along with analgesics and 0.12% chlorhexidine solution as a seven-day mouth rinse. The post-operative period was uneventful.
The histological examination was performed at the General and Clinical Pathology Clinic. The cyst specimen was fixed in 10% Neutral Buffered Formalin, and 10im-thick paraffin-embedded blocks of tissue were prepared and stained en bloc with hematoxylin and eosin. The preparations were photographed with a Leica DM 1000 microscope, both at medium and high magnification. The findings revealed an epidermoid cyst, characterized by a lining of stratified orthokeratinized squamous epithelium with a marked granular layer filled with keratin filaments.

Fig. 6. Epidermoid cyst with inflammation on the wall (H-E x 200, bar 10µm)
DISCUSSION

Epidermoid and dermoid cysts are typically located in soft tissues and are mostly solitary lesions. Intraosseous epidermoid cysts are fairly rare and may appear throughout the human body. They are usually found in the skull or the phalanges of the hand. Intraorally, their most frequent site is the floor of the oral cavity, occurring less often in the tongue, lips, cheeks, palate, and extremely rare in the jaw bones [11]. Their pathogenesis is still poorly understood. As most epidermoid and dermoid cysts are congenital, they are likely to result from disturbances during the early stages of embryogenesis between 3rd-5th gestation weeks. The majority of cysts prove to be congenital formations, yet other etiological factors have been described in the literature, such as trauma or fractures penetrating soft tissues and subsequently leading to the formation of intraosseous cysts [18, 19, 20]. For this reason, the term “epidermoid occlusive cyst” was introduced [21]. In general, there are no clinical or histopathological differences between congenital and acquired epidermoid cysts [22]. In the case presented, there was no evidence of trauma or fracture that could lead to the development of an epidermal cyst in the mandible. Another theory suggests that the incidence of intraosseous epidermoid cysts can be attributed to epithelial metaplasia due to odontogenic cysts. Sebaceous differentiation from the cyst wall may lead to the insertion and folding of mesodermal tissues which subsequently cause the formation of epidermoid cysts [23]. This theory probably supplies the best explanation for the occurrences of such lesions around the mandibular third molars.

Toptas et al. were the first to document bilateral mandibular intraosseous epidermoid cysts with impacted wisdom teeth in one patient [5]. Multiple intraosseous epidermoid cysts are a common manifestation of Gardner’s syndrome [24].

Based on the clinical and imaging results, the preliminary diagnosis of the case presented was for “follicular odontogenic cyst” and a differential diagnosis with odontogenic keratocyst since the pathological lesion was located distally, in the region of tooth #48 and the mandibular ramus. Therefore, “epidermoid cyst of the jawbone”, as a differential diagnosis, was not considered in the preoperative examinations.

Epidermoid cysts can appear at any stage of a person’s life, most frequently at a young or middle age, with studies suggesting that males are more prone to developing such pathological lesions [25]. They are slow-growing painless formations, usually discovered incidentally when imaging scans, as well as histopathological examinations, are performed. Among the most common complaints are compression, rupture of the cystic sac or infection; one case of facial palsy has been described in the literature but it was linked to an inflammation involving the whole parotid gland [26]. The prognosis of epidermoid cysts is relatively good and the treatment includes surgical excision of the cyst and its cystic sac. Epidermoid and dermoid cysts have a low rate of recurrence (3%), mainly observed in cysts located in the floor of the oral cavity [27].

CONCLUSION

Although epidermoid cysts in the jaw bones are uncommon, their potential occurrence must be factored in and included in the differential diagnoses with odontogenic cysts.

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