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Intra Bony Epidermoid Cyst Mimicking Odontogenic Cyst – A Case Report

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Authors' contributions

This work was carried out in collaboration between all authors. Author PVA designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors SLS and FM managed the analyses of the study. Authors AP and DKSL managed the literature searches. All authors read and approved the final manuscript.

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Case Study

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ABSTRACT

Epidermoid and Dermoid cysts are benign lesions encountered throughout the body. These cysts are cystic malformations lined with squamous epithelium. Development of these cysts in the oral cavity is extremely rare. Epidermoid cysts can arise by a development of entrapped ectodermal tissue of the first and second branchial arches or can also arise due to surgical or accidental implantation of epithelial cells into deeper tissues. Clinically, the lesion presents as a slow-growing asymptomatic mass, usually located in the midline, above or below the mylohyoid muscle. Histologically, they can be further classified as epidermoid, dermoid or teratoid. Originally the implantation cysts are developed from congenital inclusion of ectodermal tissue during

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embryological development. But sometimes they may originate through implantation of epithelium by either surgical or accidental trauma into deeper mesenchymal tissues. This article presents a rare case of inclusion type of epidermoid cyst in the body of the mandible.

Keywords: Cysts; Epidermoid cysts; jaw cysts; mandible; inclusion cysts.

1. INTRODUCTION

Epidermoid and Dermoid cysts are benign lesions encountered throughout the body, particularly in areas where embryonic elements fuse together. Most (80%) are located in the ovaries and sacral region. Some (about 7%) can be found in head and neck region [1]. These cysts are cystic malformations lined with squamous epithelium. Development of these cysts in the oral cavity is extremely rare. They constitute 1.6% to 6.9% of all cysts in the head and neck area [2]. Depending on the pathogenesis; epidermoid cysts can be divided into the congenital and acquired types. The former are called epithelial develop from congenital inclusion of ectodermal tissue during embryological development, the latter type, first recognised by Werhner and originally referred to as 'implantation cyst' by Sutton in 1895. Since trauma is said to always precipitate in the formation of the implantation-type epidermoid cyst, King termed it as 'post traumatic cyst' [3]. In this article a unique case of intra bony epidermoid cyst involving the body of the mandible is presented.

2. CASE REPORT

A 20 year old man presented with good health with a chief complaint of a swelling and facial asymmetry in the left side body of the mandible for past 6 months. The swelling was painless. His past medical and family history was noncontributory. On clinical examination the lesion presented as a firm bony hard painless swelling on the left body of the mandible. Teeth at the region of the swelling were normal. An intra oral periapical and occlusal radiographs showed a well-defined radiolucent lesion with cloudy appearance and sclerotic margin which displaced the roots of teeth in that region. A panoramic radiograph showed a well- defined radiolucent lesion with a sclerotic margin displaying the teeth in that region (Fig. 1). A CT scan revealed the lesion to be 4.5 x 6.5 cm in size with expansion of both the buccal and lingual plates (Figs. 2 and 3). When the swelling was aspirated, it revealed white colored keratin material. A differential diagnosis of collateral - type odontogenic keratocyst, early stage of cemento-ossifying fibroma, unicystic ameloblastoma, aneurysmal bone cyst, keratocystic odontogenic tumors (KOT) and epidermoid implantation cyst was made. The lesion was completely enucleated and histopathological examination showed cystic lining and stromal wall. The lining was made up of 4-5 cells thick epithelium with a well pronounced granular cell layer and thick keratin layer resembling epidermis. The stroma was made up of fibrous connective tissue with areas of hyalinization and focal areas of inflammation. There was no evidence of any dermal appendages (Fig. 4). The final diagnosis was made as implantation type of epidermoid cyst.

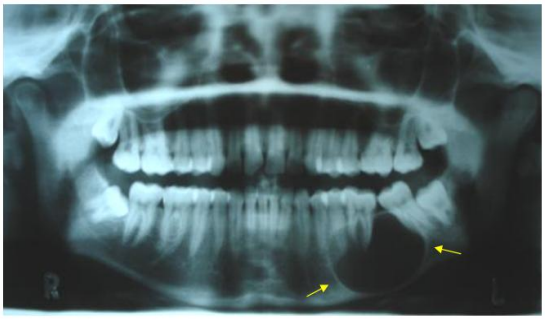

Fig. 1. OPG showing well- defined radiolucent lesion with a sclerotic margin

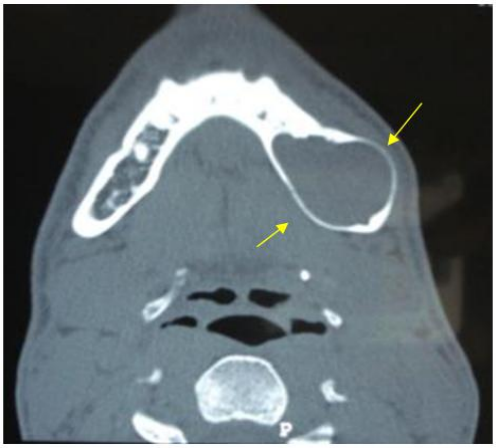

Fig. 2. CT scan showing buccal and lingual plate expansion

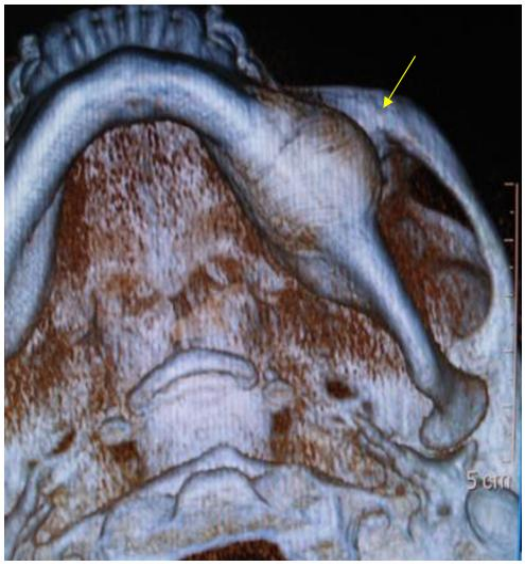

Fig. 3. 3d reconstruction showing buccal and lingual plate expansion

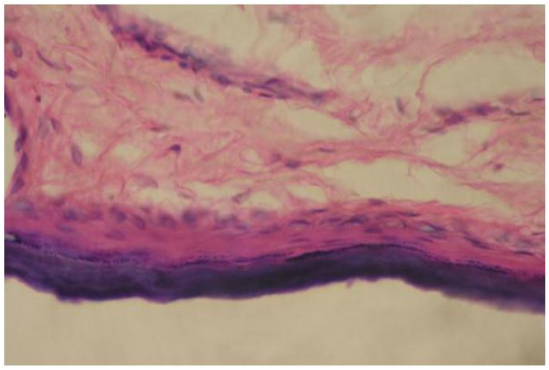

Fig. 4. Histopathology showing thick keratin layer resembling epidermis

3. DISCUSSION

Epidermoid cysts can arise by a development of entrapped ectodermal tissue of the first and second branchial arches or can also arise due to surgical or accidental implantation of epithelial cells into deeper tissues [1]. According to McCallum, the congenital variety can originate as a late displacement of the ectoderm or may develop, as the teratomatous or branchial cyst does, from the residual tissue separated from the branchial opening. Brosch, Axhausen, Hendricks, and Ward, cited by Schuchardt, believed that these cysts are formed in much the same way as the epithelial germ that remained displaced within the maxillary bone during embryonic development [4]. Sutton believed that implantation cysts originated through implantation of epithelium by either surgical or accidental trauma into deeper mesenchymal tissues. There is usually a latent period after injury before the cyst is noticed clinically. Sometimes the injury is so slight, as in an insect bite that the trauma escapes unnoticed or is forgotten by the patient. When healing takes place, the implanted epithelial cells multiply, producing a central mass of keratin and lipid-rich debris [3,5].

The best available explanation of the existence of these cysts is the epithelium implant theory. According to this theory, such a cyst originates as an implant of covering epithelium in deeper structures, thereby becoming independent of parent structures but still carrying on its normal keratin-forming function of which the end product is a true epidermal cyst. Conceivably the implant could be caused by trauma or by embryonal inclusion [6].

These cysts occur most often in patients in their second or third decade of life. It is usually solitary and connects with the surface by keratin-filled pores. Clinically, the lesion presents as a slow-growing asymptomatic mass, usually located in the midline, above or below the mylohyoid muscle. When located above the muscle, the cyst manifests itself as a sublingual swelling; when below the muscle, the clinical aspect will be a submental swelling [7]. Archer says that these cysts are frequently located in the ovaries and testicles, but he adds that they also can be found occasionally, they are found in the floor of the mouth, the palate, and the tongue [4].

Histologically, they can be further classified as epidermoid cysts, dermoid cysts and teratoid cysts [8]. Most reported cases have involved the floor of the mouth (sublingual dermoids), usually in the midline [9-14]. Rare cases have been reported in the tongue, lips, [15] uvula, [16] temporomandibular joint dermal grafts, [17] intradiploic, [18] buccal mucosa, intracranial [l5, 18] and only three case reports of intraosseous epidermoid cysts were reported [3,4].

The radiological differential diagnosis of unicystic lesions of the body of the mandible was made which includes odontogenic keratocyst, unicystic ameloblastoma, early stage of cemento-ossifying fibroma and aneurysmal bone cyst [19]. Odontogenic

keratocyst is characterized by a distinct sclerotic margin which may be smooth or scalloped. These tend to spread along the medullary space causing only slight expansion until a considerable size is reached [20].

4. CONCLUSION

On the contrary it can be concluded that this particular case was in contrast to this which showed bicortical expansion. Unicystic ameloblastoma occurs commonly in the body of the mandible. These are well-corticated without a sclerotic margin but in our case a well-defined sclerotic margin was seen. Early stage of cemento-ossifying fibroma presents as well-defined radiolucency with sclerotic margins mostly found at the premolar and molar regions of the mandible [19]. Aneurysmal bone cyst usually produces a radiolucent ovoid or fusiform unilocular expansion of bone and may balloon the cortex [20]. These two entities were excluded with the aspiration of white colored keratin material from the cystic space of our case.

CONSENT

As per international standard or university standard written patient consent has been collected and preserved by the authors.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the authors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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