

## Intrabony Epidermoid Cyst of Mandible - A Case Report

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**ABSTRACT:** Dermoid cysts are developmental lesions found inside normal organs or tissues as a result of the inclusion of tissue from diverse sources (ectoblastic, mesoblastic, or endoblastic) caused by a defect in the fusion of the embryonic lateral mesenchymal mass (mainly the first and second arches) during the fifth week of embryological development. In 1955, Meyer updated the concept of dermoid cyst to describe three histological variants: The true dermoid cyst, the epidermoid cyst, and the teratoid variant. Only 1.6% of epidermoid cysts occur in the oral cavity. Intraoral epidermoid cysts are most commonly observed in the floor of the mouth and are seldom found in the lips or buccal mucosa (Smoker)

**Key words:** Cyst, Epidermoid cyst, Jaw cyst, Mandible

### I. INTRODUCTION

Dermoid cysts are developmental lesions found inside normal organs or tissues as a result of the inclusion of tissue from diverse sources (ectoblastic, mesoblastic, or endoblastic) caused by a defect in the fusion of the embryonic lateral mesenchymal mass (mainly the first and second arcs) during the fifth week of embryological development.<sup>1</sup> In 1955, Meyer updated the concept of dermoid cyst to describe three histological variants: The true dermoid cyst, the epidermoid cyst, and the teratoid variant. True dermoid cysts are cavities lined with epithelium showing keratinization and with identifiable skin on the cyst wall. Epidermoid cysts are lined with simple squamous epithelium with a fibrous wall and no attached structures. The lining of teratoid cysts varies from simple squamous to a ciliate respiratory epithelium containing derivatives of ectoderm, mesoderm, and/or endoderm.<sup>2,3</sup>

Both congenital and acquired etiologies have been proposed for the development of epidermoid cysts. According to the theory of congenital development, ectodermal elements migrate into the facial midline where the first and second branchial arches fuse.<sup>4</sup> According to the theory of acquired development, the epidermis migrates into the deep tissue as a result of a physical trigger such as trauma and develops into an (epi)dermoid cyst.<sup>4</sup> Since trauma is said to always precipitate in the formation of the implantation-type epidermoid cyst, King termed it as 'post traumatic cyst'.<sup>5</sup> Epidermoid cysts can occur anywhere in the body, and are most common in the ovary and testicle.<sup>6</sup> Only about 7% are found in the head and neck.<sup>4,9,10</sup> Only 1.6% of epidermoid cysts occur in the oral cavity.<sup>7</sup> Intraoral epidermoid cysts are most commonly observed in the floor of the mouth and are seldom found in the lips or buccal mucosa (Smoker). In this article a unique case of intrabony epidermoid cyst involving the left side of the body of the mandible has been discussed.

### II. 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 one week. The swelling was painless and the onset of swelling was insidious and was of the same size since it was first noticed. His past medical and family history were noncontributory. On clinical examination the lesion presented as a firm bony hard painless swelling extending through the left body of the mandible to the symphyseal region. Teeth at the region of swelling appeared to be mesially migrated from its position. An intra oral periapical radiograph, occlusal radiograph and panoramic radiograph showed a well-defined radiolucent lesion with sclerotic margin which displaced the roots of teeth in that region. On aspiration the swelling yielded a white colored keratin material. Based on the clinical features and aspiration findings a differential diagnosis of odontogenic keratocyst, early stage of cementoossifying fibroma, implantation type epidermoid cyst and unicystic ameloblastoma was made. An incisional biopsy was performed and the results revealed a cyst lined with squamous epithelium and with keratin material in layers with no evidence of dermal appendages. A diagnosis of epidermoid cyst could be made only after ruling out various developmental, neoplastic, infectious and traumatic lesions. If ever a malignancy is confirmed, appropriate evaluation for a primary need to be carried out followed by the definitive management. The final diagnosis was made as implantation type of epidermoid cyst.



### **III. DISCUSSION**

Epidermal inclusion cysts are approximately twice as common in men as in women. They may occur any time in life, but they are most common in the 3rd and 4th decades of life. The origin of the epidermal inclusion cyst is varied. They may form by sequestration and implantation of epidermal rests during embryonal period, occlusion of the pilosebaceous unit, or iatrogenic or surgical implantation of epithelium into the jaw mesenchyme resulting in proliferation of epidermal cells within a circumscribed space of the dermis, in which

case it is referred to as an epidermal inclusion cyst. Although most patients deny a history of trauma a mechanical pressure or a minor trauma may be a contributing factor.<sup>11' 12' 13' 14' 15' 16</sup>

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. 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.<sup>17' 11</sup>

However, for the cysts to form, a proper combination of events, namely; (a) trauma (b) an epithelial system capable of proliferation at that moment, and (c) minimal inflammation are required. This cascade of events occurring simultaneously is exceedingly uncommon and probably explains the rarity of these cases. Posttraumatic cysts are usually symptomless and may not be associated in the patient's mind with any specific injury, such injury possibly having occurred many years earlier, as was also noted in our case.

The characteristics features of histopathological elements of epidermoid cysts which distinguish them from keratocystic odontogenic cyst is laminated keratin in the cyst lined by stratified squamous epithelium, while keratocysts have keratinizing lining epithelium with corrugated parakeratin layer and satellite cysts in cystic capsule.<sup>18</sup>

The radiological differential diagnosis of unicystic lesions of the body of the mandible are odontogenic keratocyst, unicysticameloblastoma, early stage of cemento-ossifying fibroma and aneurysmal bone cyst.<sup>19</sup> An important characteristic feature of OKC is its propensity to grow along the internal aspect of the jaws causing minimal expansion. Whereas in our case there was considerable bicortical expansion.<sup>20</sup> Unicysticameloblastoma 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. Presence of a concentric growth within the medullary part of the bone with outward expansion approximately equal in all directions is characteristic of cement-ossifying fibroma. Our case showed no concentric pattern of bony expansion.<sup>20</sup> Aneurysmal bone cyst show a multilocular radiolucent appearance compared to our case, which shows an unilocular radiolucent appearance.

#### **IV. CONCLUSION**

Our case was a rare presentation of an intrabony epidermoid cyst occurring in the body of the mandible. These lesions should be considered in the differential diagnosis of radiolucent lesions of the jaws, therefore during examination we should consider aspiration biopsy, ultrasonography and other advanced imaging techniques since conventional radiographs are not enough for differential diagnosis of cystic similar bone lesions. Surgically they have a very good prognosis, they are non-aggressive lesions.

#### **REFERENCE**

- [1]. Containment P. Congenital fistulas and cysts of the neck. MedicalEncyclopedie chirurgicale-E-20-860-A-10. Paris: Elsevier, 2000. Paris: Elsevier; 2000.
- [2]. Meyer I. Dermoid cysts (dermoids) of the floor of the mouth. Oral Surg Oral Med Oral Pathol 1955;27:1149-64.
- [3]. Baliga M, Shenoy N, Poojary D, Mohan R, Naik R. Epidermoid cyst of the floor of the mouth. Natl J MaxillofacSurg 2014;5:79-83.
- [4]. Kandogan T, Koç M, Vardar E, Selek E, Sezgin Ö. Sublingual epidermoid cyst: A case report. Journal of Medical Case Reports. 2007; 1: 87.
- [5]. Dai Ichikawa et al. Epidermoid Cyst of the Buccal Mucosa Diagnosed by Magnetic Resonance Imaging and Ultrasonography: A Case Report and Review of the Literature. OHDM- Current Research in Oral and Maxillofacial Radiology- July, 2015
- [6]. Ozan F, Polat HB, Ay S, Goze F. Epidermoid cyst of buccal mucosa: a case report. The Journal of Contemporary Dental Practice. 2007; 8: 90-96.
- [7]. Turetschek K, Hospodka H, Steiner E. Case report: epidermoid cyst of the floor of the mouth: diagnostic imaging by sonography, computed tomography and magnetic resonance imaging. Brazilian Journal of Radiology. 1995; 68: 205-207
- [8]. Smoker WRK. Oral cavity, Upper aerodigestive tract: Head and Neck Imaging. (3rdedn), 1996, Mosby, St. Louis
- [9]. De Ponte FS, Brunelli A, Marchetti E, Bottini DJ. Sublingual epidermoid cyst. J CraniofacSurg 2002;13:308-10.

- [10]. Fuchshuber S, Grevers G, Issing WJ. Dermoid cyst of the floor of the mouth – a case report. *Eur Arch Otorhinolaryngol* 2002; 259:60-2.
- [11]. Noffke CEE. Implantation-type epidermoid cyst of the mandible. *DentomaxillofacRadiol* 1999; 28:383-385.
- [12]. Sullivan DP, Liberatore LA, April MM, Sassoon J, Ward RF (2001) Epidermal inclusion cyst versus thyroglossal duct cyst: sistrunk or not? *Ann OtolRhinolLaryngol* 110: 340-344. [Crossref]
- [13]. Da Silva Rocha PCM, Costa-Neto H (2017) Unusual Epidermoid Cyst in the Hard Palate. *Oral Sur Oral Med Oral Pathol Oral Radiol* 124: e107.
- [14]. Rodrigues R, Rodrigues FS (2014) Oral epidermoid cyst in buccal mucosa exhibiting an intense inflammatory gigantocellular reaction. *Oral Sur Oral Med Oral Pathol Oral Radiol* 117: 178-179.
- [15]. Epstein WL, Kligman AM (1957) Epithelial cysts in buried human skin. *AMA Arch Derm* 76: 437-445. [Crossref]
- [16]. Da Silva TP, Grotta R (2015) Epidermal Inclusion Cyst in Submandibular Region. *Oral Sur Oral Med Oral Pathol Oral Radiol* 120: 40-41.
- [17]. Golden BA, Zide MF. Cutaneous Cysts of the Head and Neck. *J Oral MaxillofacSurg* 2005; 63:1613-1619.
- [18]. Mergimeprakazilaxha et al. Epidermoid Cyst of Mandible Ramus: Case Report. *Med Arch.* 2016 Jun; 70(3): 238-240.
- [19]. N.K. Wood and P.W. Goaz, Editors, *Differential diagnosis of oral and maxillofacial lesions* (5th edn), St. Louis: Mosby, 1997.
- [20]. Stuart C White and Michael J Pharoah, Editors, *Oral Radiology – Principles and Interpretation*(6<sup>th</sup>edn), Mosby, 2012.

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