The Prevalence of the jaw bone cysts in Baghdad city (A retrospective study)

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ABSTRACT

Background: Cysts of the jaw bones are more common than in any other bone in the body. A total of 5356 biopsies were studied of which 418 (7.804%) werecysts involving the oral region. Odontogenic cyst comprised 348 cases (83.25%). The most common odontogenic cyst was periapical cyst forming 31.25% and keratocyst came second with an incidence of 16.03% of the total cystic lesions examined.

Materials and methods: The sample of study composed of 418 biopsies which had been diagnosed as being oral cysts. Age, sex, site of lesion and final diagnosis were obtained from the files of the patients.

Results: Out of 418 cysts, 83.25%, were diagnosed as odontogenic cysts while nonodontogenic cysts comprised 3.34% of the total-number.Periapical cyst was the most common cystic lesion forming 39.39% of the total number, with most cases occurring in the maxilla (23.3%). Next come odontogenickeratocyst (19.25%), followed by dentigerous cyst (14.94%).
epidermoid cyst was the most predominant nonodontogenic cyst (0.96%). The highest incidence of cystic lesions occurred at the age of 21-30 (31.10%) with male predominancy.

KEYWORDS: Oral cysts, Periapical cyst, Keratocyst.

INTRODUCTION

A true cyst forms when developmental or inflammatory factors stimulate proliferation of epithelial cells surrounding a tooth. As these cells grow, the central cells become removed from their nutrient supplied by adjacent vascular connective tissue and become necrotic. Subsequently, an epithelium-lined cavity or sac is formed.(1) So simply, by definition, a cyst is a pathological, often fluid filled cavity lined by epithelium.(2)

The dental practitioner is presented with a variety of cystic lesions throughout his professional life. Cysts of the jaw bones are more common than in any other bone in the body.(3) Epithelial lined cysts are seen only in the jaw bones with rare exceptions. This epithelial lining is mostly odontogenic in origin.

A few cysts may be lined by respiratory epithelium originating from the lining of the maxillary sinus, such as the nasopalatine duct cyst and other fissural cysts.Non-epitheliated bone cysts are occasionally seen in the jaws especially the mandible. As for the soft tissue cysts, these are uncommon lesions, but may be seen sometimes.(4)

The classification of cysts was recommended by the World Health Organization (**WHO**) in 1992(3) is as follows:

1. Epithelial Cysts:

A. Odontogenic cysts:

a) Developmental:

1. Odontogenic keratocyst
2. Dentigerous cyst
3. Eruption cyst
4. Lateral periodontal cyst.
5. Gingival cyst
6. Glandular odontogenic cyst

b) Inflammatory:

1. Radicular cyst
   a. Apical
   b. Lateral
   c. Residual
2. Paradental cyst

B. Non odontogenic cysts:

a) Nasopalatine duct cyst
b) Nasolabial cyst
c) Globulomaxillary cyst
d) Median cysts

2. Non epithelialized primary bone cysts:

a. Solitary bone cyst (simple, traumatic)
b. Aneurysmal bone cyst
c. Stafnes idiopathic bone cavity

Cysts of the soft tissues:

1. Epidermoid cyst
2. Dermoid cyst
3. Bronchial cyst (lymphoepithelial)
4. Thyroalossal duct cyst

MATERIALS AND METHODS:

A total number of 418 biopsies were collected from the department of oral and maxillofacial

pathology, Collage of Dentistry, Baghdad University through a period of twenty years ranging from 1991-2010. The following data was recorded for alldiagnosed cystic lesions from their files: age, sex, site of lesion and final diagnosis. Cysts involving the salivary glandswere not included in this study.

RESULTS

The total number of biopsies studied was 5356, of which 418 werediagnosed as cystic lesions comprising 7.08%. Out of 418 cysts, 348 were diagnosed as odontogenic cysts that comprised 83.25%, while nonodontogenic cysts were 14 cases that comprised 3.34% of the totalnumber. Distribution of these cysts is shown in table 1.

There were 50 cystic lesions comprising 14.37% of the total amount, which contained odontogenic epithelium but without any other clear diagnostic features that leads to a definite histopathological diagnosis. These lesions were grouped under the heading of odontogenic cysts that lacked any characteristic histopathological features that enabling definit diagnosis. One non-epithelial cystic lesion was recorded.

Periapical cyst was the most common cystic lesion (155 cases) forming 39.39% of the total number of cysts registered, with most cases occurring in the maxilla (23.3%). Next come odontogenic keratocyst (19.25%), followed by dentigerous cyst (14.94%) and the least predominant odontogenic cyst was calcifying epithelial odontogenic cyst (1.15%).

There were 14 cases of nonodontogenic cysts, of which epidermoid cyst was the most predominant cyst (0.96%), followed by globulomaxillary and nasopalatine cysts (0.72% for each), aneurysmal bone cyst (0.48%) and the least nonodontogenic cysts were dermoid and branchial cysts (0.24% for each). (Table 1). Concerning the site distribution, most cystic lesions occurred in the maxilla (57.2%), followed by the mandible (36.3%), soft tissue (4.8%), and the least number was the maxillary sinus (1.7) as it was showed in table 2. Concerning the age distribution of the cases, the highest incidence of cystic lesions occurredat the age of 21-30 (31.10%) with male predominancy as it was showed in table 3.

DISCUSSION

Periapical cyst has been reported as being the most common cystic lesion of the jaw. It was reported that 55% of all jaw cysts studied were radicular and residual cysts.[5] Others reported a higher incidence (65-75%),[3] this is because residual cysts were grouped together with periapicalcyst due to the fact that the residual cyst is a periapical cyst remaining in the jaw bone after extraction of the causative tooth.[4]

In this study, we reached the same conclusion that the inflammatory odontogenic cysts are the most common cystic lesion reported in the jaws bones of Iraq's population (39.39%). Odontogenic cysts as a whole comprise about 90% of all jaw cysts.[3] In this study, they formed 83.25%. The main site of occurrence of odontogenic cysts was in the maxilla (57.2%).

Odontogenic keratocyst had the highest incidence of developmental odontogenic cysts (19.25%). Most studies show varied incidence of this cyst among odontogenic cysts. Some report (10-12%).[4] Others reports (5-10%).[6] This variation could be due to variation in sample size or the way of collection of the samples.

In most studies, dentigerous cyst was reported as the most frequent developmental odontogenic cyst. Benn and Aitini (1996)[7] reported that 16.6% of all jaw cysts were dentigerous cysts.Soames and Southam (1999) reported an incidence of 10-15%. Cawson (2002) reported a frequency of 15-18%. In this study, dentigerous cyst formed 14.94% of all cysts which is in agreement with the studies mentioned above, but dose not rank as the most frequent odontogenic cyst that may be send for routine histopathological diagnosis. This lesion develops from fluid accumulation between reduced enamel epithelium and the enamel surface of an impacted tooth. Many maxillofacial surgeons may base their diagnosis on both radiographical and gross appearance of the lesion at the time of surgical operation. Also the decreased incidence of dentigerous cysts in this study as compared toother studies may be due to the decreased incidence of impacted teeth as opposed to western studies.

The inflammatory type of odontogenic cysts showed a predilection for the maxilla. This has also been reported as being 60%.[3] This high incidence is thought to be due to the large number of periapical cysts which arise as a result of trauma to the anterior teeth in addition to caries, whereas in the lower jaw this factor is generally absent, leaving caries as the principal cause of periapical cysts.

Cystic lesions are generally seen in young adults especially the odontogenic developmental lesions.[8,9] This was also reported in our study where the highest incidence was in the age group 21-30. Male were affected more than female. Age and sex distribution were in accordance with various studies in which cystic lesions were generally seen in young males.

In general, the findings of this study were in agreement with other reports, the difference being that the odontogenic keratocyst had a higher incidence as compared to dentigerous cyst while most other studies reported the dentigerous cyst as being the most common odontogenic developmental cyst.

(Table 1) Distribution of cysts according to types

Type of cyst	Number	%
Keratocyst	67	19.25%
Dentigerious cyst	52	14.94%
Odontogenic cyst	50	14.37%
Calcifying epithelialodontogenic cyst	4	1.15%
Periapical cyst	155	39.39%
Residual cyst	20	5.74%
Nasopalatine cyst	3	0.72%
Globulomaxillary cyst	3	0.72%
Epidermoid cyst	4	0.96%
Dermoid cyst	1	0.24%
Branchial cyst	1	0.24%
Aneurysmal bone cyst	2	0.48%
Total	362	100%

(Table 2) Site distribution of cysts

Site	No.	%
Maxilla	239	57.2%
Mandible	152	36.3%
Maxillary sinus	7	1.7%
Soft tissue	20	4.8%
Total	418	100%

(Table 3) Age distribution of cysts

Age group	Number	%	Male	Female
0-10	25	5.98	16	9
11-20	101	24.16	45	56
21-30	130	31.10	78	52
31-40	61	14.59	31	30
41-50	42	10.04	26	16
51-60	28	6.69	12	16
61-70	25	5.98	18	7
71-80	4	0.95	4	0
80+	2	0.47	2	0
Total	418	100%	232	186

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