


Original Article

Prevalence of the Jaws cysts in Misan city: A Clinicopathological Study

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ABSTRACT

Forty eight cases of epithelial jaws cysts in Iraqi patients were diagnosed, and biopsy records of the Al Sader general hospital in Missan city. The cases were analyzed for prevalence in sex, jaws site, and cyst type. The retrospective study was conducted from May 2020 to May 2021 in Missan city; 48 patients were diagnosed with jaws cyst within one year. The histopathology department made these diagnoses at the Sader general Hospital.

The odontogenic cysts (89.6%) were more common than non-odontogenic cysts (10.4%). A radicular cyst (56.25%) was the most common epithelial jaw cyst, followed by residual cyst (12.5%). The prevalence of jaws cysts in males (60.4%) and maxilla (66.6%) were more than in females (39.6%) and mandible (33.4%). The study concluded that radicular cyst was the most common odontogenic cyst. Males are affected more than females, and maxillas are more than the mandible.

GRAPHICAL ABSTRACT

Odontogenic keratocyst

Residual inflammatory cyst

Enucleation of inflammatory cyst

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Introduction

Cysts of the jaws are sack-like pouches that fill with fluid and form within the tissues of the jaw. Odontogenic cysts are defined as those cysts that arise from dental epithelium in the tooth-bearing area of the jaws. It is usually considered that this epithelium's proliferation and/or degeneration leads to odontogenic cyst formation [1]. Jaw cysts are generally benign in nature and non-cancerous growths but may rarely present with malignant degeneration. Cystic jaw lesions are classified as odontogenic cysts, either inflammatory or developmental or non-odontogenic in origin [2].

In pediatrics, many developmental change processes occur in the maxillofacial region. These include the development of the maxillofacial skeleton and the formation of the deciduous and permanent dentition, all of which may be associated with cyst formation. In adulthood, the fixed dentition is damaged from tooth decay and injury. Both of these may be associated with cyst formation. Most jaw cysts are odontogenic in origin. Inflammatory cysts is the most common type seen in both jaws [3].

Cysts seldom cause any symptoms unless ended up by infection. The signs depend primarily upon the size and location of the cyst. Most cysts are found as a chance finding on schedule dental radiography. They are frequently asymptomatic unless there has been a long-standing apparent enlargement of secondary infection [4].

The diagnosis of jaw lesions is established from the different clinical and radiological features though the final diagnosis is based on a histopathological examination of the lesion. On an x-ray, cysts appear as radiolucent areas with radiopaque borders. Cysts are usually unilocular but may also be multilocular. Occasionally aspiration (puncture aspiration) is used to aid the diagnosis of a cystic lesion; e.g., fluid aspirated from an inflammatory cyst may appear straw-colored and display shimmering due to cholesterol content [5]. After surgical resection, the cyst wall is continuously sent to a pathologist for histopathologic examination [6].

The treatment methods were: marsupialization, enucleation. The prevalence and features of jaw cysts in children are different from those in

adults. In general, in children, developing cysts are relatively high, whereas in adults, inflammatory cysts are more common [7].

Aims of study

This study aimed to investigate the prevalence of jaws cysts diagnosed in Misan city/ southern Iraq concerning gender and anatomic site.

Materials and Methods

The retrospective study was conducted from May 2020 to May 2021 in Missan city, 48 patients were diagnosed with jaws cyst within one year. These diagnoses were made by the histopathology department of the Al-Sader general hospital. In all cases, histological preparations were reviewed, and clinical reports were analyzed, along with the complementary means of diagnosis, conventional radiography (panoramic, periapical, and occlusal views). Some of them were referred to compute tomography (CT). Demographic data (age and sex) and cyst type were recorded. Depending on the case, surgery was performed under local or general anesthesia and included one of the following treatment modalities: marsupialization, enucleation was used.

Results

Throughout the period of study, 48 cases were diagnosed as cysts. Among 48 jaw cysts, 43 cases (89.6%) were diagnosed with odontogenic cysts, and 5 cases (10.4%) were non-odontogenic cysts Table (1). The majority of jaw cysts were diagnosed predominantly in males 29 (60.4 %), 18 case was a radicular cyst, 1 dentigerous case cyst, 3 cases odontogenic Keratocyst (OKC), 2 cases gingival cyst, 4 cases residual cyst and 4 cases non-odontogenic nasolabial cyst, while females the total diagnostic cases were 19 (39.6%) 9 cases were radicular cyst, 1 dentigerous case cyst, no keratocyst was diagnosed during the period of study, 3 cases eruption cyst, 2 cases residual cyst and 4 cases nasolabial cyst (Table 1). The patients' mean age was 35.7 years at the diagnosis, ranging from 6 to 68 years.

Table 1: The distribution in terms of the gender of jaw cysts

sex	Odontogenic cyst					Non-odontogenic cyst	Total
	Inflammatory cyst		Development cyst			Nasolabial cyst	
	Radicular cyst	Residual cyst	Dentigerous cyst	Keratocyst cyst	Eruption cyst		
Male	18 (37.5%)	4 (8.3%)	1 (2%)	3 (6.25%)	2 (4%)	1 (2%)	29 (60.4%)
Female	9 (18.75%)	2 (4%)	1 (2%)	0 (0%)	3 (6.25%)	4 (8.3%)	19 (39.6%)
Total	27 (56.25%)	6 (12.5%)	2 (4%)	3 (6.25%)	5 (10.4%)	5 (10.4%)	48 (100%)

Table 2 revealed the maxillary bone was the most commonly affected, comprising 32 lesions (66.6%) of all cysts. Sixteen cases (33.4%) were found in the mandible. The case numbers according to the diagnosis of jaw cysts in the maxilla were as follows; 21 were radicular cysts

(43.75%), 1 case was a dentigerous cyst (2%), no OKCs were diagnosed through the period of study (0%), 4 cases were eruption cyst (8.8%), 1 case was a residual radicular cyst (2%), and 5 were nasolabial cyst (10.4%), respectively.

Table 2: The distribution of jaw cysts according to location

Location	Radicular cyst	Residual cyst	Dentigerous cyst	Keratocyst cyst	Eruption cyst	Nasolabial cyst	Total
Maxilla	21 (43.75%)	1 (2%)	1 (2%)	0 (0%)	4 (8.3%)	5 (10.4%)	32 (66.6%)
mandible	6 (12.5%)	5 (10.4%)	1 (2%)	3 (6.25%)	1 (2%)	0 (0%)	16 (33.4%)
Total	27 (56.25%)	6 (12.5%)	2 (4%)	3 (6.25%)	5 (10.4%)	5 (10.4%)	48 (100%)

Among 16 case was diagnosed in mandible, radicular cysts were 6 (12.5%), 1 was dentigerous cyst (2%), 3 were OKCs (6.25%), 1 cases were gingival cyst (2%), 5 were residual radicular cysts (10.25%) and 0 were nasolabial cyst (0%).

Discussion

The study evaluated the predominance of jaw cysts in patients in Misan city, southern Iraq, from May 2020 to May 2021. The study showed odontogenic cysts (89.6%) were more than non-odontogenic cysts (10.4%), the result consistent with study of Ayadin *et al.* (2012). There were 452 odontogenic cysts (98.5%) and seven nonodontogenic cysts (1.5%) in UK study by Jones and Franklin (2006). In our study, cysts occurred in adult men more frequently than in women, similar to previous studies [2,5]. Men were usually less prone to maintain oral hygiene

and were more susceptible to trauma than women. Both of these factors may lead to cyst formation [12].

Among the 48 biopsy specimens, 32 jaw cysts were diagnosed in the maxilla, which constitutes (66.4%) of whole cases, and 16 jaw cysts were diagnosed in the mandible (33.6%). Concern location Aydan *et al.* (2012) found no statistically significant difference between the maxilla and mandible. The diagnosed jaw cysts were 48 cases considered high. Our findings are relatively higher than other recent studies due to poor patients, poor oral hygiene, low socioeconomic level, and delayed treatment of the decayed teeth until symptomatic. Therefore, they are more likely to be subject to long-term chronic inflammatory processes without adequate resolution by endodontic treatment.

In our study, the most common type of jaw cysts were inflammatory odontogenic cysts (56.25%),

[10] in their study of 40000 oral biopsies found a percentage of 64.9% for radicular cysts. Also the finding is consistent with [11] from Jordan (41.7%), [12] from Japan (41.2%), and [13] from Mexico (39.9%). Generally, the findings suggest that the population has a high risk of developing inflammatory cysts. The radicular cyst is the most frequently diagnosed lesion, and they lead to pulpal necrosis subsequently pulpitis; therefore, these lesions are considered to be of an inflammatory origin [14]. In our study, the occurrence of radicular cysts in the males (37.5%) was more significant than in the females (18.75%), which is consistent with the findings of some studies [15,16] but differs from other studies that found female predominance [14,17]. Another study [18] stated that female predominance could be explained by a predominantly female population seeking dental treatment. In the literature, this male dominance can be explained by the hypothesis that males usually have poor oral hygiene habits and are more likely to be exposed to anterior maxilla trauma [12].

The most common incidence for inflammatory cysts (radicular cysts) was the maxilla while developing cysts (Keratocyst cysts) were the mandible, the result consistent with those done by [21].

Conclusions

In our study, eruption cysts were the most common developmental odontogenic cyst (12.5%). Eruption cyst is more frequently seen in the first decade of life when the primary dentition and much permanent dentition erupt [20]. Permanent molars and incisors are the most commonly affected teeth. Greater visibility in the incisal area could be one reason for the preference for incisal rather than the molar area with the ratio of 2:1. Gender predilection of eruption cyst is controversial. Bodner reported a male predilection with a male: female ratio of 2:1, which disagrees with our study. However, Aguilo *et al.* found no difference between the genders, and data presented by Seward *et al.* showed female predilection.

Nasolabial cysts were the only non-odontogenic cysts mentioned in the study it is more common in females (8.3%). Aydan *et al.* (2012) found no statistically significant difference was found between men and women ($p > 0.05$).

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Authors' contributions

All authors contributed toward data analysis, drafting and revising the paper and agreed to responsible for all the aspects of this work.

Conflict of Interest

We have no conflicts of interest to disclose.

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