Residual cyst of the jaws

P. F. Pechalova*, E. G. Poriazova, N. V. Pavlov

Department of Maxillofacial Surgery, Faculty of Dental Medicine, Medical University
66, Pestesko shosse Street, Plovdiv, Bulgaria

*Corresponding author: 00359888254906. E-mail: pechalova@abv.bg
Manuscript received August 31, 2011; revised October 03, 2011

Introduction: Residual cyst is a radicular cyst whose adjacent teeth have been extracted. **Objective:** To make a clinical and epidemiological analysis of patients with residual jaw cysts. **Material:** The records of 621 patients with radicular cysts treated at the Clinic for Maxillofacial Surgery at University Hospital, Plovdiv, Bulgaria were examined. The definitive diagnosis of 112 of them was a "residual cyst." Age, gender, location, reasons for diagnosing, and duration of hospital stay was studied. Results: Residual cysts amount to 18% of 621 radicular jaw cysts which were examined. The average age of patients was 47.58 ± 1.44 years. Gender distribution was 1.6: 1 in favor of males. Residual cysts occur in the maxilla 1.67 times more frequently than in the mandible. Most often they were diagnosed in the distal regions of jaws. Suppuration was the leading cause for diagnosing (45.5%). The average duration of hospital stay of patients with residual cysts was 6.9 ± 0.394 days. **Conclusion:** Radiological examinations prior to tooth extraction would minimize cases of residual cysts in the jaws.

Key words: residual cyst, radicular cyst, jaw.

Остаточная киста челюсти

Введение: Остаточная киста – это корневая киста, соседние зубы которой были удалены. **Цель:** Проводить клиническое и эпидемиологическое исследование больных с остаточной кистой челюсти. **Материалы и методы:** Были исследованы 621 больных с корневой кистой в Клинике Челюстно-лицевой хирургии в Университетской больнице г. Пловдив, Болгария. Окончательный диагноз «остаточная киста» был у 112 больных. Были изучены возраст, пол, место жительства, основания для диагностики, длительность пребывания в стационаре. **Результаты:** Количество остаточных кист составило до 18% из 621 корневых кист челюсти, которые были рассмотрены. Средний возраст больных составил 47,58 ± 1,44 лет. Распределение по полу составило 1,6:1 в пользу мужчин. Остаточные кисты возникают в верхней челюсти. Чаще всего они были локализованы в дистальных отделах челюстей. Нагноение было основной причиной для диагностики (45,5%). Средняя продолжительность пребывания в стационаре больных с кистой – 6,9 ± 0,394 дней. **Вывод:** Радиологическое обследование до удаления зуба позволит свести к минимуму случаи с остаточной кистой в челюстях.

Ключевые слова: остаточная киста, корневая киста, челюсть.

Introduction

Residual cyst is a radicular cyst remaining in the jaw bone which has developed around the root of an extracted tooth. Residual cysts have the characteristics of conventional radicular cysts [1], but due to the elimination of the cause the inflammatory component in them decreases and non-inflammatory fibrous collagen tissue is found in their wall, as the epithelial lining is thin, which makes them difficult to distinguish from developmental cysts by anatomic pathology methods [2]. Doubt about the existence of residual cysts in relation to observation of recovery of radicular cysts after extraction of adjacent teeth is expressed in the literature [3]. Other authors believe that there are actively growing residual cysts located in regions which have become edentulous several years earlier [4, 5].

Objective

The objective of this study is to present clinical and epidemiological analysis of patients with residual jaw cysts treated at the Clinic for Maxillofacial Surgery at University Hospital, Plovdiv, Bulgaria for a 15-year period.

Material and Methods

The hospital records of patients treated from January 1996 to December 2010 at the Clinic for Maxillofacial Surgery at University Hospital, Plovdiv, Bulgaria were examined. Of these, 621 patients were diagnosed with „radicular cyst of the jaws". The study includes 112 patients with definite diagnosis „residual cyst" of the jaws. The following variables were analyzed: age, gender, location, reasons for diagnosing, duration of hospital stay. As a level of significance $p < 0.05$ was accepted. Data processing was performed with software SPSS 11.0.

Results

The 112 residual cysts included in the study amount to 18% of the observed 621 radicular jaw cysts.

The average age of patients with residual jaw cysts was 47.58 ± 1.44 years. The youngest patient was 6 years old, and the oldest patient was 82 years old. The distribution of residual cysts by age groups is presented in fig. 1.

Gender distribution shows a ratio of 1.6: 1 in favour of males.

Residual cysts occur in the maxilla 1.67 times more frequently than in the mandible – the study found 70 cysts (62.5%) in the maxilla and 42 cysts (37.5%) in the mandible. The most common location was the maxillary alveolar ridge, followed by maxillary sinus and lysing the hard palate (44: 26: 1). In the mandible, residual cysts developing in the alveolar ridge had the highest proportion, followed by cysts

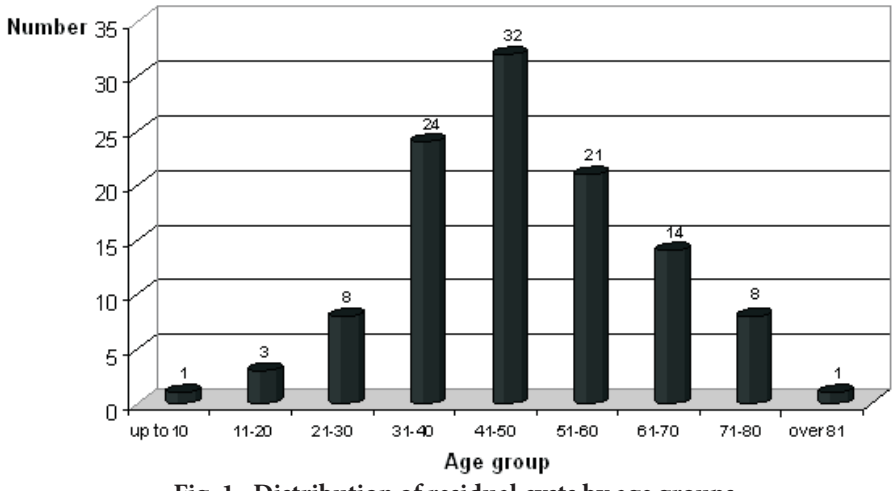

Fig. 1. Distribution of residual cysts by age groups.

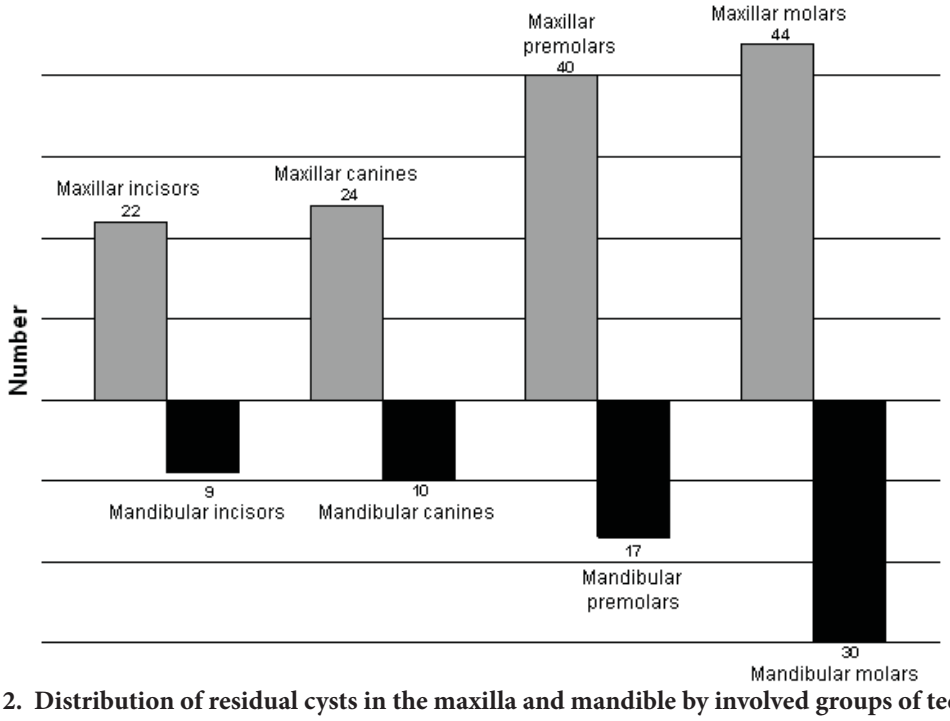

Fig. 2. Distribution of residual cysts in the maxilla and mandible by involved groups of teeth.

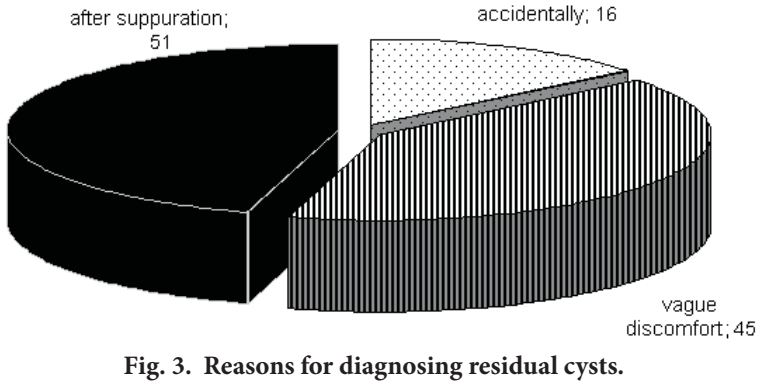

Fig. 3. Reasons for diagnosing residual cysts.

in the mandibular body, mentum, and mandibular angle and branch (4: 3.1: 1.2: 1.1: 1). The examined 112 residual cysts developed in the region of 196 extracted teeth. Residual cysts were most common in the region of maxillary molars (22.4%) and premolars (20.4%), and are least likely to be diagnosed around the mandibular incisors (4.6%) fig. 2.

Suppuration of residual cysts was the most common reason for diagnosing them - 45.5%, the proportion of cases

diagnosed because of vague cause of discomfort was high - 40.2%, less often diagnosis was made accidentally on the basis of X-ray taken in another context fig. 3.

Surgical treatment of residual cysts was not different from surgical treatment of radicular cysts. The average duration of hospital stay of patients with residual cysts was 6.9 ± 0.394 days. The shortest stay was 1 day, and the longest - 18 days.

Discussion

Data from the performed study indicate that residual cysts amount to 18% of jaw cysts. This is the highest proportion quoted in the literature – 11.2% [6]; 10.77% [7]; 8.8% [8]; 4.9% [9]; 4.3% [10]; 2.2% [11].

The average age of patients with residual cysts in our series was 47.6 ± 1.46 years. Literature data indicate that residual cysts are most common in the third, fourth [9, 11], fifth and sixth decade of life [6].

Residual cysts in our series occurred most often in the distal regions of maxilla - (22.4% in the region of molars and 20.4% in the region of premolars). The data differ from the findings of Ochsenius et al. [6], who reported that residual cysts develop most often in the anterior regions of maxilla (34.5%). Nuñez-Urrutia et al. observed equal occurrence of residual cysts in both jaws [10].

Conclusion

Residual cysts represent a significant share of jaw cysts. Implementation of imaging prior to tooth extraction would probably reduce the number of residual cysts and the bone loss associated with their persistence.

Bibliography

1. Alexandridis C. Oral Surgery. Springer Berlin Heidelberg. 2007;301-308.
2. Takahashi K. Microbiological, pathological, inflammatory, immunological and molecular biological aspects of periradicular disease. *Int Endod J.* 1998;31:311–325.
3. Walton RE. The residual cysts: does it exist? *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 1996;82(5):471.
4. Oehler F. Periapical lesions and residual cysts. *Br J Oral Maxillofac Surg.* 1970;8:103-13.
5. Schaffer AB. Residual cyst? *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 1997;83(6):640-1.
6. Ochsenius G, Escobar E, Godoy L, et al. Odontogenic cysts: analysis of 2 944 cases in Chile. *Med Oral Patol Oral Cir Bucal.* 2007;12:85–91.
7. Varinauskas V, Gervickas A, Kavoliuniene O. Analysis of odontogenic cysts of the jaws. *Medicina (Kaunas).* 2006;42:201–207.
8. Tay AB. A 5-Year Survey of Oral Biopsies in an Oral Surgical Unit in Singapore: 1993-1997. *Ann Acad Med Singapore.* 1999;28(5):665-71.
9. Ledesma-Montes C, Hernandez-Guerrero JC, Garces-Ortiz M. Clinico-pathologic study of odontogenic cysts in a Mexican sample population. *Arch Med Res.* 2000;31(4):373–376.
10. Nuñez-Urrutia S, Figueiredo R, Gay-Escoda C. Retrospective clinicopathological study of 418 odontogenic cysts. *Med Oral Patol Oral Cir Bucal.* 2010;15(5):767-73.
11. Mosqueda-Taylor A, Irigoyen-Camacho ME, Diaz-Franco MA. Odontogenic cysts. Analysis of 856 cases. *Medicina Oral.* 2002;7:89–96.

Modificările ontogenetice ale compoziției și metabolismului proteinelor matricei organice a țesutului osos al șobolanilor în condiții fiziologice, osteopatie experimentală și la remedierea cu substanțe autohtone

O. Tagadiuc

Biochemistry Laboratory, Nicolae Testemitanu State Medical and Pharmaceutical University
165, Stefan cel Mare Street, Chisinau, Republic of Moldova

Corresponding author: +37322205136. E-mail: olgatagadiuc@gmail.com

Manuscript received July 08, 2011; revised October 03, 2011

Ontogenetic changes in the composition and metabolism of proteins of the bone extracellular matrix of rats under physiological conditions, experimental osteopathy and correction by local remedies

The aim of the study was to determine the ontogenetic dynamics of collagen and free hydroxyproline content and of the activity of cathepsins D, L, B, H and leucine aminopeptidase in the bone tissue of healthy rats, with experimental osteopathy and after correction by cyanobacterian drug BioR, copper coordination compounds CMT-28, CMT-67, and their combinations. The study showed that in healthy animals the bone remodeling processes have a high activity in young and adult animals, which is revealed by the highest concentrations of collagen and hydroxyproline and moderate activity of proteases. At the same time, in old and senile rats the levels of collagen and hydroxyproline are decreased, and the activity of cathepsins increased, reflecting the intensification of bone resorption in the later stages of ontogeny. In the experimental osteopathy, only in females were statistically significant changes observed in collagen and hydroxyproline content and in the activity of lysosomal enzymes in bone tissue, which depended on the ontogenetic stage of development. The impact of cyanobacterian drug BioR, copper coordination compounds CMT-28, CMT-67 and their combinations on the studied parameters depend on the ontogenetic stage of development, as a important number of statistically significant changes were observed in young rats, a moderate number of changes - in adults and very few in old individuals.

Key words: bone tissue, ontogenesis, collagen, hydroxiproline, cathepsins, cyanobacterian remedy, coordination compounds.