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A CASE OF COMBINING FOLLICULAR CYSTS OF THE LOWER JAW WITH ERUPTION CYSTS IN A CHILD

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The literature describes clinical cases combining follicular cysts of the jaws with other pathological processes. We performed a clinical and morphological analysis of a case of a combination of bilateral follicular cysts of the lower jaw with eruption cysts in a 7-year-old patient. The final clinical diagnosis is follicular cysts of the lower jaw from the 36th and 46th teeth and eruption cysts in the lateral parts of the lower jaw in the 36th and 46th teeth. Cystostomy was performed on the patient. At the same time, 75 and 85 teeth were left in the tooth rows, partially exposed crowns of 36 and 46 teeth. We did not find any peculiarities in the morphological picture of the postoperative material. At the same time, an eruption cyst that occurs above an erupting tooth does not lead to the appearance of a defect in the form of bone cavities, but the hydraulic pressure of its contents inhibits the tooth's eruption. However, it should not be forgotten that the variety of combinations of jaw cysts, particularly follicular cysts, with other pathology of the jaw bones requires a balanced, differentiated, individualized approach to diagnostic measures, treatment, and rehabilitation tactics for each patient.

Key words: children, jaws, odontogenic cysts, follicular cysts, cystostomy.

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ВИПАДОК ПОЄДНАННЯ ФОЛІКУЛЯРНИХ КІСТ НИЖНЬОЇ ЩЕЛЕПИ З КІСТАМИ ПРОРІЗУВАННЯ У ДИТИНИ

В літературі описані клінічні випадки сполучення фолікулярної кісти щелеп з іншими патологічними процесами. Нами проведено клініко-морфологічний аналіз випадку поєднання двосторонньої фолікулярної кісти нижньої щелепи з кістами прорізування у 7-річного пацієнта. Остаточний клінічний діагноз: фолікулярні кісти нижньої щелепи від 36 і 46 зубів, кісти прорізування в бокових відділах нижньої щелепи в ділянках 36 та 46 зубів. Пацієнту проведено цистотомію. При цьому 75 та 85 зуби залишені в зубних рядах; частково оголені коронки 36 і 46 зубів. Якихось особливостей морфологічної картини післяопераційного матеріалу ми не виявили. В той же час кіста прорізування, яка виникає над зубом, що прорізується, не призводить до виникнення дефекту у вигляді кісткових порожнин, однак гідравлічний тиск її вмісту гальмує прорізування зуба. Отже, не слід забувати, що розмаїття сполучень кіст щелеп, зокрема і фолікулярних, з іншою патологією щелепних кісток, вимагає виваженого, диференційованого, індивідуалізованого підходу при проведенні діагностичних заходів та виборі лікувально-реабілітаційної тактики для кожного пацієнта.

Ключові слова: діти, щелепи, одонтогенні кісти, фолікулярні кісти, цистектомія.

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Their variety plays a vital role in the diagnosis, differential diagnosis, and treatment of jaw cysts. However, the peculiarities of cysts in each specific clinical case determine an individual approach in children and adults [7].

Odontogenic forms are common among jaw cysts. However, statistical data on their prevalence vary somewhat depending on the patients' ages. Thus, 5–12-year-old children make up about 70 % of cystic lesions of the jaws. Instead, in adults, they account for 6.4–17 % of all diseases of the maxillofacial region (MFR) [1, 6].

A prominent place in the structure of odontogenic cysts of the jaws is occupied by the follicular cyst (FC), which mainly occurs in children and adolescents. However, there is a known case of its development in a 77-year-old patient with complete adentia of both jaws (the cause is a retained canine of the upper jaw). FC rarely develops from the embryos of temporary teeth, and the literature describes the observation of its occurrence from an atypically located retained lower wisdom tooth with localization in the coronoid process of the lower jaw [1, 13].

In general, the reason for the development of FC is a violation of odontogenesis and tooth eruption, tooth retention in 10 % of cases, and the death of the tooth bud with subsequent development of adentia are its typical consequences. The development of the dental follicle associated with FC usually stops at the stage of cystogenesis [12].

Small cysts between the inner wall of the follicular capsule and the surface of the tooth crown are the source of FC growth. Under physiological conditions, these cysts only contribute to tooth eruption and do not participate in odontogenesis. Fluid accumulation between the dental crown and the epithelial membrane, which can lead to degenerative changes in the epithelium of the dental follicle, can also lead to FC. This is the cause of cystogenesis during the tooth development period with the dental plate's preserved epithelium. If the eruption of permanent teeth is delayed, formations can reach large sizes [3, 4].

Follicular cysts of variable size can be single or multiple. L.K. Avazmatova and S.A. Minkov suggest dividing them into small ones (diameter – no more than 1.5 cm, volume – no more than 3 cm^3), medium (diameter – from 1.5 to 2.5 cm, volume - from 3 to 10 cm^3), large (diameter – from 2.5 cm, volume – from 10 to 40 cm^3**)** [2, 14].

Clinical cases of a combination of FC with other pathological processes are described. The most common are combinations with radicular cysts, hard odontome, tooth retention, and dystopia. However, researchers note that 1/3 of ameloblastoma arises from follicular cysts, and squamous cell carcinoma can develop directly in the shell of the FC itself [6, 8, 9, 10, 12, 14].

The purpose of the study was to carry out a clinical and morphological analysis of a combination of bilateral follicular cysts ‘case of the lower jaw with eruption cysts in a child patient.

Description of the clinical case.

The parents of a 7-year-old boy appealed to the Department of Children's Surgical Dentistry clinic, located at the ME “Children's City Clinical Hospital” of the Poltava City Council, for help. They complained about bilateral “swelling” of the gums in the lateral areas of the lower jaw and the absence of 36 and 46 teeth in the dentition.

During the collection of medical and life anamnesis, it was established that two months ago, the child began to complain of discomfort while eating. There were no clear reasons that could lead to this condition (such as trauma), and frequent cases of acute respiratory viral infections had no direct, obvious connection with this pathological condition.

During an objective examination of the child, the face was symmetric. Regional lymph nodes were single, insignificant in size, soft-elastic to palpation, and painless. The mouth opened thoroughly and painlessly.

In the oral cavity, the mucous membrane was pale pink and without visible pathological changes. The bite was variable, according to age. The upper jaw tooth row ended with 16 and 26 teeth, while the lower one had immovable and painless 75 and 85 teeth, with the anatomical integrity of the crowns preserved.

Deformation of the body of the lower jaw was determined from the side of the oral cavity in the area of missing 36 and 46 teeth. At the same time, the gums had the usual pasty color, and their painless “explosion” had a soft and elastic consistency. The fluctuation was determined by palpation at the site of the largest “explosion”. On the occlusal surface of 36 and 46 teeth, elastic, painless protrusions covered by unchanged gums were also observed.

The “parchment crunch” symptom was absent.

We performed a diagnostic puncture of the formations: from the vestibular side, a clear yellow liquid with impurities of cholesterol crystals was obtained, and from the occlusive surface – a viscous cloudy substance.

X-rays in the lateral parts of the lower jaw revealed clearly demarcated oval homogeneous thinning of bone tissue, in which the embryos of slightly dislocated 36 and 46 teeth were visualized. Bone tissue above them was absent close to the distal roots of teeth 75 and 85. At the same time, complete resorption of the distal root of tooth 85 was observed, and a small area of resorption was determined at the abutment of tooth 36 on the distal root of tooth 75 (Fig. 1).

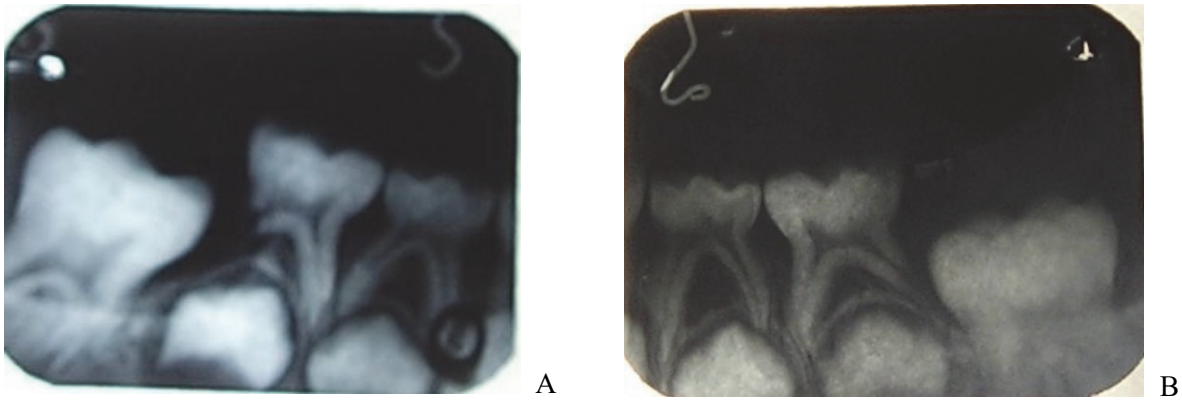


Fig. 1. X-ray picture of follicular cysts from 36 (A) and 46 (B) teeth that were associated with eruption cysts.

Complaints, anamnestic data, objective examination data, diagnostic puncture results, and the radiographic picture made the final clinical diagnosis possible: follicular cysts of the lower jaw from 36 and 46 teeth and cysts of eruption in the lateral parts of the lower jaw in the areas of 36 and 46 teeth.

When planning the treatment, we considered that after surgical intervention for follicular cysts, the "causal" teeth might return to normal development and independently occupy a place by their physiological location in the dentition or orthodontic correction, which may lead to the desired result. Therefore, it was decided to perform a cystostomy on the patient. At the same time, 75 and 85 teeth, taking into account their immobility and preservation of the integrity of the crowns, which fully withstand the functional load, and the timing of physiological changes left in the dentition; partially exposed crowns of teeth 36 and 46: all masticatory cusps of tooth 36 and only distal masticatory cusps of tooth 46. The resulting cavities are filled with an iodoform tampon.

No complications were observed in the postoperative period. Classical standards carried out all manipulations until the wound was completely healed.

The child was placed under dynamic supervision to provide timely specialized assistance when changing the bite and prevent the development of dental-jaw deformities in the future.

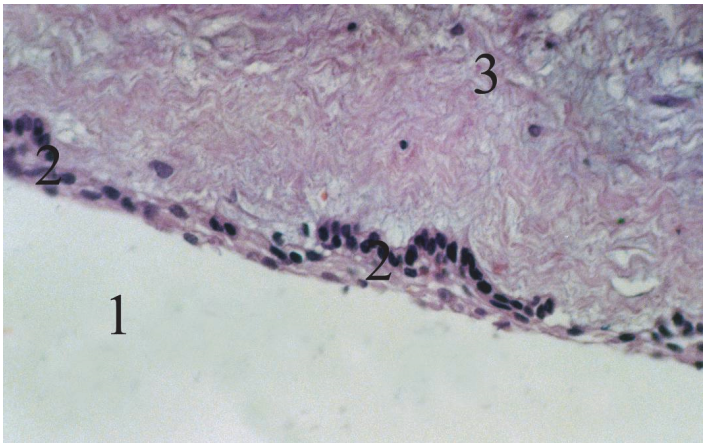


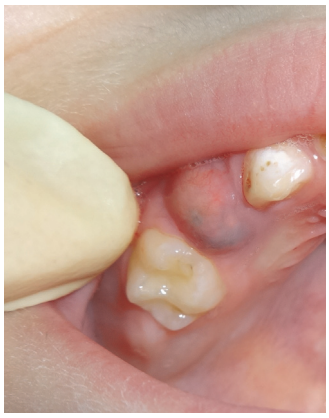
Fig. 2. Microscopic structure of a follicular cyst. Micropreparation. Hematoxylin-eosin staining. Lens 10^X, ocular 10^X. 1 – lumen of the cyst cavity; 2 – multilayered squamous epithelium; 3 – fibrous connective tissue.

Employees of the Department of Pathological Anatomy and Forensic Medicine conducted a histological examination of the operative material using generally accepted methods.

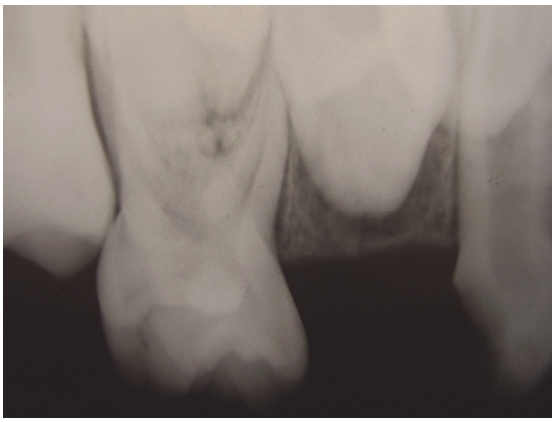
For the scientific medical community, the microscopic structure of jaw follicular cysts is well known [15]. We also did not find any peculiarities in their morphological picture in this clinical case: FC's shell is fibrous connective tissue, the structure of which contains bundles of collagen fibers, and the inner surface lining is a multilayered squamous epithelium without signs of keratinization (Fig. 2).

According to the researchers, the differential diagnostic sign of the beginning of a follicular cyst's development is the presence of epithelium. This distinguishes FC from ordinary tooth retention, where it is absent [5].

At the same time, an eruption cyst that occurs above an erupting tooth does not lead to the appearance of a defect in the form of bone cavities, as in our case. However, the hydraulic pressure of its contents inhibits tooth eruption, and bleeding into the cavity, which sometimes occurs, gives the "protrusion" a blue color, similar to the one shown in Fig. 3.



A



B

Fig. 3. General appearance in the oral cavity (A) and intraoral X-ray (B) of an eruption cyst in the area of the 14th tooth (illustrative photo from the authors' archive from another clinical case).

In our observation, during the examination, 6 months after the surgical intervention, a slight deformation of the lower jaw was determined on both sides. At the same time, the 36th tooth erupted completely and was located in the appropriate place in the dental row, and the somewhat dislocated tooth 46 erupted on ½ of its crown. At the same time, the 75th tooth retained immobility, and the 85th tooth

acquired mobility of the 1st degree, which, in our opinion, could somewhat interfere with the eruption of the 46th tooth. Therefore, the 85th tooth was removed.

Most scientists divide FC into true follicular cysts and tooth-containing cysts. Still, they are united in the opinion that true cysts are usually associated with tooth retention and result from violating normal odontogenesis and tooth eruption. At the same time, heredity is the physiological background against which the influence of endogenous and exogenous factors contributing to their development is carried out. Also, banal acute or chronic inflammation and hypothermia can disrupt the normal formation of tooth elements, thereby stimulating cystogenesis [8]. Trauma and provocative situations during puberty play an essential role in the occurrence and development of follicular cysts [11].

Instead, tooth-containing cysts arise due to the spread of infectious agents from carious cavities of temporary teeth, tonsils, etc., into the rudiments of a permanent tooth. [4].

We also adhere to this division, believing that follicular and tooth-containing cysts (found only in children) differ in etiological factors and clinical manifestations and are different nosological forms of cystic formations.

Conclusion

Our previous publications repeatedly questioned the clinical and morphological characteristics of various jaw cysts in children. However, it should not be forgotten that the variety of combinations of jaw cysts, particularly follicular cysts, with other pathology of the jaw bones requires a balanced, differentiated, individualized approach to diagnostic measures and treatment and rehabilitation tactics for each patient. The epithelium in the shell distinguishes a follicular cyst from ordinary tooth retention, where it is absent, which must be remembered, given the possibility of transforming follicular cysts into another pathology.

In the future, we plan to focus on a more detailed study of the immuno-histochemical and morphological features of the structural components of various nosological forms of jaw cysts in the age aspect.

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