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Реферати

РЕТРОСПЕКТИВНИЙ АНАЛІЗ ПЕРВИННИХ СУДОВО-МЕДИЧНИХ ЕКСПЕРТИЗ ПРИ МЕХАНІЧНІЙ ТРАВМІ НИЖНІХ КІНЦІВОК

Сокол В.К., Колесніченко В.А., Проценко О.С.

Мета роботи - ретроспективний аналіз первинних судово-медичних експертиз, в яких встановлено середню ступінь тяжкості тілесних ушкоджень у потерпілих з механічними травмами нижніх кінцівок. Виявлено переважання дорожньо-транспортної травми (92%); в 8% відбулося падіння з висоти власного зросту. Дорожньо-транспортна травма характеризувалася переважанням осіб працездатного віку (73%); найздом транспортного засобу на пішохода (86%); отриманням політравми (82%); утворенням діафізарних переломів стегна і голілки (78%); наявністю коморбідних захворювань (61%). Автори вважають за необхідне перегляд існуючих і обґрунтування нових медичних критеріїв визначення ступеня тяжкості тілесних ушкоджень з урахуванням особливостей репаративної регенерації сполучної та м'язової тканини.

Ключові слова: механічна травма нижніх кінцівок, судово-медична експертиза, переломи довгих трубчастих кісток, дорожньо-транспортна травма.

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РЕТРОСПЕКТИВНИЙ АНАЛІЗ ПЕРВИЧНИХ СУДЕБНО-МЕДИЦИНСКИХ ЕКСПЕРТИЗ ПРИ МЕХАНІЧЕСКОЙ ТРАВМЕ НИЖНИХ КОНЕЧНОСТЕЙ

Сокол В.К., Колесніченко В.А., Проценко О.С.

Цель работы - ретроспективный анализ первичных судебно-медицинских экспертиз, установивших среднюю степень тяжести телесных повреждений у потерпевших с механическими травмами нижних конечностей. Выявлено преобладание дорожно-транспортной травмы (92%); в 8% произошло падение с высоты собственного роста. Дорожно-транспортная травма характеризовалась преобладанием лиц трудоспособного возраста (73%); наездом транспортного средства на пешехода (86%); получением политравмы (82%); образованием диафизарных переломов бедра и голени (78%); наличием коморбидных заболеваний (61%). Авторы считают необходимым пересмотр существующих и обоснование новых медицинских критериев определения степени тяжести телесных повреждений с учетом особенностей репаративной регенерации соединительной и мышечной ткани.

Ключевые слова: механическая травма нижних конечностей, судебно-медицинская экспертиза, переломы длинных трубчатых костей, дорожно-транспортная травма.

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THE MOST SIGNIFICANT MORPHOLOGICAL FEATURES OF THIRD MOLARS IN ADULT PERSONS ACCORDING TO ORTHOPANTOMOGRAPHY

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The article presents a theoretical generalization and a new solution of the scientific problem, which consists in determining the morphological features of third molars according to orthopantomography. A literature review, the analysis results of the dentition orthopantomograms of persons in the first period of mature age, randomly selected in the clinic, are presented. A systematic analysis of the general visual representation of third molars' morphological features in people of mature age, was carried out based on orthopantomograms selection. Morphological features of third molars, forms of retention, types of dystopia, morphological differences between impacted and embedded third molars were established. The systematic approach used in the work permitted to put in order the variational polymorphism of anomalously developed third molars' forms, while identifying the most indicative signs for their classification.

Key words: teeth, third molars, orthopantomogram, retention, dystopia.

The work is a fragment of the research project "Age aspects of the structural organization of the immune system, the gastrointestinal tract and genitourinary system glands in norma and in pathology", state registration No. 0116U004192.

Normally, as it is known, the eruption of the third molars completes the process of odontogenesis, as a result of which these teeth occupy the most extreme place in the remaining alveolar processes of the jaws [3, 4, 7]. They should be considered late not only because they erupt in delayed time, but also due to the late dates of their formation. This usually occurs in the 5th year of postnatal life, ie about one year before the complete eruption of the first permanent molar [3, 5, 8]. Naturally, the rudiments of the third molars go through the same stages of their development as other teeth, resulting in the formation of their crown sections, and then it is the turn of root development, which is associated with the process of teething. It should be noted that from the age of 8 calcification of the masticatory surface of the crown begins, at the

age of 12 the intramaxillary formation of the crown ends, and the period of formation and growth of roots and periodontium begins after the eruption of permanent teeth [5, 6, 8].

Unlike deciduous teeth, the eruption of which is associated with the process of resorption of the roots of the respective teeth, large molars have an obstacle in the way of their eruption in the form of bone tissue [1, 2, 5]. Regarding this process, there is an idea that the destruction of this bone barrier is due to mechanical pressure on the crowns, which grow due to the elongation of the roots. This point of view cannot be considered correct, because it is purely mechanical and does not take into account the fact that in a living organism all the driving forces are generated by the activity of certain cellular structures. The forming cells in this process are odontoblasts and cementoblasts, which form the roots of the teeth, while the destruction of bone tissue of the alveolar processes is carried out by osteoclasts. Normally, their activity should be somewhat ahead of the process of root formation in order to provide space for the promotion of their crowns. Perhaps as a result of violation of this process, the third molars are most often prone to various individual deviations from the genotype-given shape, characteristic of large molars [1, 2, 3]. In this regard, in dentistry, common terms such as "retention" and "dystopia", which are often used in an equivalent sense [3, 5, 8]. But, if we analyze them in the original content, then such interchange is illegal, because the first term means "hold" or "stop", and the second – "permutation" or "shift". In this formulation of the question, that is, in a legible attitude to the terms that mean different forms of abnormal development of third molars, there are no attempts in the literature to thoroughly analyze them. In addition, in the category of "dystopia" in dentistry, the term "impact" is used, which refers to a formed tooth that has not erupted and rests its crown on another tooth [2, 6, 7]. These data are still insufficiently explained in the literature.

It is reported that various forms of abnormal development of third molars most often occur in the lower jaw [4, 6, 7], mainly in women [8].

Given the large number of anomalies in the formation and eruption of third molars, this issue remains relevant for both modern therapeutic dentistry and maxillofacial surgery [3, 4, 6].

The optimal method of studying the morphological features of teeth, especially in eruption anomalies is orthopantomography [6, 7, 8].

Given the above, we set a goal to conduct a systematic analysis of abnormal development of third molars, which are most common in people of the first period of adulthood on the basis of analysis of orthopantomograms.

The purpose of the study was to perform the system analysis of the third molars' morphological features in persons of mature age according to orthopantomography.

Materials and methods. To solve this purpose, 40 orthopantomograms of men and women of the first period of adulthood were used, which were selected at random. The data were obtained in the Department of Surgical Dentistry of the Regional Dental Clinic and at the Department of Surgical Dentistry and Maxillofacial Surgery with Plastic and Reconstructive Surgery of the Head and Neck of the Ukrainian Medical Stomatological Academy (Poltava).

Orthopanthograms of patients were randomized into 2 groups, 20 in each:

Orthopanthograms of men aged 22 to 35 years

Orthopanthograms of women aged 21 to 35 years

A simple visual approach to analysis was used for them.

Using radiological methods, we obtained data on the spatial state of the dental system, location and depth of retained and dystopian teeth in the thickness of the alveolar process [7]. We evaluated the condition of the coronal, root part of the teeth and bone tissue of the jaws, position, size and shape of the upper and lower third molars, the number of roots and the degree of their formation, and assessed the total longitudinal dimensions of the upper and lower third molars.

We analyzed the configuration of the third molars on the basis of a visual assessment of the shape of their coronal and root divisions.

The position of the third molars was determined by the orientation of the crown in the jaws.

The total longitudinal dimensions of the upper and lower third molars were determined by estimating the length of their root and the height of the crowns.

The obtained data of sample groups are clearly presented on orthopanthograms.

This method of evaluation of orthopantomograms does not involve obtaining metric parameters.

Results of the study and their discussion. First of all, we noticed that the incised third molars in males and females of the first period of adulthood are a disordered alternation of extremely different in size and shape of the teeth, which is expressed in different combinations of configurational relationships between the crown and root parts and depends from the opposite in the bite and sex, but does not correlate

with age. Obviously, this is an external manifestation of individual (phenotypic) features of their development.

Numerous individual features of third molars are expressed in their size, general shape, number of roots and configuration of coronal divisions. In this regard, there is a description in the literature of many such different morphological features but we have identified many variable forms that arise as a result of a combination of these individual features.

It is quite natural that we were interested in the third molars presented in the orthogonal projection, which erupted in their size in relation to other large molars, which allows us to clarify the reliability of some of the above data. It is clear that in such a projection, not all morphological features of the teeth were available for objective assessment. Nevertheless. Based on these images, we could see that the crowns of all molars have approximately the same height, which was significantly less than its width in the mesio-distal direction. It is also significant that the width of the crowns of the lower molars is slightly larger than the width of the upper ones (Fig. 1). But to a greater extent, large molars differ in shape and, especially, in the length of their root sections. Evaluation of orthopantomograms clearly confirms our rule: "if the height

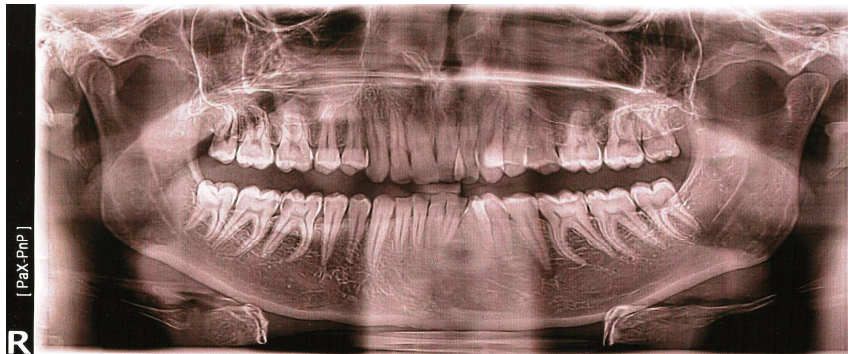


Fig. 1 Permanent dental occlusion of a patient aged 22 years (orthopantomogram).

of the crown of these teeth is a constant value, the length of their root is a variable value", and therefore the total longitudinal size of the tooth depends entirely on the latter indicator. In fact, this is expressed in the fact that the lower molars in longitudinal dimensions look more developed than the upper ones (fig. 1).

In this case, sexual dimorphism is manifested in a slightly smaller size of female wisdom teeth. In addition, regardless of the opposite in the tooth bite, quite often there is a relationship between the longitudinal size and the time of eruption. Thus, in each row in the mesio - distal direction, they are arranged as if by rank, so that the first molar is the longest and the third the shortest.

It should be noted that random samples of orthopantomograms of the dental system of men and women of the studied groups indicate a large phenotypic diversity of dental occlusion, which in some cases is normal, in others - is considered abnormal. Apparently, this is due to the fact that as a result of developmental disorders of the third molars are most often prone to various individual deviations from the genotype-given form. The most common "retention" and "dystopia" of third molars. Thus, among all the orthogonal images of the dental system studied by us, there are many individual options that allow us to make sure that adults often have cases of abnormal location of wisdom teeth. At the same time, some of them illustrate the intra - maxillary placement of the formed tooth, others – violation of its formation at the earliest stages of development, to the point that in some cases there are not even traces of their rudiments (fig.2).

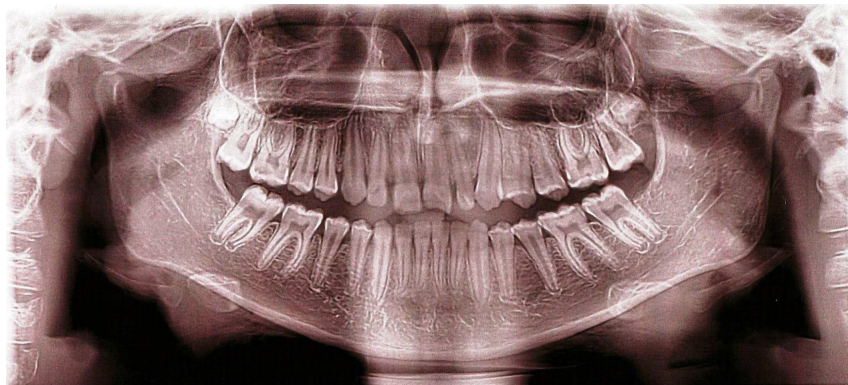


Fig. 2 Permanent dental occlusion in a patient aged 24 years with developmental disorders 18, 28, 38, 48. On the upper jaw there are wisdom teeth, which are in a retained state, on the lower – the absence of their formation (orthopantomogram).

In other cases, the third molars are in the retained state at the stage of histogenesis of crowns symmetrically lower and upper dentition (fig. 3).

However, there are often cases of different variants of their asymmetric retention (fig. 4 A).

At the same time, we pay attention to the fact that in the vast majority of third molars with a delay in their development are contained in the jaws in a kind of follicular cells, the wall of which is formed by a thin layer of compact bone, and between it and the most underdeveloped tooth is a relatively wide periodontal gap. (fig. 2, 3). In our opinion, this morphological feature can be attributed to the distinctive feature of retained teeth. Unfortunately, at present we cannot find out what these periodontal structures are,

as this requires a special morphological study of the whole preparations of the corresponding jaws, which are extremely difficult to obtain. However, it can be assumed that these periodontal structures are the result of the transformation of the dental sac, which is formed from the mesenchyme surrounding the enamel organ at the earliest stage of odontogenesis.

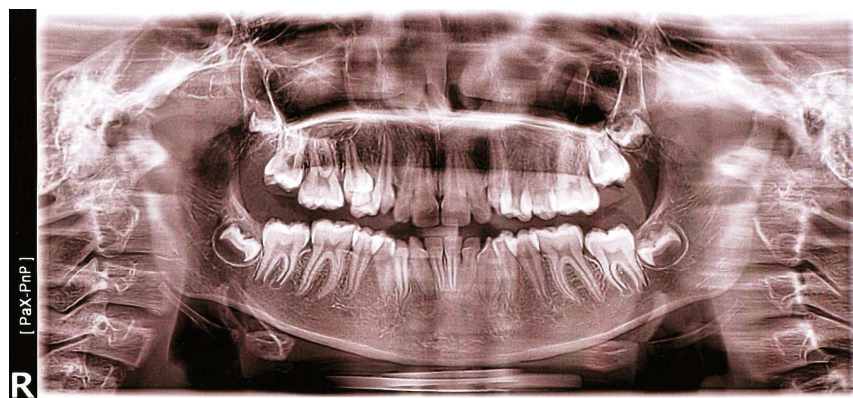


Fig. 3 Permanent dental occlusion of a patient aged 22 years with developmental disorders 18, 28, 38, 48. There are follicular cells in which there are retinated teeth (orthopantomogram).

the crown of the tooth is due to the need to isolate the enamel from the surrounding connective tissue of the bone base of the jaws, in which there are immunocompetent cells capable of responding to enamel autoantigens.

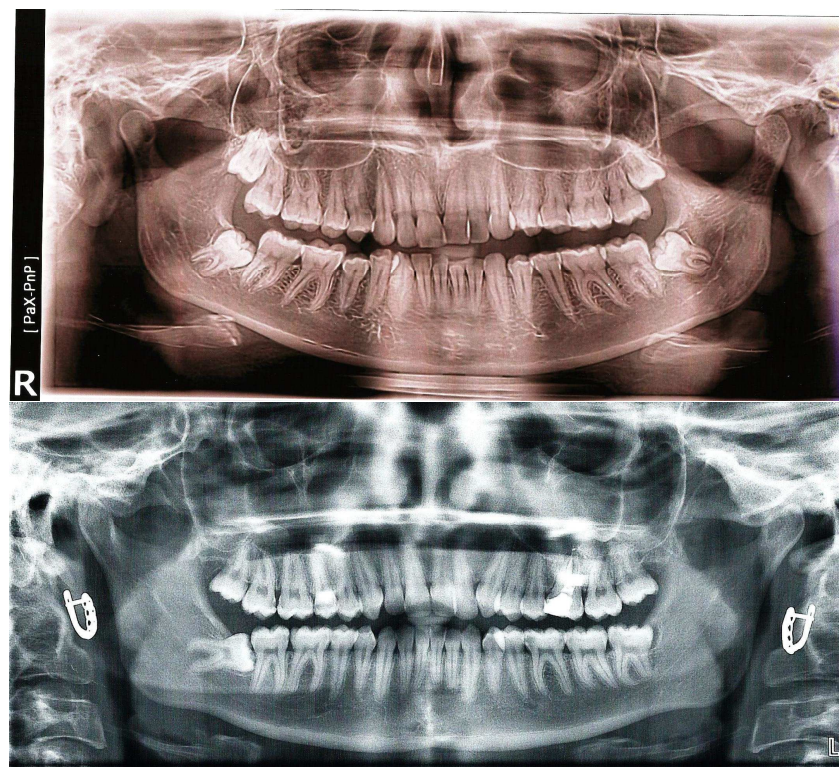


Fig. 4. A. Permanent dental occlusion in patients aged 21 years with developmental disorders 18, 28, 38, 48. On the upper and lower jaws there are wisdom teeth that are in a retained state (orthopantomogram). B. Dystopia 48: medial position of the affected 48 in a patient aged 35 years (orthopantomogram).

System analysis of orthopantomograms showed that "retention" and "dystopia" of third molars are most common in the clinic and do not have a predominant localization in the lower jaw, which contradicts the data of some researchers [5, 7, 8] and does not depend on gender as previously thought [8]. It is obvious that in such a statement of the question these facts are in contradiction with each other.

Thus, we have limited ourselves to a brief review of a certain sample of orthopantomograms of the dental system of adults. This is due to the fact that we did not seek a detailed description of the abnormal development of the third molars, the whole variety of variants of shapes and positions of the third molars. Dealing with these questions, we realized that random samples of different individual X-ray images of the dental system, we can not trace in a series of observations the relevant stages of their development and, moreover, note the various deviations from their normal formation. Unlike other similar studies, we aimed to systematize this diversity to clarify some controversial provisions in dentistry.

In contrast to the retained third molars for their dystopian analogues, ie those that are in the jaws in the formed state, but in the displaced position, according to our observations, it is not typical to have such a continuous periodontal structure. Around their roots is a normal periodontal fissure, which expands only around the crown. It can be assumed that its belonging to

Given that the practical need to obtain orthopantomograms, which we used in our studies, were certain clinical indications, it is clear why many of them often have third molars in a dystopian state and in a very different position. Among them, there are only inverted ("upside down") options. According to the orientation of the crown in the jaws, we have identified the following positions: 1 – buccal; 2 – lingual – palatine; 3 – medial and 4 – distal. The last two variants of dystopia of the third molars should be attributed to their impact position. Thus, in the medial direction they on a tangent or at right angles rest a crown in the second molar, and in distal – the second molar serves as a support for their roots (fig. 4 B).

Conclusions

In this regard, we consider it appropriate to take into account the following conclusions:

1. cut third molars are extremely diverse in size and shape, which is expressed in a different combination of configurational relationships between the coronal and root parts, which depends on the opposite in the bite and sex, but does not correlate with age;

2. all forms of abnormal development of third molars that occur in the clinic should be divided into two categories that differ in the nature of morphogenetic disorders. The first of them should include all forms of retention, which should be understood as a delay or cessation of tooth development at the stage of formation of its crown, and the second category – various deviations of the longitudinal orientation of the tooth at the bone base of the jaws. called dystopia;

3. we first drew attention to the fact that retained teeth are contained in the jaws in a kind of follicular cells, the wall of which is represented by a plate of compact bone, between which the most underdeveloped tooth is a relatively wide gap. In contrast, dystopian teeth have similar formations only around the crown, while around the roots is a normal periodontal gap, ie periodontium;

4. among the dystopian third molars, according to the orientation of their crown in the jaws, the following positions are distinguished: 1 – buccal; 2 – lingual-palatine; 3 – medial and 4 – distal. The last two variants of dystopia of the third molars should be attributed to their impact position. In this case, in the medial direction, they rest on the crown in the second molar, and in the distal – the second molar serves as a support for their roots.

Prospects for further research lie in the fact that we plan to perform a comparative characterization of the third molars' polymorphism in the age aspect by gender and to establish the pattern of caries.

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Реферати

НАИБЫЛЬШ ЗНАЧИМІ МОРФОЛОГІЧНІ ОСОБЛИВОСТІ ТРЕТІХ МОЛЯРІВ У ЛЮДЕЙ ЗРІЛОГО ВІКУ ЗА ДАНИМИ ОРТОПАНТОМОГРАФІЇ

Талаш Р.В.

У статті викладено теоретичне узагальнення і нове вирішення наукового завдання, яке полягає у визначенні морфологічних особливостей третіх молярів за даними ортопантомографії. У роботі представлено огляд літератури, результати аналізу ортопантограм зубощелепної системи у людей першого періоду зрілого віку, відібраних довільно. Системний аналіз загального візуального уявлення про морфологічні особливості третіх молярів у людей зрілого віку, здійснений нами на основі добірок ортопантограм. Встановлено морфологічні особливості третіх молярів, форми ретенції, види дистопії, а також морфологічні відмінності між ретенованими і дистопованими третіми молярами. Використаний у роботі системний підхід дозволив привести до визначеного порядку варіативну поліморфність форм аномально розвинутих третіх молярів, виділивши при цьому найбільш показові ознаки для їх класифікації.

Ключові слова: зуби, треті моляри, ортопантомограма, зубощелепна система, ретенція, дистопія.

Стаття надійшла 12.09.2019 р.

НАИБОЛЕЕ ЗНАЧИМЫЕ МОРФОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ТРЕТЬИХ МОЛЯРОВ У ЛЮДЕЙ ЗРЕЛОГО ВОЗРАСТА ПО ДАННЫМ ОРТОПАНТОМОГРАФИИ

Талаш Р.В.

В статье изложено теоретическое обобщение и новое решение научной задачи, которое заключается в определении морфологических особенностей третьих моляров по данным ортопантомографии. В работе представлены обзор литературы, результаты анализа ортопантограмм зубочелюстной системы у людей первого периода зрелого возраста, отобранных произвольно. Системный анализ общего визуального представления о морфологических особенностях третьих моляров у людей зрелого возраста, осуществлен нами на основе подборки ортопантограмм. Установлены морфологические особенности третьих моляров, формы ретенции, виды дистопии, а также морфологические различия между ретенированными и дистопированными третьими молярами. Исползованный в работе системный подход позволил привести в определенный порядок вариативную полиморфность форм аномально развитых третьих моляров, выделив при этом наиболее показательные признаки для их классификации.

Ключевые слова: зубы, третьи моляры, ортопантомограмма, зубочелюстная система, ретенция, дистопия.

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