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## CHARACTERISTICS OF THE CIRCUMSTANCES OF FORMATION, CLINICAL AND MORPHOLOGICAL MANIFESTATIONS, COURSE AND ASSESSMENT OF THE DEGREE OF GRAVITY OF DAMAGE IN CASES OF FACIAL INJURIES IN CHILDREN AND ADOLESCENTS

### Summary

*This study aims to examine the characteristics of facial injuries in children and adolescents by analyzing age- and gender-specific variations to enhance forensic medical assessments. Pediatric maxillofacial injuries differ significantly from adult cases in mechanism, clinical presentation, and long-term outcomes. These differences necessitate the establishment of age-specific criteria for determining the severity of injuries. The significance of this research stems from its focus on incorporating the unique physiological and anatomical aspects of children's bodies into forensic evaluations of facial injuries, considering their potential to cause not only temporary health impairments but also long-lasting functional and cosmetic consequences.*

**Objective.** *To investigate the circumstances, clinical and morphological patterns, progression, and severity assessment of facial injuries in children and adolescents, with attention to age and gender differences.*

**Materials and Methods.** *The research encompassed 203 Expert Conclusions from the archives of the Kyiv Regional and Kyiv City Clinical Bureau of Forensic Medical Examination, 177 Expert Conclusions from the Dnipro Regional Bureau of Forensic Medical Examination, and 123 inpatient records from the Department of Maxillofacial Surgery at Kyiv Children's Hospital No. 7. These data pertained to forensic investigations of facial trauma cases in pediatric populations. The study design incorporated a detailed analysis based on both gender and age groups to explore relevant patterns. Results The findings revealed that males were more frequently affected by facial injuries, comprising 350 cases (69.6%) out of 503 analyzed, compared to 153 cases (30.4%) involving females. Among all pediatric cases, younger school-aged children (3-6 years) accounted for 132 cases (26%), while older school-aged children (12-18 years) comprised the largest subgroup with 197 cases (40%). Morphological analysis showed that in children under 3 years, injuries were primarily confined to the soft tissues of the face and oral cavity. Conversely, children aged 7-11 years and adolescents were more prone to maxillofacial traumas, including fractures of the facial skull bones, often accompanied by mild to severe traumatic brain injuries. Statistical analysis demonstrated no significant differences in the average healing times among contused, bite-related, and lacerated facial wounds across different pediatric age groups ( $p > 0.05$ ).*

**Conclusions.** *Facial injuries in children and adolescents demonstrate distinct age-related patterns. In children under 3 years and preschoolers, soft tissue injuries of the face and oral cavity are predominant. In contrast, school-aged children (7-11 years) and adolescents experience higher incidences of maxillofacial injuries, including fractures to the facial skeleton, often in conjunction with traumatic brain injuries. Subperiosteal fractures – commonly involving the alveolar processes of the lower jaw – are characteristic among younger children, whereas fractures of nasal bones, upper maxillary processes, orbital walls, mandibular structures, and dental injuries are prevalent in older age groups. In assessing injury severity across pediatric populations, criteria such as health disorder duration, risk of unfavorable outcomes, and potential for permanent disability should be prioritized. Particular attention should be given to bite-related and lacerated wounds, as they frequently result in disfiguring scars and functional impairments (e.g., nasal breathing difficulties, chewing issues, asymmetry, salivation disturbances). This underscores the need for evaluating permanent disabilities when assessing forensic implications for pediatric facial trauma.*

**Keywords:** *Forensic Medical Examination, Children, Facial Trauma, Bodily Injuries, Degree of Gravity.*

### Introduction

Despite the state's efforts to create safe conditions for its citizens in various spheres of life, trauma remains the leading cause of injuries and deaths in the pediatric population, including infants, children [1], and adolescents [2]. Along with household forms of injuries, which can be considered manifestations of accidents and domestic violence, the lion's share belongs to the consequences of road traffic accidents [3], and among them – those caused in recent years by the active use of electric personal mobility devices, particularly electric scooters [4-8]. Overall, this new type of trauma

among children is spreading and becoming a medical and social problem of our time. In addition to injuries to the organs of the thoracic and abdominal cavities and the musculoskeletal system, head trauma in children is the most common form of pediatric trauma [9]. Maxillofacial trauma is less common among children and adolescents [10], but it requires appropriate clinical examination, careful analysis of the course and consequences of trauma [11], the results of which, if necessary, can be valuable for forensic dental or forensic medical examinations in resolving disputed issues and establishing the severity of bodily injuries.

It should be noted that according to anatomical and physiological characteristics, the body of children differs from that of adults [12], being under the influence of interconnected active processes – growth, differentiation, and morphogenesis. Therefore, the characteristics of bones, muscles, soft coverings of the head, dentofacial apparatus, and brain matter of pediatric victims are in direct causal relationship with the clinical course of the disease, and consequently with the results of forensic medical, particularly forensic dental examination.

Childhood, as is known, is the life span between birth and adolescence, which begins with the onset of puberty (pubertal period). According to the conventional classification, which is widely used in Ukraine and European countries [13], and most fully reflects the anatomical and physiological features of childhood, victims can be divided into the following age groups: early childhood (from birth to 3 years), preschool children from 3 to 6 years, primary school children from 7 to 11 years, and secondary school children (adolescents) from 12 to 18 years. According to Eysenbach L., Leventhal JM. et al. [14] and Mavropulo T. K., Mokia-Serbina S. O. et al. [15], individuals in the first and third age groups are most «prone» to trauma.

The data presented in scientific articles indicate that the problem of facial injuries in children and adolescents is relevant and requires further development and systematization of information on the conditions of trauma occurrence, their morphological and clinical manifestations, features of course

and consequences, as well as the development of principles for comprehensive forensic dental or forensic medical examinations (investigations) and rules for selecting criteria when assessing the severity of bodily injuries.

During this study, we will analyze the conditions of facial trauma occurrence in children and adolescents and their clinical and morphological manifestations, taking into account age and gender.

**Objective of the work.** To analyze the circumstances of occurrence, clinical and morphological manifestations, course, and assessment of the severity of injuries in cases of facial trauma in children and adolescents, taking into account their age and gender.

### Materials and methods

The research material consisted of 203 «Expert Conclusions» from the archives of the Kyiv Regional and Kyiv City Clinical Bureau of Forensic Medical Examination, 177 «Expert Conclusions» from the archives of the Dnipro Regional Bureau of Forensic Medical Examination, which concerned forensic medical examinations (investigations) in cases of injuries to children and adolescents; 123 inpatient records from the Department of Maxillofacial Surgery of Kyiv Children's Hospital No. 7. The research design was constructed taking into account gender and age. The quantitative distribution of victims by age and gender is presented in Table 1.

**Table 1**

**Distribution of victims by age and gender**

Age Groups	Total Number of Observations	Distribution by Sex	
		male	female
1	2	3	4
Early childhood up to 3 years	98	58	40
Children of preschool age from 3 to 6-7 years	76	47	29
Children of primary school age from 7 to 11-12 years	132	89	43
Children of secondary school age (adolescents) from 12 to 18 years	197	156	41
Total	503 (100%)	350 (69,6%)	153 (30,4%)

The examination of victims (children of different age groups) and assessment of the severity of injuries in the «Expert Conclusions» was conducted in accordance with standard forensic medical methods and the requirements of the Order of the Ministry of Health of Ukraine dated January 17, 1995, No. 6 «On the Development and Improvement of the Forensic Medical Service of Ukraine.»

### Results of the study

Analysis of archival material (forensic medical examinations (investigations) and medical records) related to facial injuries in children and adolescents revealed the highest number of such cases among males – 350 (69.6%), which also corresponded with data from other researchers [16]. The largest number among all injured children were younger school-age children from 3 to 6 years – 132 cases (26%) and older school-age children from 12 to 18 years – 197 cases (40%).

The predominant causes of facial and brain injuries in children in our study were identified as: domestic (including criminal) trauma – 195 cases (38.8%), street trauma – 165 cases (32.8%), and transport trauma – 94

cases (18.7%). School and sports injuries occurred in 25 and 3 cases (5% and 0.5% respectively). In 21 cases (4.2%), the circumstances of trauma were not specified in the medical documentation (Table 2).

It should be noted that in cases of domestic and street trauma, most injuries were from blunt objects, while among cases of transport trauma, injuries resulting from passenger cars predominated – 84 cases (90%).

Interestingly, specific types of injuries were characteristic for each age group. Thus, in early childhood up to 3 years, domestic injuries dominated in 67 cases (69%), among which a significant number were falls from the height of one's own height and falls from furniture or interior elements, as also reported by other researchers [17-19]. Among cases of street trauma in this group, most were injuries received at playgrounds – 10 cases (55.5%).

In preschool children from 3 to 6 years, domestic and street injuries also prevailed – 32 and 29 cases (43% and 38% respectively), among which most were falls from the height of one's own height and injuries that occurred on playgrounds (11 cases or 37%).

Table 2

## Causes of Injuries According to Identified Age Groups

Age Groups	Type of Injury						
	Transport	Domestic	Street	School	Sports	Circumstances of Injury Not Determined	Total
Early childhood up to 3 years	8	67	18	-	-	5	98
Children of preschool age from 3 to 6-7 years	14	32	29	-	-	1	76
Children of primary school age from 7 to 11-12 years	38	37	50	1	2	4	132
Children of secondary school age (adolescents) from 12 to 18 years	34	59	68	24	1	11	197
Total	94	195	165	25	3	21	503

In children of younger school age from 12 to 18 years, street trauma prevailed – 50 cases (37%), falls from the height of one's own height and falls from significant heights, as well as transport trauma – 38 cases (29%), in which injuries from the effects of passenger cars predominated.

In children of older school age from 12 to 18 years, street and domestic injuries were dominant – 68 and 59 cases (34% and 30% respectively). In both cases, most were injuries that formed as a result of blunt object impacts that occurred in conditions of conflict and fighting. That is, the number of cases of criminal trauma increased.

We identified and processed through statistical analysis the characteristics of facial and brain injuries in children of different age groups. Thus, in children under 3 years, traumatic brain injuries prevailed – 58 cases (59.2%). Injuries to the soft tissues of the face comprised 19 cases (19.4%), and injuries to the soft tissues of the oral cavity – 15 cases (15.3%). Injuries to the bones of the facial skeleton, dental injuries, and injuries to the bones of the facial skeleton combined with traumatic brain injuries in this age group occurred only in isolated cases.

In preschool children from 3 to 6 years, traumatic brain injuries also prevailed – 42 cases (55.3%) and injuries to the soft tissues of the face – 20 cases (26.3%). However, compared to the previous age group, injuries to the soft tissues of the oral cavity were noted in fewer cases – 6 cases (7.9%).

In children of younger school age from 7 to 11 years, most injuries were traumatic brain injuries – 92 cases (69.7%). Injuries to the soft tissues of the face occurred in 21 cases (16%), fractures of the facial skeleton bones and injuries to the facial skeleton bones combined with traumatic brain injuries were observed in almost the same number of cases (6-4.5% respectively). Isolated dental injuries occurred in 7 cases (5.3%).

In children of older school age (adolescents) from 12 to 18 years, traumatic brain injuries were dominant – 131 cases (66.5%). However, compared to previous age groups, there was an increase in cases of injuries to the facial skeleton bones and their fractures combined with traumatic brain injuries: 31 and 26 observations (15.7% and 13.2% respectively). Injuries to the soft tissues of the oral cavity in children of younger and older school age were not observed.

Among injuries to the soft tissues of the face, bite and contused wounds prevailed. Most cases of bite wounds occurred in preschool and younger school-age children.

Most cases of contused wounds were characteristic for children under 3 years, preschool, and younger school age. Focal hematomas of the soft tissues of the face were observed only in children under 3 years and preschool age.

Analysis of facial bone fractures revealed that mandibular fractures – 20 cases (47.6%) and nasal bone fractures – 18 cases (42.8%) prevailed in children. Among the latter, nasal bone fractures with fragment displacement were common – 11 cases (26.2%), among which most cases – 10 (90.9%) were characteristic for children of older school age. Among mandibular fractures, injuries to the condylar process and body predominated – 10 cases (24%) and 5 cases (12%) respectively. In turn, maxillary injuries (alveolar process) were found in only 2 cases (4.8%) in younger children and younger school age children. Fracture of the temporal process of the zygomatic bone was observed in one case (2.4%) in a victim of younger school age. In this age group, there was also a case of injuries to several facial bones (nasal bones and upper jaw).

Among injuries to the facial skeleton bones combined with traumatic brain injuries, combinations of brain concussion with fractures of bones in all anatomical areas of the face prevailed (a total of 29 cases – 82.9%); combinations of brain contusion with fractures of the facial skeleton bones occurred in 6 cases – (17.1%). By age composition of victims, children of older school age significantly predominated – 26 individuals (74.3%). Among the total number of described injuries, most were combinations of brain concussion with nasal bone fractures – 17 cases (48.6%), as well as combinations of brain concussion with mandibular fracture – 3 cases (8.6%), which were observed mainly in children of younger and older school age. Combinations of brain concussion with fractures of nasal cartilages, maxilla, and zygomatic bone were observed in equal numbers – 2 cases each (5.7% respectively) in children of older school age. In younger and preschool children, injuries to the facial skeleton bones combined with traumatic brain injuries were observed in isolated cases, namely: combination of brain concussion with fractures of both jaws occurred in one case (2.9%), combination of brain concussion with orbital wall fracture – also in one case (2.9%). Combinations of mild brain contusion with nasal bone fractures were noted in children of older school age in 2 cases (5.7%). Combinations of brain contusion with zygomatic bone fracture occurred in children of younger school age – in 2 cases (5.7%).

Statistical analysis of injuries to the soft tissues of the oral cavity revealed that they were characteristic for children under 3 years and constituted 71.4% of all victims. Among the injuries, injuries to the tongue and palate dominated – 42.9% and 33.3% respectively. In children of younger and older school age, injuries to the soft tissues of the oral cavity were not observed.

The study of isolated dental injuries showed that for children under 3 years in 42.6% of cases and preschool

age (64.3%), traumatic dislocations of frontal teeth were predominantly characteristic. In addition, in preschool children from 3 to 6 years, traumatic extractions and fractures of frontal tooth roots occurred.

The next stage of the study was the analysis of the clinical course of facial and head injuries. Comparative analysis of healing times for injuries to the soft tissues of the face in children of different age groups is reflected in Table 3.

**Table 3**

**Comparative Analysis of Healing Times for Soft Tissue Facial Injuries in Children of Different Age Groups**

Age Groups/ Nature of Symptoms	Early childhood up to 3 years		Children of preschool age from 3 to 6-7 years		Children of primary school age from 7 to 11-12 years		Children of secondary school age (adolescents) from 12 to 18 years		Significance when Comparing Indicators of Age Groups
	Absolute Number	Average Terms (in days)	Absolute Number	Average Terms (in days)	Absolute Number	Average Terms (in days)	Absolute Number	Average Terms (in days)	
Healing Time of Contused Wounds	11	5.45± 0.98	8	5.8± 0.72	11	6.8± 0.83	3	7.02± 0.55	P <sub>3-5</sub> P <sub>3-3</sub> P <sub>3-9</sub> P <sub>5-7</sub> P <sub>5-9</sub> P <sub>7-9</sub>
Healing Time of Bite Wounds and Bite-Lacerated Wounds	8	9.25± 1.01	12	9.08± 0.46	10	7.44± 0.74	5	7.4± 0.75	P>0.05

From the table provided, it is clearly determined that there is no significant difference between the average healing times of contused, bite, and bite-lacerated wounds of the face in children of different age groups ( $p>0.05$ ). In cases of contused wounds, there was a relatively favorable course (with the development of short-term acute reactive edema and hemorrhagic syndrome) and relatively favorable outcomes (regarding facial scar deformation). In turn, the study of the «acute» period of bite and bite-lacerated facial wounds revealed the presence of such signs as: relatively prolonged development of acute reactive soft tissue edema, inflammatory and hemorrhagic complications from the constituent elements of the wound, the presence of «tissue defect» in victims of all identified age groups. In accordance with the above, the justified criterion for expert assessment in such cases should be irreparable facial disfigurement.

Comparative analysis of the peculiarities of the course of facial skull bone injuries in children of selected age groups was conducted according to the following parameters: presence of vital function disorders, behavioral disorders, local reactive symptoms of trauma in the affected areas, and duration of health disorder. Analysis of the peculiarities of the course of injuries (fractures of jaw processes, comminuted fracture of nasal bones) in younger children, processes and body of the mandible in preschool children showed the presence of transient (during the first days of treatment) behavioral disorders, widespread edema of soft tissues in the affected areas, and short terms of inpatient treatment due to the absence of vital function disorders and relatively rapid regression of the described reactive symptoms of trauma.

The study of the course of facial skeleton bone injuries in children of younger school age and older school age (predominantly uncomplicated and complicated fractures of nasal bones and mandibular fractures) also showed the presence in children of these age groups of such signs of

trauma as short-term widespread reactive soft tissue edema, development of local hemorrhagic syndrome (without hemodynamic function disorders), and functional disorders (nasal breathing, chewing). According to the results of the comparative analysis, nasal bone fractures were characterized by a relatively favorable course with comparatively rapid regression of the indicated symptoms and, accordingly, short terms of inpatient treatment duration – on average,  $11.76\pm 1.15$  days, which corresponded to the healing times of injuries. This is supported by the absence of reports on complications of the fracture consolidation process and predominantly favorable outcomes in most cases. The course of mandibular fractures, regardless of their localization, was also characterized by the absence of hemodynamic and respiratory function disorders, but by prolonged terms of regression of local reactive symptoms of trauma and duration of treatment (from 21 to 24 days). Thus, the justified criterion for forensic medical assessment in cases of injuries to the bones of the facial skull in children of different age groups is the duration of health disorder.

Comparative analysis of the peculiarities of the course of maxillofacial injuries combined with traumatic brain injuries showed that in younger and preschool children, these injuries were characterized by a combination of brain concussion with injuries to the bones of the facial skull (fractures of nasal bones, jaw processes, orbital wall). The course of these injuries in these age groups was distinguished by the absence of respiratory and hemodynamic function disorders throughout the entire treatment period, pronounced behavioral disorders and local reactive symptoms of facial skull trauma, short terms of treatment that coincided with the terms of regression of objective neurological symptoms of brain damage during 7-9 days.

In children of younger school age and older school age, maxillofacial injuries combined with traumatic brain injuries

were characterized by a combination of mild traumatic brain injuries with minor injuries to the facial skull and severe forms of traumatic brain injuries combined with minor injuries to the facial skull. Analysis of the course of mild traumatic brain injuries combined with non-severe injuries to the facial skull showed the absence of vital disorders throughout the entire treatment period, predominantly rapid terms of regression of objective neurological symptoms, short terms of treatment, which coincided with the healing times of injuries. At the same time, the terms of regression of objective neurological symptoms ( $10.6 \pm 1.33$ ) and duration of treatment ( $10.4 \pm 1.92$ ) practically corresponded to the named parameters in cases of brain concussion. However, compared to data characterizing the course of such injuries in adults, they turned out to be less prolonged in children. In addition, the conducted analysis showed that the justified criterion for forensic medical assessment in such cases in children of different age groups is the duration of short-term health disorder.

The course of severe forms of traumatic brain injuries combined with less severe maxillofacial injuries was characterized by the predominance of objective symptoms of brain damage, which pose a danger to the lives of victims. At the same time, negative consequences of the described craniofacial injuries were also revealed, indicating more unfavorable outcomes of such injuries. Justified criteria for forensic medical assessment in cases of combination of severe forms of traumatic brain injuries with non-severe injuries to the bones of the facial skull in children are – danger to life at the time of commission and permanent loss of general working capacity.

## Discussion

Statistical analysis of the research material aimed at clarifying the causes of facial injuries showed that in children of early childhood (up to 3 years), preschool age, and older school age, domestic and street injuries prevailed. In children of younger school age, street and transport injuries dominated, and among the latter, injuries that occurred from moving passenger cars prevailed. In most cases, injuries were formed due to impacts with blunt objects or from collisions with them. In this, our data coincide with the results of other authors [20, 21].

An increase in the number of cases of traffic accident-associated injuries is noted in many economically developed countries [22], caused by the active use of electric personal mobility devices (electric scooters or electric kick scooters) [23-27]. However, for them, there is also a specific tendency to reduce the frequency of criminal, domestic, and occupational injuries. In developing countries and countries with transitional economies, the relationship between the number of injuries depending on their genesis, including injuries to the maxillofacial region, is inverse to that described above, but with the preservation of the prevalence among the main cases of domestic, criminal trauma, and injuries resulting from traffic accidents. In addition, the results of a systematic review and meta-analysis showed that traffic accidents are the main cause of maxillofacial injuries among children and adolescents. Similar data were noted in the current systematic review and meta-analysis of the etiology of maxillofacial trauma among children, conducted by Mohammadi H, Roochi MM, Heidar H, and colleagues and published in

2023 [28]. This fact requires special attention, as damage to the structures of the dentofacial apparatus at an early age can provoke functional disorders in the future related to the growth of jawbones, tooth formation, bite changes, which prognostically may require repeated surgical interventions after the completion of growth stages and development of skeletal elements. Accordingly, the total costs associated with the treatment of dentofacial injuries received in childhood or adolescence should also consider the component of treatment of secondary deformities, the clinical significance of which can be assessed after objectification of pathological and iatrogenic changes in dental status.

The peculiarities of facial and brain injuries in children that we identified are in direct causal relationship with the anatomical and physiological characteristics of the child's body, namely: 1) predominantly low body weight of the child, which determines a significant number of «acceleration» injuries in pediatric victims; 2) predominantly small height, which determines on the one hand a greater number of skull injuries in transport accidents due to initial contact with protruding parts of the moving car, and on the other hand – a relatively insignificant volume of brain damage when falling on a plane due to a short trajectory of falling; 3) significantly pronounced elasticity of the skull bones, which causes an increase in the time of collision, realization of impact energy at the points of force application, which significantly limits the possibility of formation of countercoup injuries to brain tissue [29].

The study of the peculiarities of clinical symptoms and the course of facial injuries in children revealed that for the «acute» period of contused facial wounds, the development of reactive edema and short-term hemorrhagic reactions in children of all identified age groups was characteristic, which does not contradict existing data [30, 31]. The sites of predominant localization of contused wounds were found to be protruding parts of the face (cheek and lip areas). Thus, compared to contused wounds, bite and bite-lacerated wounds in children of all age groups differed in more unfavorable course and consequences, with the development of deforming scars. At the same time, the terms of regression of objective neurological symptoms and duration of treatment practically corresponded to the named parameters in cases of brain concussion. However, compared to data characterizing the course of such injuries in adults, they turned out to be less prolonged.

Considering the severity of bodily injuries and harm to health in cases of facial injuries, it should be noted that when only the soft tissues of the face are injured, despite the short terms of their healing and short term of health disorder, the probability of adverse consequences should be taken into account, predominantly of bite, bite-lacerated, and scalped wounds of the «middle» and «lower» areas of the face with the development of deforming scars and functional disorders (impaired nasal breathing, chewing, salivation, impaired facial expressions, facial asymmetry). This approach will ensure high objectivity in establishing the severity of bodily injuries, namely the criterion of permanent disability and irreparability of injuries.

In the presence of maxillofacial injuries that are not severe in their nature, combined with mild or severe forms of traumatic brain injuries, the determination of the severity

of bodily injuries should be based on data that objectify the severity of brain damage, according to expert criteria applied in cases of isolated traumatic brain injuries. In cases of unfavorable consequences of traumatic brain and combined craniofacial injuries, the forensic medical assessment of the severity of bodily injuries should be comprehensive, that is, it should include mandatory analysis of the course of the «acute period» of trauma, reflected in the originals of medical documentation, and mandatory clinical and instrumental examination, using the results of neurological examination, computed tomography, electroencephalography of the brain, otoneurological and neuro-ophthalmological studies [6, 10].

## Conclusions

1. In children under 3 years of age, domestic injuries predominate (69%). In preschool age (3-6 years), domestic (43%) and street (38%) injuries occur more frequently. In children of younger school age (7-11 years), street (37%) and transport (29%) injuries dominate, among which injuries caused by vehicles prevail. In older school age (12-18 years), street (34%) and domestic (30%) injuries prevail, most of which are the result of criminal offenses.

2. Children up to 3 years of age and preschoolers typically have injuries to the soft tissues of the face and oral cavity, while in school-age children (7-18 years), maxillofacial injuries and fractures of the facial skull bones combined with traumatic brain injuries of varying severity are most commonly registered.

3. Morphological signs of isolated maxillofacial injuries in children under 3 years and preschool age are subperiosteal fractures, predominantly of the alveolar processes of the mandible.

4. Fractures of nasal bones, processes of the upper jaw, orbital walls, body and articular processes of the lower

jaw, as well as dental injuries are characteristic of younger and older school age. The traumatic process in most cases has a short acute period (10-12 days), rapid regression of symptoms, absence of consolidation complications, and a favorable course.

5. When assessing the severity of bodily injuries in children of different ages, it is appropriate to apply the criterion of duration of health disorder. In case of formation of deforming scars and functional disorders (nasal breathing, chewing, facial expressions, salivation, facial asymmetry) – to use the criterion of permanent disability and/or irreparability of facial injuries.

6. The final expert assessment of the severity of facial injuries should be conducted after re-examination of the child at least 1-1.5 months after the healing of injuries.

7. In case of combination of maxillofacial injuries with traumatic brain injuries, the determination of the severity of bodily injuries should be based on the degree of brain damage according to expert criteria adopted for isolated traumatic brain injuries.

8. For forensic medical determination of the severity of non-lethal facial injuries in children, criteria of forensic medical and forensic dental examination can be applied.

**Prospects for further research** lie in studying the circumstances of occurrence, clinical and morphological manifestations, course, and assessment of the severity of traumatic brain injuries in children and adolescents of different age groups.

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## ХАРАКТЕРИСТИКА ОБСТАВИН УТВОРЕННЯ, КЛІНІЧНИХ І МОРФОЛОГІЧНИХ ПРОЯВІВ, ПЕРЕБІГУ ТА ОЦІНКИ СТУПЕНЯ ТЯЖКОСТІ УШКОДЖЕНЬ У ВИПАДКАХ ТРАВМ ОБЛИЧЧЯ У ДІТЕЙ ТА ПІДЛІТКІВ

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### Резюме.

Дослідження спрямоване на аналіз особливостей травм обличчя у дітей та підлітків з урахуванням їх віку та статі для вдосконалення судово-медичної експертної оцінки. Травматичні ушкодження щелепно-лицевої ділянки у дитячому віці мають суттєві відмінності за механізмом утворення, клінічними проявами та наслідками порівняно з дорослими, що потребує розробки диференційованих критеріїв оцінки ступеня тяжкості. Актуальність роботи обумовлена необхідністю врахування специфіки дитячого організму при судово-медичній оцінці травм обличчя, які можуть призводити не лише до тимчасових розладів здоров'я, але й до стійких функціональних порушень та косметичних дефектів.

**Мета роботи** – проаналізувати обставини утворення, клінічні та морфологічні прояви, перебіг та оцінку ступеня тяжкості ушкоджень обличчя у дітей та підлітків, враховуючи їх вік та стать.

**Матеріали та методи.** Матеріалом дослідження були 203 «Висновки експерта» з архіву Київського обласного і Київського міського клінічного бюро судово-медичної експертизи, 177 «Висновків експерта» з архіву Дніпровського обласного бюро судово-медичної експертизи, які стосувались судово-медичних експертиз (досліджень) у випадках травм обличчя дітей та підлітків; 123 карт стаціонарного хворого відділення щелепно-лицевої хірургії Київської дитячої лікарні № 7. Дизайн дослідження побудований з урахуванням статі та віку.

**Результати.** Встановили, що особи чоловічої статі частіше, у 350 (69,6%) випадків з 503 проаналізованих, травмували обличчя ніж особи жіночої статі. Частота осіб жіночої статі з травмами обличчя склала 153 (30,4%). Визначили, що найбільшу кількість серед усіх травмованих дітей склали діти молодшого шкільного віку від 3 до 6 років – 132 випадки (26%) та діти старшого шкільного віку від 12 до 18 років – 197 випадків (40%). Проаналізувавши дані встановили, що морфологічними проявами травм обличчя у дітей віком до 3-х років були ушкодження м'яких тканин обличчя та порожнини рота, а у дітей

молодшого шкільного віку від 7 до 11 років та підлітків – щелепно-лицеві ушкодження та переломи кісток лицевого відділу черепа, поєднані з неважкими і важкими формами черепно-мозкових ушкоджень. Встановлено, що немає достовірної різниці між середніми строками загоєння забитих, кусаних та кусано-рваних ран обличчя у дітей різних вікових груп ( $p > 0,05$ ).

**Висновки.** У дітей до 3-х років та дошкільного віку переважаючими є ушкодження м'яких тканин обличчя та порожнини рота. У дітей молодшого шкільного віку (від 7 до 11 років) та підлітків – найчастіше зустрічаються щелепно-лицеві ушкодження та переломи кісток лицевого відділу черепа, поєднані з неважкими і важкими формами черепно-мозкових ушкоджень. Морфологічними проявами ізольованих щелепно-лицевих ушкоджень у дітей до 3-х років та дошкільного віку є підокісні переломи переважно альвеолярних відростків нижніх щелеп. Переломи носових кісток, відростків верхньої щелепи, стінок орбіти, тіла і суглобових відростків нижньої щелепи, а також травми зубів є характерним для дітей молодшого і старшого шкільного віку. При оцінці ступеня тяжкості вказаних ушкоджень у дітей різних вікових груп доцільно застосовувати критерій тривалості розладу здоров'я, а ймовірність несприятливих наслідків переважно кусаних, кусано-рваних і скальпованих ран з розвитком деформуючих рубців та функціональними розладами (порушенням носового дихання, акту жування, слинотечею, порушенням міміки, асиметрією обличчя) вказує на необхідність використання критерію стійкої втрати працездатності та невинності ушкоджень.

**Ключові слова:** судово-медична експертиза, діти, травма обличчя, тілесні ушкодження, ступінь тяжкості.

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