

Complications of Oral Injuries in Young Children

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Abstract: Children are restless, their desire to explore the world around them sometimes ends in tears. Abrasions, bruises, cuts, burns are not the whole list of injuries that are often found in children. Injuries to the oral cavity are also not uncommon and no less diverse. In addition to fractures and dislocations of teeth, tears, cuts and abrasions of the soft tissues of the oral cavity are often found in the practice of pediatric dentists.

Keywords: oral cavity, fractures and dislocations of teeth, pediatric dentists, oral injuries, treatment.

A feature of the oral cavity in any traumatic injury is its infection. The degree of damage and clinical manifestations depend on the nature of the irritant, the time and strength of the irritant, its nature, age, local and individual resistance of the mucous membrane, the individual characteristics of the child's body at the time of injury. Clinical and morphological changes in the integumentary tissues of the oral cavity caused by traumatic agents of various types are most often non-specific in nature. Depending on the nature of the traumatic agent, mechanical, chemical, thermal, and radiation injuries are distinguished. Mechanical and chemical injuries are more common in childhood.

The cause of lip injuries in children may be falls or careless handling of objects. Sometimes parents don't even notice how it happens. The first symptom is acute pain, crying and screaming of the baby, bleeding. Edema forms almost immediately, and with careful examination, parents can assess the degree of injury, it is on this that the amount of first aid provided will depend. Regardless of the severity of the injury, you need to calm the child, rinse the wound with running water and apply cold. If it's just an abrasion, then you can do with home treatment — treat the wound with an antiseptic and monitor the healing process. For more serious injuries, medical attention is needed. Only a doctor can properly and efficiently treat a wound, resolve the issue of suturing and exclude more serious injuries. Falls and head impacts can be extremely dangerous for children's health. The population of the oral cavity with a variety of flora will impose its own characteristics in the healing process. Parents should carefully monitor the condition of the child, and when a secondary infection is attached (as indicated by the appearance of redness, swelling and fever), it is necessary to consult a specialist.

Age-related features play an important role in the occurrence and course of traumatic injuries of the children. Thus, in newborns, there is a low differentiation of the epithelium and connective tissue, the epithelial cover is thin and consists of only two layers of cells, the basement membrane in all parts of the oral cavity is thin and delicate. In early childhood, regional differences are formed, but the fibers of the own layer of the mucous membrane are loosely arranged and have a thin and delicate structure. These structural features undoubtedly cause increased vulnerability of the oral mucosa in children. In schoolchildren, the maturity of collagen fibers increases, the number of protein structures in the epithelial layer increases, the mucous

membrane becomes more dense and resistant to traumatic effects. However, during puberty, changes occur under the influence of hormonal regulation factors, which leads to an increased reaction to chronic trauma with a pronounced vascular component. Traumatic injuries of the oral mucosa in children are caused by physical influences, which include mechanical, thermal, chemical, electrical and radiation. Mechanical traumatic injuries are also divided into acute and chronic. When studying the literature data, we found that there is little information about the prevalence of such injuries, but the degree of injury in children is nevertheless high. This is due to the relevance of this topic.

There are three bridles in the oral cavity of children — the frenulum of the upper and lower lip and tongue. Various injuries to these mucous cords are also not uncommon. In clinical practice, tearing and rupture of the frenulum are distinguished, and it is on this that the amount of care provided will depend. The causes of injuries can be a fall, careless brushing of teeth and even infectious diseases, etc. The symptoms of rupture will be severe and acute pain, bleeding, especially pronounced when the frenulum of the tongue is torn. When examining the oral cavity, a hematoma is noticeable, a blood clot on the body of the frenulum. After the injury, children may refuse to talk for a long time and try to pronounce sounds in a limited way. Parents should remember that after the rupture of the frenulum, it is forbidden to rinse the mouth — the blood clot will be washed off, and the bleeding will not stop. This injury always requires consultation with a dentist, because the consequences can be sad. In addition, a rupture of the frenules may be a sign of infectious diseases, such as whooping cough. It is characterized not only by frenulum tearing, but also by the formation of erosions and ulcers in the oral cavity. The same manifestations are typical for bronchitis with an asthmatic component. The regenerative abilities of the frenulum are high, and in just a few days there will be no trace of the rupture, but the main thing is to make sure that the rupture occurred correctly. In most cases, interventions are required only when the frenulum of the tongue is torn: suturing, the appointment of gymnastics to restore the motor function of the tongue and correct speech formation.

Chronic mechanical injury is formed due to prolonged exposure to a traumatic factor, it can be sharp edges of a carious tooth, improperly placed fillings, details of orthopedic or orthodontic structures, bad habits and much more. Usually, the injury manifests itself in the form of erosions, ulcers. These lesion elements are more often located in the area of the lips, tongue and cheeks. The danger of such injuries is that in the absence of adequate treatment, a secondary infection often occurs, resulting in a chronic oral ulcer. The surface of the defect is covered with a pale yellow coating, the mucous membrane around is swollen and red. Strangely enough, children rarely complain of pain, only when exposed to irritating factors. Bednar's aphthae are also among the chronic mechanical injuries. Ulcers form in the oral cavity of premature, often ill children receiving artificial feeding. The reason for their occurrence is an incorrectly selected nipple on the bottle. The location of the injury is the border of the hard and soft palate. Lip biting, which is more typical for teenagers, is also considered a chronic type of injury. The red border of the lips becomes edematous, dry crusts form along the line of closure.

Chronic oral injury always requires medical intervention: examination by a specialist, diagnosis and development of a treatment plan. A treatment protocol has been developed for each type of injury, but common points can also be found in it: correction of the diet: exclusion of salty, sour, spicy, compliance with the temperature regime, the predominance of light and fortified foods; correction of oral hygiene. After consultation with a specialist, additional hygiene products and items may be prescribed; the use of antiseptics to prevent the addition of secondary infection, anti-inflammatory solutions to stimulate recovery and drugs that will stimulate the regeneration of the mucous membrane; removal of the traumatic factor. This is the foundation of the treatment. After calculating the traumatic agent, all the efforts of parents and doctors should be directed to its elimination. If these are carious teeth — oral sanitation, if this is lip biting, then often third-party neurologists and psychologists are involved in the treatment process.

Acute chemical poisoning is one of the most common causes of accidents in children. The main route of entry of toxic substances is the oral cavity. Parents should remember that acute chemical poisoning in children is much more severe than in adults. When ingesting chemicals, necrotic lesions develop on the mucous membrane of the oral cavity, and their severity will depend on the concentration and duration of exposure to the chemical reagent. In clinical practice, there are three degrees of severity of chemical burns. With burns of the first and second degree, when inflammation forms in the child's mouth and areas of necrosis are noticeable, innervation is disrupted, the baby simply does not feel pain. The third degree of severity is characterized not only by severe pain, damage to the oral cavity, but also to the esophagus, stomach and requires urgent hospitalization. If a child is poisoned with chemicals, parents must act according to a certain algorithm: call an ambulance, because poisoning can pose a threat to the baby's life; try to eliminate the toxic effect of the substance on the oral cavity on your own — repeated rinsing of the mucous membrane for 20-30 minutes.

You can use antidotes. In case of poisoning with phenol—containing drugs, for example, household chemicals — castor oil and 50% alcohol; acid burns are stopped with a very weak alkaline solution; alkali — with a very weak acid solution; potassium permanganate - with 1% ascorbic acid solution. After first aid, when all the risks are over, it is necessary to think about symptomatic treatment. It is aimed at eliminating inflammation in the oral cavity and stimulating the restoration of the mucous membrane.

A very specific complication of dental treatment for children is anesthesiophagy - significant damage to soft tissues as a result of biting and chewing a numb mucous membrane by a child after local anesthesia. This lesion is mainly found in the area of the lower lip, but it can also be localized on the upper lip and cheek. Deep ulcers undoubtedly cause concern to parents and cause, albeit temporary, but significant damage to the child's health.

The prevention of this complication is a reasonable choice of the type and dose of local anesthetic, warning parents about the need to monitor the child immediately after the treatment. It is important to note that direct trauma during dental treatment can indirectly affect the occurrence of damage to the mucous membrane - for example, lead to the activation of a dormant viral infection in the body. Also, a common case of iatrogenism is damage to the mucous membrane of the oral cavity in children by elements of equipment during orthodontic treatment.

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