

NEW METHODS OF DIAGNOSIS AND TREATMENT OF ENT INJURIES

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Relevance Currently, injuries throughout the world have become continuously increasing. In all industrialized countries, it not only does not lose its relevance, but also remains the most important social problem. According to statistics, injuries occupy third place after diseases of the cardiovascular system and tumor lesions, and among the most productive group of the population, their frequency is ahead of all other diseases [6, 10]. The main reason for the growth of this pathology is due to the increase in the number of road accidents, crime situation, household and man-made injuries [6, 12]. Among the injuries to the head and neck area, a significant number are injuries to the face, of which the most common are injuries to the nose; in second place are neck injuries with damage to the pharynx and esophagus, larynx and trachea; in the third - ear injuries [6, 8, 13]. In the structure of injuries to the maxillofacial region, according to various authors, injuries to the middle zone of the face range from 33% to 55%; its important anatomical component is the zygomatic bone [7]. Frequent combined lesions not only of neighboring anatomical areas (brain, eyes and jaws), but also of distant parts of the body (torso, limbs, chest and abdominal cavities, cranial cavity) is a distinctive feature of modern injuries of the ENT organs, which is observed in almost 15% all observations [2, 3, 7]. Patients with injuries of ENT organs among otolaryngological patients account for 28-39%. In the general structure of injuries to the ENT organs, injuries to the nose and paranasal sinuses predominate, which accounted for up to 4.6% of those hospitalized with ENT pathology; the proportion of injuries to the ear and mastoid process, as well as neck injuries, reaches 11.7%. Moreover, in all cases, deep wounds predominate compared to superficial ones [2, 3, 11]. As for fractures of the bones of the nose and its internal structures, in terms of frequency they rank first among injuries to the maxillofacial area, according to some authors - from 16% to 78%, i.e. Recently, the incidence of nasal injuries has shown an increasing trend. Injuries to the nose occupy 91% of the structure of injuries to the ENT organs and 9-50% of the structure of injuries of the facial skeleton, and their number is continuously increasing [1-4,11]. Massive combined injuries of the larynx and trachea are one of the difficult problems of modern emergency medicine. In the early stages, damage to the larynx and trachea threatens the patient's life and requires emergency measures; in the future, they can lead to persistent organic and functional disorders. And the issues of therapeutic tactics for injuries of the larynx and trachea affect a number of specialties: thoracic surgery, endoscopy, maxillofacial surgery [3, 5, 9]. Trauma to the esophagus is a severe pathology, accompanied by the rapid (within

several hours) development of inflammation of the paraesophageal tissue, followed by purulent melting of the tissue of the neck, mediastinum, or complicated by peritonitis [1]. Mortality in this pathology doubles with doubling of time from the moment of injury. If emergency care is carried out before 6 hours, the mortality rate is 12-14.5%; after 12 hours – 24-28%; a day later – 48-56% [2]. One of the complex and pressing problems of modern emergency surgery is treatment of victims with neck injuries. Massive blood loss, asphyxia, air embolism caused by damage to the main vessels of the neck, combined damage to hollow organs determine the progressive destabilization of the vital functions of the body, the severity of the condition and the high mortality rate of this category of wounded. The main causes of death are acute massive blood loss due to damage to the vessels of the neck (38.5%), asphyxia due to injury to the upper respiratory tract (3.8%), etc. [3, 8]. To provide assistance with combined injuries of the ENT organs, the joint work of an otolaryngologist, an oral and maxillofacial surgeon, and often an ophthalmologist and a neurosurgeon is simply mandatory [2, 6]. Surgical treatment of external wounds of the ENT organs should be carried out as early as possible. The cosmetic aspect of the operation should be taken into account. In this regard, it is allowed to remove only obviously non-viable soft tissues and bone fragments that have lost contact with the periosteum with the application of primary sutures. In cases where the approach of the wound edges is associated with high tension, guide sutures are applied [2, 6, 11].

Purpose of the study: Study, assessment of isolated and combined injuries of ENT organs and improvement of an integrated approach to improve treatment results.

Material and research methods During the period 2016 – 2024, 8,476 patients came to the emergency ENT office of the SamMU Clinic with injuries to the ENT organs, of which 6,854 (80.8%) had nasal injuries: men – 6,854 (51.8%), women – 2,459 (29%); with ear injuries 1316 (15.5%): men – 826 (9.7%), women – 490 (5.8%); with pharyngeal injuries 162 (1.9%): men – 88 (1%), women – 74 (0.9%); with esophageal injuries 103 (1.2%): men – 52 (0.6%), women – 51 (0.6%); with laryngeal injury 51 (0.6%) patients: men – 40 (0.5%), women – 11 (0.1%). Among all those who applied, 5305 (62.6%) were urban, 3171 (37.4%) were rural. Of these, 822 (9.7%) patients were hospitalized to provide inpatient care: with nasal injuries - 352 (4.2%) patients; ear – 311 (3.7%); esophagus (including foreign bodies) - 103 (1.2%), larynx - 21 (0.25%), pharynx - 24 (0.28%) patients. Patients with injuries of ENT organs among hospitalized patients accounted for 4.5%. There were 464 patients (5.5%) with combined damage to the ENT organs hospitalized in other hospitals. Also during this period, 17 (0.2%) patients with animal bites were hospitalized, of which 13 patients were children under 14 years of age. Patients with combined injuries, taking into account the severity and prevalence of the nature of

the injuries received, were hospitalized in the intensive care unit - 352 (4.1%), maxillofacial surgery - 39 (0.5%), in the department of general surgery and traumatology - 26 (0.5). 31%), to the neurosurgical departments - 33 (0.39%) and the eye department - 14 (0.2%), where they received medical care. Indications for hospitalization in the otolaryngology departments were open fractures of the nasal bones with gross deformations and with nosebleeds, fractures of the walls of the maxillary and frontal sinuses, injuries of the frontal-nasal-ethmoid complex, wounds of the pharynx with swelling and bleeding, large traumatic ruptures of the tympanic membrane, injuries of the auricle with the external auditory canal, isolated injuries of the larynx with increasing edema and respiratory distress, the presence of any foreign body in the esophagus with or without damage to its walls, etc.

Results and discussion Study of the results of the analysis of emergency appeal ENT service indicates that in the general structure of injuries to the ENT organs, injuries to the nose predominate. Of 6854 (80.8%) injuries, isolated injuries of the external nose were diagnosed in 4604 (54.3%) patients. Of these, 2450 (28.9%) had fractures of the nasal bones without displacement of bone fragments, 1740 (20.5%) patients had displacement of bone fragments with deformation of the external nose, and 414 (4.9%) had combined displacement of bone fragments with deformation of the external nose and displacement of the nasal septum with damage to other intranasal structures. All patients in this group showed a symptom of crepitus and mobility of bone fragments during palpation. For all injuries to the nose and paranasal sinuses, the cause was most often domestic trauma - due to a blow, push and fall. During the examination, many of those who received closed fractures of the nasal bones noted that at the time of injury their condition was severe, including loss of consciousness, which was diagnosed in 895 (10.6%) patients. This was sometimes observed even with mild trauma and was apparently caused by severe pain. Nosebleeds were observed in almost 90% of victims, but in almost half of the patients they usually stopped spontaneously, only in 2600 (38%) the bleeding was stopped using anterior tamponade. 2125 (31%) patients had bruises and abrasions of the nose and neighboring areas - the zygomatic bone and eyelids, as well as hemorrhages in the conjunctiva, usually without damage to the orbital walls. Less often, in 1520 (21%) cases, we observed fractures of the nasal bones with disruption of the integrity of the skin in the form of lacerated skin wounds of varying degrees. In this case, fractures of the nasal bones were often open. In 520 (7.6%) patients, there were also fractures of the nasal bones, and more often cracks that occurred as a result of a direct blow and were accompanied by damage to the nasal septum with its hematoma. Much less frequently, 195 (2.8%), there were fractures of the nasal bones with damage to the frontal processes of the upper jaw and the upper jaw itself - in the area of the maxillary sinuses. Fractures of the zygomatic bone were also diagnosed in 68 (1%)

patients . Fractures of the orbital walls with the presence of subcutaneous emphysema and hemorrhage of the eyelids were detected in 135 (2%) cases. We necessarily subjected all patients with nasal trauma to an X-ray examination before and after treatment. The photographs were taken in a lateral projection on both sides, and often in the projection used in the study of the paranasal sinuses. If necessary, especially with combined injuries, taking into account the nature of the injury, the degree of functional disorders caused by the injury (difficulty in nasal breathing, loss of smell, disorder of protective and speech functions), to more accurately establish the localization and distribution of fractures, the location of bone fragments, the presence of hemosinus , CT examination. This took into account the severity of the clinical symptoms that occurred at the time of injury (bleeding, fainting, shock, etc.), as well as the degree and duration of the health disorder. Therapeutic tactics were determined depending on the degree and nature of the damage and the condition of the patients. For fractures of the nasal bones without displacement of bone fragments, but with nosebleeds, only anterior tamponade was performed, and further dynamic observation was carried out on an outpatient basis. For fractures of the nasal bones with gross displacement of bone fragments, as well as with damage to the skin in the first hours of hospitalization, primary surgical treatment of wounds and manual or instrumental reposition of bone fragments were performed. These patients must be consulted by an ophthalmologist and a neurologist. Fractures of the nasal bones in combination with damage to the paranasal sinuses, zygomatic bone and orbit are usually accompanied by traumatic brain injury of varying severity. Treatment measures for this category of patients were carried out jointly with ophthalmologists, neuro- and maxillofacial surgeons. In 1316 (15.5%) examined patients with ear trauma, the following were diagnosed: bruises, laceration or cut wound of the auricle - in 386 (4.5%), injuries of the external auditory canal - in 189 (2.2%), hematoma - in 84 (1.0%) cases; foreign bodies of the external auditory canal - in 175 (2.1%) patients. As for ruptures of the eardrums, they were observed in 482 (5.7%) patients, of which point perforations were diagnosed in 89 patients (1.1%), linear ruptures with smooth or scalloped edges - in 251 (3.0%) , subtotal and total perforations - in 142 (1.7%). Ruptures of the eardrum were more often unilateral - in 368 (4.3%) cases. Only 25 (0.3%) patients had combined damage to the tympanic membrane (usually subtotal) with disruption of the chain of auditory ossicles. Perforations of the tympanic membrane were localized mainly in the lower quadrants - in 328 (10.5%) patients. Perforations in the upper quadrants alone were much less common. In case of ear injuries, 108 (1.3%) patients had lesions of the mastoid process and other parts of the temporal bone. In this category of patients, in the absence of signs of traumatic brain injury, treatment was carried out in an emergency surgical department, and subsequently they were under dynamic

observation. 311 (3.7%) patients were hospitalized with ear injury . In most cases, ear injuries were combined and were accompanied not only by injury to the eardrum, but also by fractures of the pyramid of the temporal bone, jaws and other bones of the facial skeleton. Concussion, as well as hearing and vestibular system disorders, were common. These injuries were classified as serious and life-threatening. All patients with a traumatic rupture of the eardrum in the absence of signs of traumatic brain injury and symptoms of damage to the inner ear in the conditions of the audiology department, emergency myringoplasty or tympanoplasty was performed in the first three days . Patients with signs of traumatic brain injury, development of auditory and vestibular disorders, which depended on the degree, depth and extent of damage, were required to undergo a CT examination. Moreover, in 33 (0.39%) cases, signs of a fracture of the base of the skull were revealed, which in 28 cases were accompanied by bleeding and liquorrhea from the external auditory canal. Treatment measures in this group of patients were mainly carried out under the supervision of a neurosurgeon. Elimination of damage to the middle ear (miring o - or tympanoplasty) was carried out after normalization of signs of traumatic brain injury. Damage to the pharynx and larynx in our study concerned 213 (2.5%) cases, of which pharyngeal injuries were observed in 162 (1.9%) patients, laryngeal injuries - in 51 (0.6%). The duration of the traumatic injury before treatment ranged from several hours to 3 days. The main complaints of patients upon admission were difficulty breathing and swallowing, hemoptysis, voice changes, sore throat, emphysema of the soft tissues of the neck. Depending on the severity of the condition, 45 (0.5%) patients were hospitalized, of which 21 (0.5%) had injuries to the larynx and 24 (0.5%) patients had injuries to the pharynx. Patients admitted in serious condition were provided with emergency medical care: emergency tracheostomy , stopping bleeding, combating traumatic shock and blood loss. During endoscopic examination, an extensive lacerated wound of the soft palate was identified in 5 patients, a lacerated wound of the palatine tonsils with transition to the posterior wall of the pharynx and in 5 patients - injuries to the laryngopharynx region with transition towards the entrance to the larynx, in 3 patients the pharyngeal injuries were thermal in nature and 4 had stuck foreign bodies of a metallic nature. An endoscopic examination of the larynx in 5 inpatients revealed a laryngeal hematoma, hemorrhage into the thickness of the vocal folds; their mobility was not impaired, in 4 patients there was thickening of the vocal folds with hemorrhage in their thickness, in 3 - a unilateral hematoma of the aryepiglottic fold, in 3 - a hematoma of the vocal folds with transition to the subglottic space, in 2 - with a rupture of one vocal fold. Damage in the form of fractures of the cartilage of the larynx without significant destruction and separation of individual anatomical structures of the larynx with mild impairment of its functions was detected in 2

patients. Severe injuries in the form of extensive fractures and crushes of the cartilage of the larynx and the upper third of the trachea were detected in 2 cases, and clinical signs of decompensated stenosis of the larynx and trachea, hemoptysis, and impaired swallowing were noted. Due to the threat of developing asphyxia in the emergency room, they underwent urgent tracheostomy. We included foreign bodies in the group of patients with esophageal damage, since this pathology occurred quite often in our practice and in most cases caused injuries to the esophageal wall of varying degrees, which requires special care and attention. So, during the study period, 103 (1.2%) patients aged from 2 to 70 years applied: men - 52 (0.6%), women - 51 (0.6%), of which children - 43 (0.6%). 5%). All patients noted varying degrees of obstruction of the esophagus. People complained of pain when beef or chicken bones or metal objects of various sizes and shapes got stuck in the esophagus. Some patients with complete obstruction of the esophagus indicated a feeling of heaviness and " bloating " behind the sternum. The largest number of foreign bodies in the esophagus in children was registered under the age of 5 years, and mainly these were metal coins (18) and plastic parts from children's toys (12), and in children from 5 to 15 years old - 6 buttons, chicken and beef bones - 6, peas - in 1 child with cicatricial narrowing of the esophagus, the narrowing lasting 3 years due to a burn with caustic soda. Obstruction of the esophagus in adult patients was caused by meat blockage in 8 patients, chicken, beef bones, pieces of meat with tendons in 42, plum, apricot and almond pits in 9, sewing needles, metal objects in 8, and head of garlic. Foreign bodies were in the esophagus for less than one day in 76 patients, from 1 to 2 days in 18 patients, up to 3 days in 8 patients, and up to 4 days in 1 patient. In 17 patients, foreign bodies were located in the lower two-thirds of the esophagus. Meanwhile, in 86 patients (86.4%) with a normal lumen of the esophagus, foreign bodies were predominantly retained in the upper and middle thirds of the esophagus, which was explained by anatomical and physiological features of its cervical spine. After hospitalization, all patients underwent emergency esophagoscopy with a bronchoesophagoscope after short-term preparation under general anesthesia. Brunings. Using esophagoscopy, it was possible to remove foreign bodies in 77 patients. In 20 patients, during an attempt to seize, foreign bodies fell into the stomach; in 5 patients, a foreign body (a piece of meat) came out of the esophagus during vomiting, before the start of anesthesia. In one patient, the foreign body was so firmly fixed in the lower part of the esophagus at the level of the VIII-IX thoracic vertebra that it could not be dislodged even with massive forceps; it was removed (in the department of endoscopic surgery) after gastrostomy using a gauze mesh attached to a silk thread. Such fixation of the bone in the lumen of the lower segment of the esophagus can only be explained by esophagospasm caused by a foreign body. All patients with a foreign body two or

three days ago in the presence of even a slight injury to the walls of the esophagus or their swelling after removal on the first day of hospital stay were given tube feeding, general strengthening therapy, intravenous glucose injections and antibiotic treatment.

Conclusion Thus, in the structure of injuries to the ENT organs and esophagus, the first place is occupied by injuries to the nose. Therapeutic tactics are determined depending on the degree and nature of the damage and the condition of the patients; in patients with combined injuries, treatment measures are carried out jointly with ophthalmologists, neuro- and maxillofacial surgeons. Problems of diagnosis and treatment of injuries to the ENT organs are of great social importance, since they often affect the young working population and there is always a risk of disability and social maladaptation .

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