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Function of the Bronchi and Trachea

Kattaxodjayeva Dinara Utkurxodjayevna [1], Kabirjonova Shaxzoda Ravshan qizi [2]

Abstract: The work studies the function of external respiration, which is provided by the bronchi and trachea. It is shown that dysphonia is characteristic of any damage to the larynx, especially its vocal section. In case of damage to the trachea or bilateral paralysis of the larynx with stenosis of the lumen, the vocal function suffers to a lesser extent. The methods of treatment used for injuries to the larynx and trachea depend on the timing, nature of the injury and the traumatic agent, the extent of damage to organs and soft tissues of the neck, the severity of the patient's condition.

Key words: bronchus, trachea, breathing, dysphonia , larynx , stenosis , treatment, injury , volume, neck, patient, method.

The trachea and bronchi belong to the lower respiratory tract and provide the function of external respiration; therefore, the main symptom of their various pathological conditions is often the insufficiency of external respiration, developing as a result of obstruction of the airways.

When examining a patient with a respiratory disease, the doctor must first assess the state of external respiration, for which he pays attention to the patient's behavior and appearance, identifies signs of hypoxia, and only then proceeds to the anamnesis and special instrumental research methods.

The behavior of a patient with a lesion of the lower respiratory tract in some cases allows us to judge the nature of the disease or, at least, determine the direction of the diagnostic search. In case of stenosis of the respiratory tract, as well as in other disorders of the external respiratory function (bronchial asthma , pulmonary edema, atelectasis), the patient, as a rule, takes a forced sitting position with support on his hands and a slightly forward-leaning torso.

[1] Senior Lecturer, Tashkent State Medical University
[2] Student, Tashkent State Medical University

The patient also takes this position in case of respiratory failure due to paralysis of the respiratory muscles (various myoplegic syndromes).

The appearance of the patient's face has a certain significance for assessing the patient's condition. For example, in former times, descriptions included such a concept as the "Venetian face", characteristic of patients suffering from pulmonary tuberculosis for a long time .

Such patients are characterized by transparent pallor of the skin , sunken eyes with a feverish shine and circles of blue, a deep sad look of a doomed person. "Restless face" - an open mouth, an anxious wandering look, the head is raised, the neck is stretched out. This appearance is typical for patients suffering from an attack of bronchial asthma, left ventricular heart failure or severe bronchopneumonia . "Cyanotic face" - cyanosis of the lips, nose, cheeks, pale-cyanotic spots on the sides of the wings of the nose; these signs can have many causes: severe bronchopneumonia with obstruction of the bronchi and bronchioles, circulatory failure, cardiopulmonary failure.

cyanosis also appears with tumors or diverticula of the esophagus , compressing the lower respiratory tract, with incomplete obstruction of the trachea or one of the main bronchi by a foreign body, with exudative pleurisy or severe ascites , limiting respiratory excursions of the lungs, etc.

Local examination of the trachea and bronchi includes endoscopy and radiography. The first is performed using special optical devices - bronchoscopes, the second - by the generally accepted method of X-ray diagnostics.

Other methods of examining the tracheobronchial system include X-ray, cytology, and biopsy and gas mediastinography

Trauma to the larynx and trachea can occur with a general neck injury. Causes of closed laryngotracheal injuries are a blow with a fist or an object, a car accident, strangulation attempts, a blunt blow to the chest. Penetrating wounds are usually knife or bullet wounds. As a rule, these are combined injuries.

Isolated injuries to the larynx and trachea occur with internal trauma. Internal trauma to the larynx and trachea is often iatrogenic (intubation, prolonged artificial ventilation). Injury to the larynx and trachea is possible with any manipulation of the larynx, including during endoscopic examinations and surgical interventions. Another cause of internal trauma to the larynx and trachea is the ingress of a foreign body (fish bone, parts of dentures, pieces of meat, etc.).

The severity of clinical manifestations depends on the degree of damage to the organs and structures of the neck, on the general condition of the patient, which is affected by the extent of the impact and the nature of the traumatic agent. The first and main symptom of traumatic damage to the larynx and trachea is respiratory dysfunction of varying severity. Respiratory failure can develop immediately after exposure to a traumatic factor or at a later date due to increasing edema, hematoma, tissue infiltration.

Dysphonia is typical for any damage to the larynx, especially its vocal section. Deterioration in voice quality can be sudden or gradual. In case of damage to the trachea or bilateral paralysis of the larynx with stenosis of the lumen, the vocal function suffers to a lesser extent.

Clarification of the time of injury, detailed characteristics of the traumatic agent and the mechanism of injury are important factors in assessing structural and functional damage to the hollow organs of the neck.

Physical examination includes general examination and assessment of the patient's general somatic condition. When examining the neck, the nature of the injury and the condition of the wound surface are assessed, and hematomas are identified. Palpation of the neck allows one to determine the integrity of the larynx and trachea skeleton, areas of compaction, crepitus zones, the boundaries of which are noted in order to track the dynamics of emphysema or soft tissue infiltration. In case of penetrating wounds, probing of the wound channel is sometimes permissible. Manipulation must be carried out with great caution due to the possibility of causing additional iatrogenic injury.

In most patients, clinical signs of traumatic injury to the larynx and trachea in the form of respiratory distress, neck pain, hoarseness, and skin hematomas are easy to diagnose. However, all patients, even without the above symptoms, who have suffered external neck, chest, or internal laryngeal and tracheal trauma of any etiology, should be examined for structural and functional damage to the hollow organs and soft tissues of the neck.

The probability of persistent structural changes and functional disorders in case of neck trauma is reduced with correct and timely assistance. Treatment methods used for larynx and trachea trauma depend on the timing, nature of the injury and the traumatic agent, the extent of damage to the organs and soft tissues of the neck, and the severity of the patient's condition.

Treatment tactics for open and closed injuries of the larynx and trachea are different. Open wounds and extensive injuries of the larynx with the development of an internal hematoma are the most dangerous in terms of the development of respiratory disorders and in most cases require surgical treatment.

References

1. Elmurotova D., Odilova N.J., Jumanov Sh.E., Odilova E.U. Physical basis of proton radiation therapy in medicine // Educator Insights: Journal of Teaching Theory and Practice, V.01, Issue 02, 02.2025 ISSN (E): 3061-6964, P.188-196, Руминия. https://brightmindpublishing.com/index.php/EI/article/view/70
2. Elmurotova D.B., Fayziyeva N.A. Technological support for proton therapy// V.3., Issue 2, 02.2025, ISSN (E): 2938-3811.
3. Элмуротова Д.Б., Арзикулов Ф., Олимов А. Параметры и характеристики импульсной техники // Open Herald: Periodical of Methodical Research, V.3, Issue 2, February-2025 ISSN (E): 2810-6385, C.33-37, Chile, Website: https://academiaone.org/index.php/6
4. Nuritdinov I, Eshbekov A.A., Yusupov Q.X, Mussaeva M.A., Elmurotova D.B. Study of luminescent characteristics of chromium-doped crystals // Web of scientist: Int. scientific research journal, ISSN:2776-0976, V.6, Issue 4, April-2025, P.46-57, Indonesia. https://wos.academiascience.org/index.php/wos/article/view/5342/5118
5. Elmurotova D.B., Kattaxodjayeva D.U., Jaxongirova Sh.U., Yusupova M.B. Physics of remote gamma therapy // Web of Discoveries: Journal of Analysis and Inventions, V.3, Issue 4, ISSN(E): 2938-3773, P.50-54, April – 2025, Испания, https://webofjournals.com/index.php/3/article/view/3880
6. Elmurotova D.B., Shodiev A.A., Mussaeva M.A. Impact of electron radiation on resistivity in YBCO and GdBCO high-temperature superconducting tapes // Web of scientist: international scientific research journal, ISSN: 2776-0979, V.6, Issue 5, may-2025, P.161-173, Indonesia, https://wos.academiascience.org/index.php/wos/article/view/2672
7. Elmurotova D., Fayziyeva N.A., Bozorov E.H. History of the discovery of radioactivity and x-rays, nuclear explosions explanation of the phenomenon research using interactive methods // Web of Discoveries: Journal of Analysis and Inventions, V.3, Issue 5, ISSN(E): 2938-3773, P.61-65, May-2025. Испания https://webofjournals.com/index.php/3/article/view/4233
8. Elmurotova D.B., Ro‘zimatova Sh.Sh., Umarova F.S. Insonning estetik tafakkuri // Лучшие интеллектуальные исследования, ISSN:3030-3680, Ч.45, Т.1, С.130-135, май-2025, Россия. scientific-jl.com/luch/.
9. Elmurotova D.B., Farmonova Sh.Sh., Umarova F.S. Borliq va bo‘shliq: mavjudlik chegaralari haqida tafakkur // Лучшие интеллектуальные исследования, ISSN:3030-3680, Ч.44, Т.5, С.411-416, май-2025, Россия. scientific-jl.com/luch/.

10. Elmurotova D.B., Jo’rayeva R.A, Umarova F.S. “Bilimning chegarasi va rad etilishi”: eskeptitsizm va bilimga bo‘lgan ishonchsizlik muammosi // Лучшие интеллектуальные исследования, ISSN:3030-3680, Ч.44, Т.5, С.417-423, май-2025, Россия. scientific-jl.com/luch/.
11. Elmurotova D.B., Umarova F.S., G’uzorova O.U. Hayot va o‘lim chegarasida: bioetikaning zamonaviy tibbiyotdagi o‘rni // Лучшие интеллектуальные исследования, ISSN:3030-3680, Ч.44, Т.4, С.261-266, май-2025, Россия. scientific-jl.com/luch/.
12. Elmurotova D.B., Bazarbayev M.I., Arzikulov F.F. Recommendations for improving the research methodology for digital image processing related to hand hygiene // The New Uzbekistan Journal of Medicine (NUJM), V.I, Issue I, Yanvar-2025, ISSN: 2181-2675, B.72-79, Uzbekiston, https://ijournal.uz/index.php/nujm/index
13. Элмуротова Д.Б., Арзикулов Ф. Физические основы протонной терапии // Ilm fan xabarnomasi, Sc.Bul., Вест.науки, V.5, №2, ISSN:3030-3931, IF:7.241, январь-2025, С.281-287. https://worldlyjournals.com/index.php/Yangiizlanuvchi/article/view/8273
14. Элмуротова Д.Б., Каттаходжаева Д.У., Ибрагимова Г.Ж. Физические принципы протонной терапии в медицине // Ta'lim innovatsiyasi va integratsiyasi, ISSN: 3030-3621, №39, T1, 02.2025, C.110-114. scientific-jl.org.
15. Elmurotova D.B., Odilova N.J., Jumanov Sh.E., Odilova E.U. Nanostrukturalarni o‘rganishning an’anaviy usullari va qurilmalari // World scientific research journal, V.36, Issue-1, 02.2025, C.155-161. https://scientific-jl.org/index.php/wsrj,
16. Elmurotova D.B., Farmonova Sh.Sh., Jo’rayeva R.A., Xusainova X.J. Odam askaridasining inson organizmiga biologik ta’siri // Ta'lim innovatsiyasi va integratsiyasi, ISSN: 3030-3621, №44, T4, 05.2025, B.50-54. scientific-jl.org.
17. Elmurotova D.B., Azamatova D.O’., G’uzorova O.U., Xusainova X..J. Lyambliyaning morfologiyasi, hayotiy sikli va biologik xususiyatlari // Ta'lim innovatsiyasi va integratsiyasi, ISSN: 3030-3621, №44, T3, 05.2025, B.197-202. scientific-jl.org.
18. Elmurotova D.B., Kattaxodjayeva D.U., Aytjanova A.Ye., Ibragimova G.J. Inson tanasidagi to'qimalar funksiyasi // Ustozlar uchun, V.72, №5, B.173-178, may-2025. Pedagoglar.org
19. Elmurotova D.B., Qo’shboqova S.D., Majlimov F.B., G‘oyibnazarov R.B. Ko’z kasalliklarining biofizik mexanizmlari // Ta'lim innovatsiyasi va integratsiyasi, ISSN: 3030-3621, №45, T2, 05.2025, B.186-189. scientific-jl.com.
20. Elmurotova D.B., Samiqova L.S., Majlimov F.B., G‘oyibnazarov R.B. Bronxial kasalliklarda nafas olish dinamikasining biofizik tahlili // Ta'lim innovatsiyasi va integratsiyasi, ISSN: 3030-3621, №45, T2, 05.2025, B.190-194. scientific-jl.com.