

## A rare lethal complication of larynxopharynx injuries by a foreign body

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### Abstract

A lethal complication of laryngopharynx injuries by foreign bodies is a rare phenomenon. Among foreign bodies are ingested together with food, fishbones are the most common. They can injure the mucous membrane of the larynx and pharynx due to the sharp edges, thereby causing inflammation, resulting in edema occurs, hyperemia and increased pain. Besides, foreign bodies can provoke complications such as bleeding, cervical phlegmon, subcutaneous emphysema, esophageal perforation, sepsis and others, which can lead to the death of patients. However, due to timely diagnosis, according to the scientific literature, such cases are extremely rare. Because the visualization of foreign bodies in the area of the larynx is difficult (especially when localized in the pyriform sinuses), laryngoscopy is used for diagnosis. Moreover, in some cases, X-ray examination and computed tomography are indicated. The paper presents a clinical observation of a 57-year-old patient M., whose cause of death was a rare complication of laryngopharynx injuries with a fishbone. When the patient was admitted to the department, the basic clinical diagnosis was established: laryngopharyngeal injury complicated by right parapharyngeal abscess. The patient underwent antibacterial, infusion, anti-inflammatory and antihypertensive therapy. At 20 hours after hospital admission, the patient had an abrupt loss of consciousness and cardiac arrest, then death. Based on the clinical picture, it was concluded that pulmonary thromboembolism was the probable cause of death. The autopsy revealed injury of the right external jugular vein, as a result of which develop thrombophlebitis, and then pulmonary artery thromboembolism, which caused the patient's death. No similar clinical descriptions were found in the available scientific literature.

**Keywords:** foreign body, fish bone, larynxopharynx, trauma, clinical observation.

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Foreign bodies usually enter the laryngopharynx with food. Fish bones are the most common among the foreign bodies of the laryngopharynx and cervical esophagus. In addition, foreign bodies can be objects accidentally taken to the mouth (nails, pins, sewing and medical needles, fish hooks, small toy parts), as well as dentures. If such foreign objects enter the upper digestive tract, they cause a high risk of damage to the mucous membrane and submucosa [1].

The main clinical symptoms of a foreign body in the laryngopharynx are pain, dysphagia, cough, and hypersalivation. Large foreign objects can result in respiratory obstruction. The severity of clinical symptoms depends on the size and shape of the foreign body, duration of stay, and localization [2].

Foreign bodies in the laryngopharynx can cause various complications, and many of which can be

fatal, namely, bleeding, esophagus perforation, submandibular lymphadenitis, lateropharyngeal abscess, neck phlegmon, subcutaneous emphysema, mediastinitis, and sepsis [2]. The development of complications is associated with the inflammatory process at the site of the foreign object introduction and the anatomical connection of the laryngopharynx with the neck cellular spaces. However, at present, deaths are rare because of timely diagnostics using endoscopic examination and computed tomography [3–6]. In the available literature of recent years, two clinical cases have been described that ended in death from asphyxia as a result of large foreign bodies entering the laryngopharynx in psychiatric patients [7, 8].

Among the rare complications caused by a foreign body of this localization, a group of scien-

tists from China reported a fish bone that migrated from the laryngopharynx to the thyroid gland in a 31-year-old woman. The bone was successfully removed 2 months after the onset of symptoms and 3 months after the bone entered the body [1]. Leonard et al. [9] also reported a case of a 72-year-old man who visited a clinic with pain in the left half of the anterior surface of the neck persisting for 3 weeks. The pain occurred during food intake and started when the patient felt that he had swallowed a fish bone. Simultaneously, he had no dysphagia, shortness of breath, or hemoptysis. An endoscopic examination revealed no signs of laryngeal pathology, whereas computed tomography found a traumatic laryngocele localized in the left piriform sinus. It has been noted that this could be caused by trauma to the laryngopharynx.

We would like to share our own clinical case of a rare complication of a foreign body in the laryngopharynx that had a lethal outcome.

*Clinical case.* On October 5, 2018, Patient M, 57 years old, visited the admission department of the G.A. Zakharyin State Clinical Hospital No. 6 (Penza, Russia) with complaints of sore throat, fever, and general atony. The anamnesis revealed that the pain appeared about 5 days after the patient choked on a fish bone, which he removed independently. During the last 2 days, the pain increased significantly and accompanied by fever and general atony.

In the admission department, the patient was examined by a therapist and an otorhinolaryngologist, and diagnostic measures were performed, including general blood count, fibrolaryngoscopy, fibrogastrosocopy, and electrocardiography.

As a result, the foreign body in the pharynx and esophagus was not found. Mesopharyngoscopy and fibroscope examination revealed that the mucous membrane of the right half of the posterior pharyngeal wall was edematous and hyperemic within the oropharynx and laryngopharynx, and it is covered with fibrin deposits in the area of the right piriform sinus. The general blood analysis showed leukocytosis ( $23.6 \times 10^9/L$ ) and thrombocytopenia ( $95 \times 10^9/L$ ). Based on the data obtained, the primary clinical diagnosis was an injury of the laryngopharynx complicated by parapharyngitis on the right. In addition, the patient had a concomitant diagnosis of ischemic heart disease, arrhythmic variant, paroxysmal atrial fibrillation, and stage III hypertension risk IV.

The patient was admitted to the otorhinolaryngology department. Antibiotic therapy was conducted (ceftriaxone 1.0 g intramuscularly together with clarithromycin [Klacid] 500 mg intravenously every 12 h), as well as infusion therapy (sodium

chloride 0.9% 400 mL intravenously and dextrose [glucose] solution 10% 400 mL with insulin 8 U and potassium chloride solution 1% 30 mL intravenously), anti-inflammatory therapy (diclofenac 75 mg intramuscularly once per day), and antihypertensive therapy (enalapril 5 mg twice a day and indapamide 2.5 mg once a day).

During treatment, the patient noted a decrease in pain, while febrile fever persisted. Further examination revealed deviations in laboratory parameters, including increased creatinine (272  $\mu\text{mol/L}$ ) and urea (23 mmol/L) levels in the biochemical blood test, hyperglycemia (8.49 mmol/L), and elevated protein (0.84 g/l) level and leukocyte count (4–6 in the field of view) in the general analysis of urine.

On November 11, 2018, after 20 h since arrival at the admission department, the patient experienced sudden loss of consciousness and cardiac arrest. Resuscitation measures were ineffective. Based on the clinical presentation, it was concluded that the probable cause of death was pulmonary artery thromboembolia.

Autopsy revealed a puncture wound with a 3-mm diameter in the area of the right piriform sinus. The wound spread to the underlying tissues, passing through the two walls of the right external jugular vein. The tissue surrounding the vein of the lateral parapharyngeal space had a dirty gray color and contained purulent discharge with a volume of about 2 mL. Granulation tissue growth was noted along the edges of the wound of the external jugular vein. A floating thrombus with a length of about 18 cm with a fixation point in the area of the wound edges was revealed in the vein lumen. In addition, a forensic study of the respiratory system revealed a pattern of pulmonary artery thromboembolia.

Based on the autopsy results, a forensic medical diagnosis was established. The underlying disease is a stab wound of the laryngopharynx with complications such as right-sided purulent-necrotizing parapharyngitis, right external jugular vein thrombophlebitis, pulmonary artery thromboembolia, focal hemorrhages, emphysema foci and lung atelectasis, partial adrenal cortex cell defatting, plethora, and cerebral edema in the presence of diapedetic hemorrhages. Concomitant diseases were noted, including atherosclerotic cardiosclerosis, nonstenotic atherosclerosis of the coronary arteries, myocardial hypertrophy and dystrophy, congestive plethora of the liver, pneumosclerosis, and arteriolar nephroscleroses.

Thus, when comparing the clinical and forensic medical diagnoses, their coincidence was established.

*Conclusion:* The death of Patient M was due to thromboembolia of the pulmonary artery, which

was caused by a rare complication of the laryngo-pharynx injury by a foreign body (right external jugular vein thrombophlebitis). We were unable to find similar clinical descriptions in the available literature.

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