

Abstract

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A RARE FOREIGN BODY IN THE CHEST UNDER COVID-19 EPIDEMIC CONDITIONS

One of the negative factors of civilization around the world is the significant growth of injury rate. The manifestations of the latter include suicidal acts that occur in the process of social and individual life. Sometimes people commit suicide because of having incurable diseases. Alcohol addiction contributes to suicide risk.

Study Objectives. To share with the general medical community the rare case of suicidal trauma which seemed fatal but resolved favorably, though it was not immediately verified. Only after performing a radiological examination in two projections, the subject of suicidal action was detected.

Materials and Methods. We observed a case of a suicide victim: a 55-year-old patient who, being impaired by alcohol, decided to commit suicide after learning about COVID-19 mortality. One hour later he was admitted to the emergency department.

Results and Discussion. After stabbing himself with a kitchen knife, a 55-year-old patient called an ambulance and was delivered in satisfactory condition to the emergency surgical department in 1 hour after the injury. There were no signs of bleeding or its consequences or manifestations of vena cava compression. Hemodynamics was stable; there were no external respiration disorders. Clinical blood test was within normal range. Revision of the wound in the lower neck was performed. At a depth of 2.5 cm, something perceived as sternal notch was located manually, which later turned out to be a foreign body. Due to the location of the injury, it was decided to hospitalize the injured patient for observation. Plain and lateral radiography was performed. Longitudinal sternotomy was chosen for access. Under the entrance wound in the neck, in the lateral mediastinum above the root of the lung, a knife was found above the diaphragm penetrating the parenchyma of the lower lobe. After removing the knife, the lung wound was sutured. The postoperative period ended successfully.

Conclusions. Before surgery, an imaging study with at least two different views is mandatory for all chest wounds. If possible, thoracotomy should be scheduled for the daytime.

Keywords: pleura, suicide, foreign body.

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Резюме

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РІДКІСНЕ СТОРОННЄ ТІЛО ГРУДНОЇ ПОРОЖНИНИ ЗА УМОВ ЕПІДЕМІЇ COVID-19

Одним із негативів цивілізації в усьому світі є значне поширення травматизму. До проявів останнього відносяться і суїцидальні дії, які трапляються у осіб в процесі суспільного й індивідуального життя. Відомі випадки таких дій при невиліковних хворобах. Сприяє суїциду пристрасть до алкоголю.

Мета дослідження. Поділитись з широким медичним загалом рідкісним випадком суїцидальної травми, яка, незважаючи на, здавалося б, несумісність з життям, закінчилася сприятливо проте не була відразу верифікована. Проведення променевого обстеження у двох проекціях дозволило встановити предмет суїцидальної дії.

Матеріали і методи. Під нашим спостереженням був постраждалий від суїциду – хворий 55 років, який у стані алкогольного сп'яніння, начувавшись про смертність від COVID-19, вирішив укоротити собі життя. Через одну годину був госпіталізований в ургентне хірургічне відділення.

Результати і їх обговорення. Після удару себе кухонним ножом хворий 55 років сам викликав швидку допомогу, доставлений у задовільному стані в ургентне хірургічне відділення через 1 годину після травми. Ознак кровотечі і її наслідків та проявів стиснення порожнистої вени не було. Гемодинаміка стабільна, порушення зовнішнього дихання відсутні. Клінічні дослідження крові без відхилень від норми. Виконана ревзія рани у нижніх відділах шиї. На глибині 2,5 см прощупано «вирізку груднини», яка потім виявилася стороннім тілом. Було вирішено травмованого госпіталізувати для спостереження у зв'язку з локалізацією травми. Виконано оглядову і бокову рентгенографію. Повздожжня стеномія. Між вхідним отвором на шиї по боковій поверхні середостіння над коренем легене знайдено ніж, пронизавши паренхіму нижньої долі, «розташувались» над діафрагмою. Після видалення ножа рана легене ушита. Післяопераційний період закінчився благополучно.

Висновки. При всіх ранах грудної клітки обов'язковим є мінімально двопрофільне променеве обстеження, лише після цього – хірургічна обробка. За потреби торакотомії і можливості її відтермінування оперативне втручання проводити у денний час.

Ключові слова: плевра, суїцид, стороннє тіло.

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How to cite/ Як цитувати статтю: Duzhyi ID, Holubnychyi SO, Miroshnichenko YuI, Yasnikovskiy OM, Hresko IYa, Pak SYa. A rare foreign body in the chest under COVID-19 epidemic conditions. *EUMJ*. 2021;9(3):256-261

DOI: [https://doi.org/10.21272/eumj.2021;9\(3\):256-261](https://doi.org/10.21272/eumj.2021;9(3):256-261)

Introduction/Вступ

In addition to all the benefits of civilization, modern multi-vector life carries many negative factors with a special place occupied by traumatism, including domestic injuries, traffic

accidents, occupational injuries, military injuries, etc. [1, 2]. In recent years, the injuries caused by criminals have become increasingly common. A special place in traumatism is occupied by suicidal acts, but their frequency and significance

in the context of the COVID-19 epidemic is not clear so far.

In addition to the immediate risk of large vessel injury, a foreign body in the thoracic cavity correlates with arrosive bleeding risk, which presents with life-threatening consequences [3]. In addition, foreign bodies in the thoracic cavity imply the risk of pleural empyema and mediastinitis, which can be complicated by sepsis and/or multiple organ failure with well-known consequences [4].

Foreign bodies are diagnosed on the basis of careful collection of medical history. This is especially true in cases of chronic, long-term presence of foreign bodies in the thoracic cavity. The role of history taking is very important. Physical examination may fail to diagnose and, especially, to localize foreign bodies. In view of this, every effort should be made not to miss out a possible foreign body in the thoracic cavity, because it may be "silent" and non-disturbing for some time [5].

The objective of our paper is to share a rare case of suicidal injury, the subject of which was not immediately detected.

Materials and Methods

We observed a case of a 55-year-old patient who, being impaired by alcohol, self-diagnosed COVID-19 and struck himself in desperation with a kitchen knife in the lower part of the neck above the sternum. As a result, there was a slight bleeding, which "resolved" on its own.

An hour later, the patient was taken by ambulance to the emergency surgery department. On the anterior neck, 1.0 cm above the jugular notch, a transversely directed wound 1.5 cm long with smooth edges was spotted, with no bleeding from the wound. Surgical treatment of the wound with visual revision and digital examination was performed. At a depth of 2.5 cm, something perceived as sternal notch was located manually.

Results

Given the patient's condition and the area of injury, it was decided that the patient would stay in the hospital until the morning. There were no other behavioral disorders, apart from a slight articulation disorder of alcoholic genesis, which was determined by the smell of alcohol and uncoordinated movements. He answered the

questions reluctantly and was somewhat pale. Body temperature: 36.4 °C. Respiratory movements: 18 per 1 min. Systemic blood pressure: 130/80 mm Hg, pulse: 88–92'. Clinical blood test: WBC – $6.8 \times 10^9/L$, WBC differential – within normal range. RBC – $3.9 \times 10^{12}/L$, ESR – 28 mm/h. 20 minutes after surgical treatment was performed, before hospitalization the patient was tested for SARS-COV-2 antigen (nasopharyngeal swab); the result was found negative after 25 minutes. A chest X-ray was performed immediately supplemented by right lateral radiography. Based on the results obtained, a knife up to 35 cm long was detected placed from the upper thoracic aperture downward in the direction of the posterior diaphragm and parallel to the interstitium. No additional formations such as fluid or blood clots were determined either in the interstitium, or in the pleural cavity (Fig. 1, 2). Final diagnosis: a foreign body in the anterior mediastinum and right thoracic cavity (a knife).

Given the nature of the foreign body, its location in the thoracic cavity, and the possibility of displacement and bleeding, it was decided to operate urgently. The operation was performed 30 minutes after radiography. A longitudinal sternotomy performed with a Gigli saw was chosen for surgical access.

When performing a sternotomy and revision of the anterior thoracic cavity, a foreign body (a kitchen knife) was found in the anterior mediastinum and right pleural cavity; it located anteroposteriorly, top to bottom, above the right lung root, partly through the parenchyma of the lower right lung (C_{10}), with sharp edge turned back. The knife was removed without further tissue injury, with its sharp part isolated with napkins. The lung wound was sutured. After haemostasis control, pleural cavity and anterior mediastinum were drained in typical places and the wound sutured. In the postoperative period right lower lobe pneumonia and pleurisy developed. Treatment was carried out according to the standard regimen. The antibiotic (Ceftriaxone) was administered by lymphotropic method for 8 days. The patient was discharged on the 9th day in satisfactory condition to be followed up by a surgeon. After 12 months, the patient was apparently healthy.

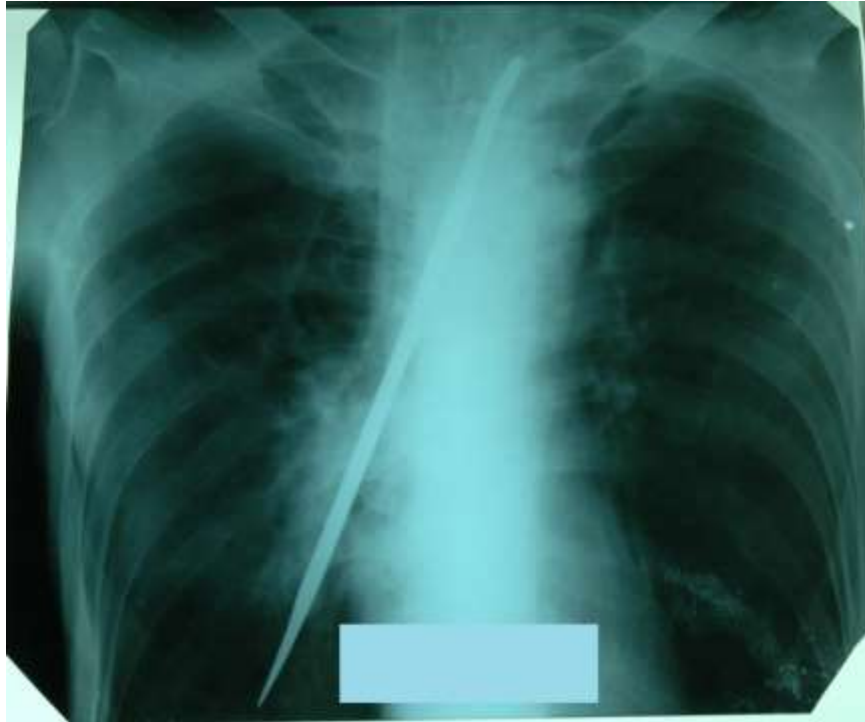


Figure 1 – Plain radiograph of the chest of patient X. A foreign body in the chest

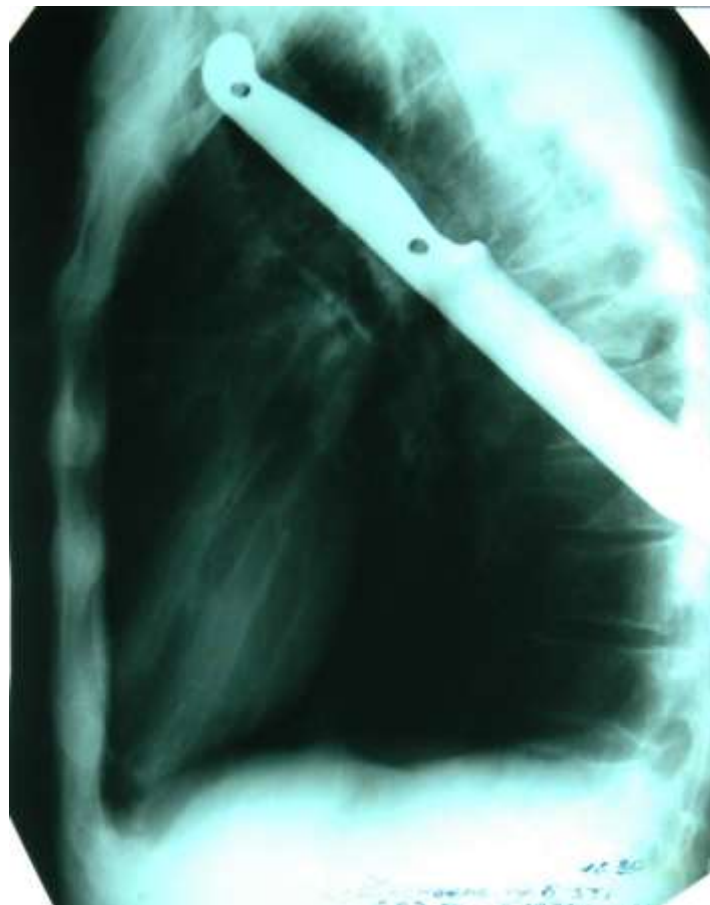


Figure 2 – Plain right lateral radiograph of the chest of patient X. A foreign body (a kitchen knife) in the mediastinum and pleural cavity

Discussion of the Results

Under the conditions of psychological social tension against the background of the COVID-19 epidemic, the patient being impaired by alcohol decided to commit suicide by stabbing himself with a knife in the anteroinferior part of the neck. A kitchen knife 35 cm long passed behind the sternum through the anterior mediastinum above the root of the right lung in the direction of the posterior pleural cavity and partially injured the basal areas of the lower lobe (C₁₀). Despite the fact that the

sharp edge of the knife was directed dorsally, no main vessel was damaged. There were no hematomas in the mediastinum and pleural cavity. Postoperative management of the mediastinum and pleural cavity was performed according to the standard protocols. The peculiar feature of the patient's postoperative management lied in the lymphotropic administration of antibiotics, which allowed to discharge the patient immediately after removal of sutures. In the long-term period (12 months) the patient was apparently healthy.

Conclusions/Висновки

Given the literature data, the above case and our own experience in the diagnosis and treatment of foreign bodies in the thoracic cavity, it should be remembered that localization of foreign bodies in the thoracic cavity may be unpredictable depending on the functional state of the patient and his position at the time of injury. In view of this, special attention should be paid to clarifying these factors when collecting medical history. When

performing surgical treatment of the wound, it is advisable to perform radiography of penetrating wounds in addition to visual and digital examination. Imaging studies should be conducted using several radiographic views. It is important to choose surgical access carefully for surgical intervention. In most patients, surgery should be scheduled for a daytime period, as the involvement of specialized doctors may be required.

References/Список літератури

1. Makarov AV, Hetman VH, Desiateryk VI. *Torakalna travma* [Thoracic injury]. Kryvyi Rih: SP Mira Publ., 2005. 234 p.
2. Zarutskoho YaL, Shudraka AA. *Vkazivky z voienno-polovoi khirurgii* [Orders from the military-polish surgery]. Kyiv SPD Chalchynska NV Publ., 2014. 396 p.
3. Duzhyi I. *Khirurgiia tuberkulozu lehen ta plevry* [Pulmonary and pleural tuberculosis surgery]. Kyiv: Zdorovia, Sumy: VAT SOD, Vydavnytstvo Kozatskyi val Publ., 2003. 360 p.
4. Sheiko VD, Kryzhanovskiy OA, Panasenko SI, Kaliuzhna SI, Nebaba SV. [Clinical supervision and management for patients with uncommon chronic pleural empyema]. *Visnyk VDNZU Ukrainska medychna stomatolohichna akademiia*. Tom 13. Vypusk 1 (41):348-350.
5. Kolos AY, Dzhyeshev ZhA, Aitbaeva AK, Herasymova MV [Foreign bodies in the chest: diagnosis and surgical treatment] *Clinical Medicine of Kazakhtan*. 2015; 4(38):79-82.

(received 22.07.2021, published online 29.09.2021)

(одержано 22.07.2021, опубліковано 29.09.2021)

Conflict of interest/Конфлікт інтересів

The authors declare no conflict of interest.

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