

A Silent Threat: A Case of Descending Necrotizing Mediastinitis Following Dental Treatment and Refusal of Medical Care

 Ibrahim Halil Yasak¹,  Duygu İclal Gerger¹

¹Harran University Faculty of Medicine, Department of Emergency Medicine, Şanlıurfa, Türkiye

Abstract

Descending necrotizing mediastinitis (DNM) is a rare but life-threatening clinical condition that arises when infections originating in the head and neck extend into the mediastinum. In this case, we evaluate a 41-year-old male patient without any known systemic illness who presented with dysphagia, facial swelling, and dyspnea approximately three weeks after a dental filling procedure. Imaging revealed air-containing collections in the parapharyngeal space and subcutaneous emphysema extending toward the mediastinum. Despite detailed counseling regarding the risks, the patient refused hospitalization and surgery recommended by a multidisciplinary team. Oral antibiotic therapy was initiated, and close outpatient monitoring was advised. The clinical course of this case highlights the rapidly progressive nature of DNM and the ethical complexities arising from treatment refusal. It underscores the potential for systemic spread of localized infections after dental procedures, emphasizing the importance of early diagnosis, thorough patient education, and close follow-up whenever possible.

Keywords: Descending necrotizing mediastinitis, ethical considerations, odontogenic infection, subcutaneous emphysema, treatment refusal

Introduction

Mediastinitis is an infectious inflammation of the mediastinal space. Although rare, it presents a serious, life-threatening clinical picture. Most acute mediastinitis cases are associated with major causes such as cardiothoracic surgery or esophageal perforations. However, the less common descending necrotizing mediastinitis (DNM) usually results from odontogenic infections spreading to the mediastinum through cervicofacial tissue planes. The potential for oropharyngeal or neck infections to reach the mediastinum rapidly via parapharyngeal, retropharyngeal, and prevertebral spaces necessitates early recognition and aggressive treatment of the disease (1,2).

Here, we present a rare case of descending necrotizing mediastinitis that developed following a dental filling and progressed through cervical fascial planes to involve mediastinal structures, with the patient ultimately refusing treatment.

Case Report

A 41-year-old male patient with no known systemic illnesses presented to the emergency department with complaints

of facial swelling, sore throat, dysphagia, and increasing dyspnea. The patient reported progressive difficulty swallowing and inability to eat orally in the days following a dental filling procedure performed approximately 20 days earlier. He had previously sought care at another healthcare facility, but his symptoms had worsened despite treatment.

On physical examination, the patient was cooperative and oriented, with a moderate general condition. His temperature was 38.2°C, heart rate 110 bpm, blood pressure 125/80 mmHg, respiratory rate 24/min, and SpO₂ 94% on room air. Oropharyngeal examination revealed marked hyperemia, edema at the epiglottis, purulent discharge, and subcutaneous emphysema in the neck. Mild trismus and bilateral cervical lymphadenopathy were observed. No abnormalities were detected on thoracic examination.

Laboratory tests showed leukocytosis (18,500/μL), elevated C-reactive protein (285 mg/L), and procalcitonin (4.2 ng/mL), consistent with sepsis. The lactate level was 2.1 mmol/L.

Contrast-enhanced cervicothoracic CT revealed well-capsulated collections containing free air in both parapharyngeal spaces extending to the tongue base and floor of the mouth. The collection measured 38×32 mm on the

Corresponding Author: Ibrahim Halil Yasak

e-mail: dr_ihy@hotmail.com

Received: 22.07.2025 • **Revision:** 08.10.2025 • **Accepted:** 19.10.2025

DOI: 10.33706/jemcr.1748268

©Copyright 2020 by Emergency Physicians Association of Turkey - Available online at www.jemcr.com

Cite this article as: Yasak İH, Gerger Dİ. A Silent Threat: A Case of Descending Necrotizing Mediastinitis Following Dental Treatment and Refusal of Medical Care. *Journal of Emergency Medicine Case Reports.* 2025;16(4): 164-166

right and approximately 40 mm on the left, extending into the submandibular space and subcutaneous tissue. The left-sided lesion significantly narrowed the airway, and air-containing collections were also noted in the upper mediastinum. Bilateral minimal pleural effusion was present (Figure 1).

Urgent consultations were requested from the Otorhinolaryngology and Thoracic Surgery departments. The infection was determined to be odontogenic in origin. Due to the risk of mediastinal spread, urgent hospitalization, surgical drainage, and intensive supportive care were recommended. Potential complications, including septic shock, respiratory failure, and death, were thoroughly explained to the patient. Despite this, the patient refused hospitalization and surgical intervention and was discharged at his own request. Oral antibiotic therapy (amoxicillin-clavulanate 1000 mg twice daily for 10 days) was initiated, and emergency warning signs were explained in detail. Follow-up in the ENT outpatient clinic within 24 hours was recommended. During a follow-up phone call, the patient reported no significant change in symptoms, but could not be reached thereafter, and no further hospital visits were recorded.

Discussion

Descending necrotizing mediastinitis is a rare but highly fatal condition resulting from the spread of cervicofacial infections into the mediastinum. Common pathogens include *Streptococcus* species, anaerobes, and *Staphylococcus aureus* (1,3). The disease typically progresses from oropharyngeal or odontogenic infections that spread via the retropharyngeal and prevertebral spaces. Anatomically, the parapharyngeal space communicates with the thoracic cavity at the level of the first rib, facilitating downward infection spread (2).

In this case, the infection following a dental filling rapidly extended into the parapharyngeal spaces and subsequently

into the mediastinum. Infections of the mandibular molars may progress into the submandibular region and parapharyngeal areas, compromising the airway and leading to sepsis-constituting a medical emergency (4,5).

Contrast-enhanced cervicothoracic CT is the most valuable diagnostic tool for identifying deep neck infections and mediastinal involvement (6). Findings such as air-containing collections, subcutaneous emphysema, and fascial plane expansion are diagnostic indicators.

Combined cervical and thoracic drainage is critical for reducing mortality in DNM cases (1). Isolated cervical surgery is often insufficient and may lead to systemic complications(7). Early and aggressive intervention, broad-spectrum antibiotics, and intensive supportive care are essential. Recently, minimally invasive techniques (e.g., VATS) have been favored and have yielded favorable outcomes in selected cases (8).

This case also raises important ethical and legal considerations. According to Turkish regulations, patients have the right to refuse medical treatment even in life-threatening situations, provided that informed consent is given. In accordance with Articles 24–25 of the Turkish Patient Rights Regulation, written informed consent was obtained from the patient for publication of this case report. In such cases, the physician is obliged to provide comprehensive information, offer treatment options, and obtain written consent. This approach forms the ethical and legal foundation of the physician-patient relationship (9). In this case, refusal of treatment has created both a clinical and an ethical dilemma. The patient's refusal of treatment with informed consent has left the physician with the responsibility of balancing the principles of "beneficence" and "autonomy." The literature indicates that refusal of treatment in life-threatening situations is a significant source of ethical stress for physicians and that ethical counseling or team-based decision support may be beneficial in this

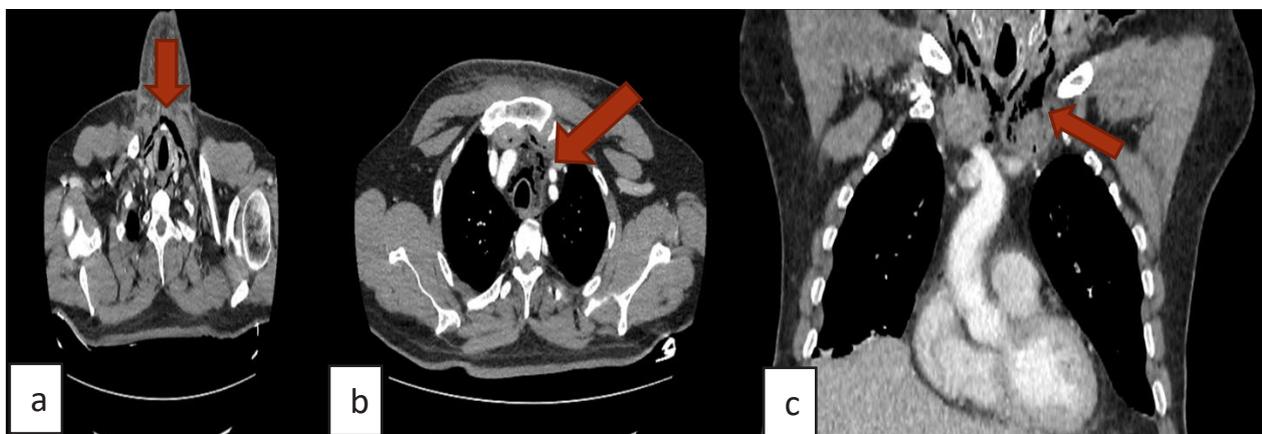


Figure 1. CT findings of mediastinitis. (a) Cervical axial section shows walled, air-containing collections and subcutaneous emphysema in the parapharyngeal and retropharyngeal areas. (b) Thoracic axial section shows free air images extending into the anterior and posterior mediastinum. There is extension adjacent to the trachea. (c) Coronal view shows extension of the collections to the upper mediastinum, obliteration of the mediastinal fat planes and bilateral minimal pleural effusion.

process (10,11). In such cases, it is ethically important to document the information and consent process in writing, to do so in the presence of a witness if possible, and to offer the patient alternative follow-up plans. This ensures that the physician fulfills their professional obligations.

Risk factors for odontogenic mediastinitis include diabetes mellitus, immunodeficiency, poor oral hygiene, and inadequate follow-up after dental procedures (5). Although no systemic risk factors were present in this case, a common procedure like a dental filling led to a serious infection. Post-dental procedure symptoms such as dysphagia, trismus, and facial swelling may be early indicators of mediastinal spread.

Conclusion

This case demonstrates that even after a simple dental procedure, fatal mediastinitis can develop. Early diagnosis, evaluation with contrast-enhanced CT, and a multidisciplinary approach are of vital importance. However, in cases of treatment refusal, physicians must comprehensively inform the patient, document the potential risks, and establish the closest possible follow-up plan. Reporting such cases increases clinician awareness and sheds light on the ethical and practical consequences of treatment refusal.

To protect patient confidentiality, this case report has been anonymized, and all sensitive or identifying data have been excluded. The full dataset is available to the editor and reviewers upon request and has been securely retained.

Declaration of competing interest: The authors declare no competing interests.

References

1. Marty-Ané CH, Berthet JP, Alric P, Pegis JD, Rouvière P, Mary H. Management of descending necrotizing mediastinitis: an aggressive treatment for an aggressive disease. *Ann Thorac Surg.* 1999;68(1):212-217.
2. Prado-Calleros HM, Jiménez-Fuentes E, Jiménez-Escobar I. Descending necrotizing mediastinitis: Systematic review on its treatment in the last 6 years, 75 years after its description. *Head Neck.* 2016;38 Suppl 1:E2275-E2283.
3. Brook I. Microbiology and management of deep facial infections and Lemierre syndrome. *ORL J Otorhinolaryngol Relat Spec.* 2003;65(2):117-120.
4. Brook I. Microbiology and antimicrobial management of head and neck infections in children. *Adv Pediatr.* 2008;55:305-325.
5. Sakamoto H, Aoki T, Kise Y, Watanabe D, Sasaki J. Descending necrotizing mediastinitis due to odontogenic infections. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2000;89(4):412-419.
6. Wang B, Gao BL, Xu GP, Xiang C. Images of deep neck space infection and the clinical significance. *Acta Radiol.* 2014;55(8):945-951.
7. Wheatley MJ, Stirling MC, Kirsh MM, Gago O, Orringer MB. Descending necrotizing mediastinitis: transcervical drainage is not enough. *Ann Thorac Surg.* 1990;49(5):780-784.
8. Zhao Z, Ma D, Xu Y et al. Surgical therapy and outcome of descending necrotizing mediastinitis in Chinese: a single-center series. *Front Med (Lausanne).* 2024;10:1337852.
9. Republic of Türkiye Ministry of Health. Patient Rights Regulation [Internet]. *Resmî Gazete*, 01 Aug 1998, No. 23420. Available from: <https://www.saglik.gov.tr/EN-15627/patient-rights.html>. Cited 2025 Jul 20.
10. Palmer RB, Iserson KV. The critical patient who refuses treatment: an ethical dilemma. *J Emerg Med.* 1997;15(5):729-733.
11. Al-Wathinani AM, Barten DG, Alsahli H, et al. The Right to Refuse: Understanding Healthcare Providers' Perspectives on Patient Autonomy in Emergency Care. *Healthcare (Basel).* 2023;11(12):1756.