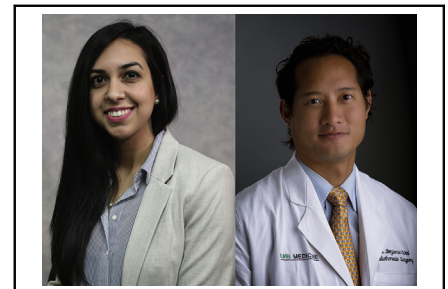


See Article page 633.



Commentary: Descending necrotizing mediastinitis: Reclassifying a rare disease

Swara Bajpai, MD,^a and Benjamin Wei, MD^b



Swara Bajpai, MD, and Benjamin Wei, MD

Descending necrotizing mediastinitis (DNM), although rare, is the most severe form of mediastinal infection with high mortality (up to 40%) often due to delay in diagnosis or inadequate surgical drainage. Research is fairly limited on this condition and no definitive guidelines on the optimal treatment of DNM exist.¹⁻³ Sugio and colleagues⁴ conducted a multi-institutional study to assess clinical features and surgical outcomes of DNM and suggest a new classification system. Their retrospective study looked at 225 DNM patients who underwent surgical drainage over a period of 4 years from an impressive 131 centers in Japan.

DNM was first classified by Endo and colleagues⁵ in 1999 according to the degree of mediastinal extent; infections limited to the area superior to the carina were defined as Type I, whereas those spreading to the lower mediastinum (LM) were defined as Type II with subdivisions of Type IIA for involvement of the anterior LM and Type IIB for involvement of both anterior and posterior LM. Sugio and colleagues⁴ propose a new classification system with an additional category of Type IIC for infections limited to the posterior LM. The study revealed that Type I and IIC more frequently underwent cervical drainage, whereas Type IIA and B were treated more often with thoracotomy. Although more than 70% of their patients received a tracheostomy and the median length of hospital

CENTRAL MESSAGE

This analysis of descending necrotizing mediastinitis demonstrates the utility of adding a proposed IIC category (isolated posterior lower mediastinitis) to the existing classification system.

stay was 47 days, 30- and 90-day mortality rates of the entire cohort were only 3.6% and 5.3%, respectively. Type II infections had a higher likelihood of 90-day mortality with a trend toward better short-term survival in Type IIC. Sugio and colleagues⁴ attributed their low short-term mortality rate to an overall decrease in disease severity due to their inclusion of Otolaryngology institutions in the analysis. Early surgical intervention (median of 2 days from initial assessment to drainage) and a focus on thorough source control (20% and 30% of patients underwent repeat mediastinal and cervical drainage operations, respectively) could have contributed to their low mortality rate as well.

Reports stress that it is important to take the extent of infection into account when selecting surgical approaches.⁶ Previous studies have proposed that diffuse anterior and posterior DNM as in Type IIB demands complete mediastinal drainage via thoracotomy. In comparison, infection that has spread to only posterior mediastinum, although typically categorized as Type IIB, may not mandate aggressive drainage.⁴ Along those lines, this study looked at the previously unreported category of extension limited to the posterior mediastinum (ie, new category IIC), which comprised more than one-third of their Type II cases, for which effective drainage was often performed via video-assisted thoracoscopic surgery or transcervical approach. Because of the lack of consensus in the optimal surgical approach for this disease, any clarification in DNM classification will be beneficial in guiding surgeons toward minimal versus aggressive treatment. Sugio and colleagues,⁴

From the ^aDepartment of Surgery, General Surgery Residency Program, and ^bDivision of Cardiothoracic Surgery, Department of Surgery, University of Alabama at Birmingham and Birmingham VA Medical Center, Birmingham, Ala. Disclosures: The authors reported no conflicts of interest.

The *Journal* policy requires editors and reviewers to disclose conflicts of interest and to decline handling or reviewing manuscripts for which they may have a conflict of interest. The editors and reviewers of this article have no conflicts of interest.

Received for publication Aug 20, 2021; revisions received Aug 20, 2021; accepted for publication Aug 20, 2021; available ahead of print Sept 3, 2021.

Address for reprints: Benjamin Wei, MD, Division of Cardiothoracic Surgery, Department of Surgery, University of Alabama at Birmingham Medical Center and Birmingham VA Medical Center, 703 19th St S, Zeigler Research Building, Room 701, Birmingham, AL 35294 (E-mail: bwei@uab.edu).

JTCVS Open 2021;8:650-1
2666-2736

Published by Elsevier Inc. on behalf of The American Association for Thoracic Surgery. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).
<https://doi.org/10.1016/j.jxjon.2021.08.029>

in a report that will likely become a benchmark study on DNM, provide a detailed descriptive analysis of the patterns of DNM infection, especially with regard to route of spread and the differing attributes and surgical approaches to such infections. Hopefully, this article can serve as a reference point for development of future guidelines for treatment of DNM.

References

1. Guan X, Liang X, Liang X, Wang F, Qian W, Zhang W. A new classification of descending necrotizing mediastinitis and surgical strategies. *Ann Transl Med.* 2021;9:356.
2. Novakov IP, Safev GP, Peicheva SE. Descending necrotizing mediastinitis of odontogenic origin-personal experience and literature review. *Folia Med (Plovdiv).* 2010;52:13-20.
3. 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):E2275-83.
4. Sugio K, Okamoto T, Maniwa Y, Toh Y, Okada M, Yamashita T, et al. Descending necrotizing mediastinitis and the proposal of a new classification. *J Thorac Cardiovasc Surg Open.* 2021;8:633-47.
5. Endo S, Murayama F, Hasegawa T, Yamamoto S, Yamaguchi T, Sohara Y, et al. Guideline of surgical management based on diffusion of descending necrotizing mediastinitis. *Jpn J Thorac Cardiovasc Surg.* 1999;47:14-9.
6. Sakai T, Matsutani N, Ito K, Mochiki M, Mineda J, Shirai S, et al. Deep cervical and paratracheal drainage for descending necrotizing mediastinitis. *Asian Cardiovasc Thorac Ann.* 2020;28:29-32.