Cervical Spine Osteomyelitis after Esophageal Dilation in Patients with a History of Laryngectomy or Pharyngectomy and Pharyngeal Irradiation

Richard A. Goldman, MD
*Thomas Jefferson University Hospital*, richard.goldman@jefferson.edu

Jill N. D'Souza, MD
*Thomas Jefferson University Hospital*, jillndsouza@gmail.com

Adam J. Luginbuhl, MD
*Thomas Jefferson University Hospital*, adam.Luginbuhl@jefferson.edu

Joshua E. Heller, MD
*Thomas Jefferson University Hospital*, Joshua.Heller@jefferson.edu

Joseph M. Curry, MD
*Thomas Jefferson University Hospital*, Joseph.Curry@jefferson.edu

Let us know how access to this document benefits you

Follow this and additional works at: [http://jdc.jefferson.edu/otograndrounds](http://jdc.jefferson.edu/otograndrounds)

Part of the [Otolaryngology Commons](http://jdc.jefferson.edu/otograndrounds)

Recommended Citation


[http://jdc.jefferson.edu/otograndrounds/31](http://jdc.jefferson.edu/otograndrounds/31)

This Article is brought to you for free and open access by the Jefferson Digital Commons. The Jefferson Digital Commons is a service of Thomas Jefferson University's Center for Teaching and Learning (CTL). The Commons is a showcase for Jefferson books and journals, peer-reviewed scholarly publications, unique historical collections from the University archives, and teaching tools. The Jefferson Digital Commons allows researchers and interested readers anywhere in the world to learn about and keep up to date with Jefferson scholarship. This article has been accepted for inclusion in
Authors
Richard A. Goldman, MD; Jill N. D'Souza, MD; Adam J. Luginbuhl, MD; Joshua E. Heller, MD; Joseph M. Curry, MD; and David M. Cognetti, MD

This poster is available at Jefferson Digital Commons: http://jdc.jefferson.edu/otograndrounds/31
Cervical Spine Osteomyelitis after Esophageal Dilation in Patients with a History of Laryngectomy or Pharyngeal and Pharyngectomy Irradiation

Richard A. Goldman MD1, Jill N. D’Souza MD1, Adam J. Lugimbuhl MD1, Joshua E. Heller MD2, Joseph M. Curry MD1, David M. Cognetti MD1
1Department of Otolaryngology-Head and Neck Surgery, Thomas Jefferson University, Philadelphia, PA

Introduction

A 72 year old male with a history of laryngectomy was initially treated with radiation therapy twenty years prior to presentation. Ten years prior to presentation he experienced a second occurrence of laryngeal cancer treated with total laryngectomy and 5-FU chemotherapy. One year prior to presentation he began experiencing progressive dysphagia which was treated with serial esophageal dilations every 3.5 weeks at another institution. The details of these procedures are summarized in Table 1. He underwent persistent pain and fever; imaging revealed a retropharyngeal collection with concern for cervical osteomyelitis. He was a high risk patient and managed medically with antibiotics when he presented to our institution for a second opinion. Follow-up imaging revealed progressive destruction of the cervical spine and identified an epidural abscess (Fig. 1). After multidisciplinary review the patient was taken to the operating room with the head and neck service and neurosurgery for debridement and reconstruction. The details of operative management and course are summarized in Table 2. Initially he was kept NPO due to a pharyngocutaneous fistula which was managed conservatively. He remained PEG-tube dependent for nutrition but eventually was able to take a limited diet by mouth. He expired unrelated to the surgery one year later.

Case 1

A 72 year old man with a history of laryngectomy was initially treated with radiation therapy twenty years prior to presentation. Ten years prior to presentation he experienced a second occurrence of laryngeal cancer treated with total laryngectomy and 5-FU chemotherapy. One year prior to presentation he began experiencing progressive dysphagia which was treated with serial esophageal dilations every 3.5 weeks at another institution. The details of these procedures are summarized in Table 1. He underwent persistent pain and fever; imaging revealed a retropharyngeal collection with concern for cervical osteomyelitis. He was a high risk patient and managed medically with antibiotics when he presented to our institution for a second opinion. Follow-up imaging revealed progressive destruction of the cervical spine and identified an epidural abscess (Fig. 1). After multidisciplinary review the patient was taken to the operating room with the head and neck service and neurosurgery for debridement and reconstruction. The details of operative management and course are summarized in Table 2. Initially he was kept NPO due to a pharyngocutaneous fistula which was managed conservatively. He remained PEG-tube dependent for nutrition but eventually was able to take a limited diet by mouth. He expired unrelated to the surgery one year later.

Case 2

A 72 year old man with a history of laryngectomy was initially treated with radiation therapy twenty years prior to presentation. Ten years prior to presentation he experienced a second occurrence of laryngeal cancer treated with total laryngectomy and 5-FU chemotherapy. One year prior to presentation he began experiencing progressive dysphagia which was treated with serial esophageal dilations every 3.5 weeks at another institution. The details of these procedures are summarized in Table 1. He underwent persistent pain and fever; imaging revealed a retropharyngeal collection with concern for cervical osteomyelitis. He was a high risk patient and managed medically with antibiotics when he presented to our institution for a second opinion. Follow-up imaging revealed progressive destruction of the cervical spine and identified an epidural abscess (Fig. 1). After multidisciplinary review the patient was taken to the operating room with the head and neck service and neurosurgery for debridement and reconstruction. The details of operative management and course are summarized in Table 2. Initially he was kept NPO due to a pharyngocutaneous fistula which was managed conservatively. He remained PEG-tube dependent for nutrition but eventually was able to take a limited diet by mouth. He expired unrelated to the surgery one year later.

Case 3

A 72 year old man with a history of laryngectomy was initially treated with radiation therapy twenty years prior to presentation. Ten years prior to presentation he experienced a second occurrence of laryngeal cancer treated with total laryngectomy and 5-FU chemotherapy. One year prior to presentation he began experiencing progressive dysphagia which was treated with serial esophageal dilations every 3.5 weeks at another institution. The details of these procedures are summarized in Table 1. He underwent persistent pain and fever; imaging revealed a retropharyngeal collection with concern for cervical osteomyelitis. He was a high risk patient and managed medically with antibiotics when he presented to our institution for a second opinion. Follow-up imaging revealed progressive destruction of the cervical spine and identified an epidural abscess (Fig. 1). After multidisciplinary review the patient was taken to the operating room with the head and neck service and neurosurgery for debridement and reconstruction. The details of operative management and course are summarized in Table 2. Initially he was kept NPO due to a pharyngocutaneous fistula which was managed conservatively. He remained PEG-tube dependent for nutrition but eventually was able to take a limited diet by mouth. He expired unrelated to the surgery one year later.

Case 4

A 72 year old man with a history of laryngectomy was initially treated with radiation therapy twenty years prior to presentation. Ten years prior to presentation he experienced a second occurrence of laryngeal cancer treated with total laryngectomy and 5-FU chemotherapy. One year prior to presentation he began experiencing progressive dysphagia which was treated with serial esophageal dilations every 3.5 weeks at another institution. The details of these procedures are summarized in Table 1. He underwent persistent pain and fever; imaging revealed a retropharyngeal collection with concern for cervical osteomyelitis. He was a high risk patient and managed medically with antibiotics when he presented to our institution for a second opinion. Follow-up imaging revealed progressive destruction of the cervical spine and identified an epidural abscess (Fig. 1). After multidisciplinary review the patient was taken to the operating room with the head and neck service and neurosurgery for debridement and reconstruction. The details of operative management and course are summarized in Table 2. Initially he was kept NPO due to a pharyngocutaneous fistula which was managed conservatively. He remained PEG-tube dependent for nutrition but eventually was able to take a limited diet by mouth. He expired unrelated to the surgery one year later.

Discussion

Osteomyelitis is a rare complication of esophageal dilation that has not been well described in the literature. Mullen et al. reviewed seven reported cases associated with esophageal dilation with or without placement of a stent; all patients had a history of esophageal or laryngeal cancer. Prior cancer treatment not only contributes to the osteomyelitis requiring dilation but likely puts these patients at increased risk for this uncommon complication. The likelihood of prior radiation being a significant risk factor is reinforced by our experience, in that of our 4 patients we had been irradiated for a second squamous cell carcinoma. Transient bacteremia occurs in many endoscopic procedures and has been shown to recur in up to 50% of esophageal dilations. We suspect that by a similar mechanism of microorganisms, bacterial translocation and seeding of adjacent tissues occurs. Compromised radiated tissues may also present infertility to develop at these vulnerable sites including the cervical spine. While an unguided perforation may have contributed in these cases, one of our patients never developed any perforation defect. Current guidelines of the American Society of Gastrointestinal Endoscopy regarding antibiotic prophylaxis do not recommend preprocedure antibiotics for routine procedures including dilations and do not comment on prior irradiation as a risk factor for infectious complications. The tissue damage and ischemia that these procedures cause makes patients vulnerable to osteomyelitis also makes such their surgical management difficult. A structural autograft was used and external cervical immobilization was established. In the third patient cervical decompression and these reconstructions using well vascularized flaps were employed. Under the direction of Infectious Diseases, patients were treated initially with IV antibiotics and eventually transitioned to long term oral therapy. All patients maintained or recovered full swallowing function and returned to a limited or full diet.

Cervical spine osteomyelitis is a rare and serious complication that should be considered in patients with a history of pharyngeal surgery and radiation who undergo esophageal dilation. We would consider the use of prophylactic antibiotics prophylactically covering staphylococcal, streptococcal, and pseudomonas in this special population. In our experience a multidisciplinary surgical approach to the cervical spine and pharynx along with extended antibiotics allowed for successful management of this challenging complication.

References