



A Case of Thoracic Mucor Requiring Transthoracic T2-4 Corpectomies with Fibula Flap Reconstruction

Ali Rae, MD MPH², Camellia Liu, BS³, Jason Lee, MD PhD¹, Michael Kilbourne, MD⁴, Sara Yang, MD¹, James Wright, MD², Mark K. Wax, MD¹
¹Department of Otolaryngology-HNS, ²Department of Neurosurgery, ³School of Medicine. ⁴Department of Surgery
Oregon Health and Science University.

INTRODUCTION

- Patients requiring resection of multiple vertebral bodies often experience high failure rates due to non-union.
- Vascularized fibular grafts have demonstrated lower rates of non-union, particularly in the cervicothoracic region.
- Previously reported cases focused on spinal neoplasms. Infectious causes are rare
- Unique challenges associated with vessel anastomoses in the thoracic region

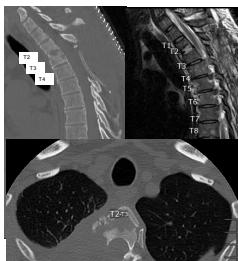
METHODS

Case report of a patient treated at a tertiary care center.

CASE

48-year-old with PMhx of B-cell acute lymphoblastic leukemia, undergoing chemotherapy, presented with multi-drug resistant mucormycosis of the right upper lobe and thoracic spine.

- Failed medical management
- Need for source control
- Planned for a three-stage approach for T2-4 mucor osteonecrosis



Contact:
Alisa Phillips
Oregon Health & Science University
phillial@ohsu.edu

SURGICAL APPROACH

- Stage 1: T3-5 laminectomies, R T3/4 partial costotransversectomies, R T3-5 rib resection
- Stage 2: C6-T8 posterolateral segmental arthrodesis & fusion, T2-4 completion costotransversectomies, bilateral T2-T3 laminectomies
- Multidisciplinary approach for stage 3 reconstruction:
 - **Thoracic surgery**
 - Obtained adequate exposure through transthoracic approach
 - Later ensured the vessels were safely tunneled between the clavicle & first rib

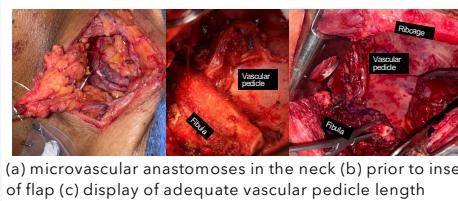
© Neurosurgery

- T2-4 Corpectomies
- Inset of fibula flap



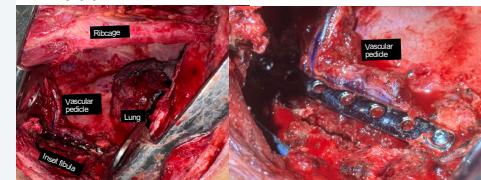
○ **Otolaryngology - Head & Neck Surgery**

- Fibula free flap harvesting
- Exposure of transcervical artery & vein
- Microvascular reconstruction

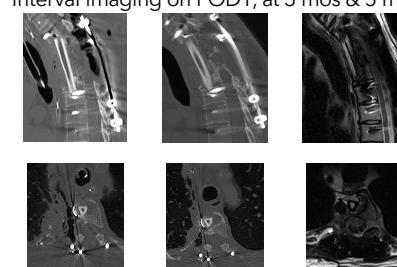


CASE OUTCOME

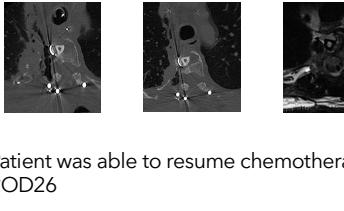
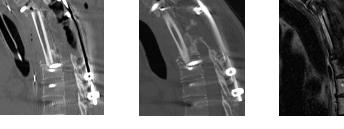
- Patient tolerated the procedure well and went to the neuro ICU for monitoring
- Followed flap monitoring protocol without incident



Fibula filling corpectomy defect with plate spanning T1-5 bodies



- Interval imaging on POD1, at 3 mos & 5 mos



- Patient was able to resume chemotherapy on POD26
- He was last seen in neurosurgery clinic 5-months post-operatively and is doing well

CONCLUSION

Vascularized fibula free flaps with cervical vessel anastomosis are a robust reconstructive option for infections of the thoracic spine and require a multidisciplinary approach for safe and effective placement of the graft.

References

Bongers MDR, Ogurk CJ, Chu KJ, Patel A, Rosenthal B, Shin JH, Lee SG, Homicki F, Schwab JM. The use of autologous free vascularized fibula grafts in reconstruction of the mobile spine following tumor resection: surgical technique and outcomes. *J Neurosurg* 2000; 92(4):283-292. doi:10.3171/2000.6.59205201. PMID: 10715732.

Yang S, Morton Z, Coloma C, Jackson RS, Moore EJ, Thuner J, Bewley A, Coughlin A, Khanlou N, Richardson JM, Piroozi P, Winter R, Mihalko S, Zendejas C, Wright J, Yarchoan M. Fibula Flap Free Reconstruction of Cervical Spine Defects: A Multi-Institutional Study. *Laryngoscope* 2024 Dec;134(12):4923-4928. doi: 10.1002/ary.31625. Epub 2024 Jul 10. doi:10.1002/ary.31625