

Post-double lung transplant, emergent cervical spine surgery, and COVID pandemic: A triple threat to perioperative management

Dear Editor,

Recipients of double lung transplants (DLT) have multiple anesthetic considerations for future surgeries. These include, altered physiology (impaired cough and disrupted lymphatics), cor pulmonale, need for aseptic techniques, and multisystem dysfunction due to immunosuppressants.^[1] An emergent cervical spine surgery in these patients potentiates further risks due to innate complexities related to positioning, unstable spine, bleeding, and extubation.

We present a case of a middle-aged patient who underwent an emergent cervical spine surgery after a recent DLT. To make this more complicated, this case took place during the COVID-19 pandemic further multiplying these risks.

A 56-year-old man was admitted for redo cervical spine decompression and fusion (C1-T2) due to progressively worsening cervical myelopathy. His past medical history included scleroderma, chronic kidney disease, thyroid goiter, and chronic pain. His scleroderma caused severely restrictive interstitial lung disease and pulmonary hypertension leading to DLT.

A major challenge during this case was induction and intubation. Previous cervical spine fusion limited neck extension, while scleroderma increased aspiration risk. Gentle bronchoscopy while under deep anesthesia was the method of choice to avoid stimulation, to avoid exacerbation of pulmonary hypertension. This was

Table 1: Summary of literature search

Author	Year	Study Design	Procedure	Findings
Faberowski <i>et al.</i> ^[2]	1999	Case Report	L3-4 Micro-discectomy	48yo woman who underwent procedure under spinal anesthetic, authors reported successful surgery
Andrés Peiró <i>et al.</i> ^[3]	2017	Case Report	T2-L4 Instrumented Fusion	16yo woman who underwent lung transplantation at 9 years of age, and re-transplantation at 14. No perioperative complications with 30 months of follow-up.
Amin <i>et al.</i> ^[4]	2018	Retrospective Review	Lumbar Fusion (1-2 Levels)	961 patients with history of solid organ transplant (renal, heart, liver, lung). Authors reported a 23.8% rate of major medical complications and 3.0% 1-year mortality, higher than controls.

This search identifies case reports of lung transplant recipients undergoing subsequent spinal surgery. Databases included PUBMED, EMBASE, and MEDLINE. 432 articles were screened by title and abstract and three articles were of medium-high relevance to our own case

made more difficult by tracheal deviation cause by his large goiter. We were further burdened by COVID-19 precautions. Double gloves made manipulation difficult, while face shields produced glare and obscured views of the screen.

A second major challenge was preparing for any disruption in hemodynamic status and blood loss. His history of pulmonary hypertension made this a priority. Extensive bone manipulation often leads to severe bleeding, especially in redo spinal surgeries with hardware. Point-of-care tests, and diligent monitoring assessed need for transfusion to maintain spinal perfusion. In contrast, adequate depth using a total intravenous anesthetic was necessary to avoid sympathetic stimulation. This was vital as neuromonitoring prevented the use of volatile anesthetics and muscle relaxation.

We thought this case was important to highlight, as there is a paucity of such cases in the literature. We conducted a literature search to identify case reports of lung transplant recipients undergoing spinal surgery and found only three articles of high relevance [Table 1].^[2-4] This article outlines the risks of patients such as ours, and we hope that further documenting our care can lead to a better understanding of such challenges.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

**Alex Sapa, Lashmi Venkatraghavan,
Tumul Chowdhury**

Department of Anesthesia and Pain Medicine, Toronto Western Hospital, University Health Network, Toronto, Canada

Address for correspondence: Dr. Tumul Chowdhury, Consultant Anesthesiologist, Department of Anesthesia and Pain Medicine, Toronto Western Hospital, University Health Network, Toronto, Canada.
E-mail: tumulthunder@gmail.Com

References

1. Martin AK, Fritz AV, Wilkey BJ. Anesthetic management of lung transplantation: Impact of presenting disease. *Curr Opin Anesthesiol* 2020;33:43-9.
2. Faberowski LW, Mahla ME, Gravenstein N. Spinal anesthesia for nonpulmonary surgery in a lung transplant recipient. *J Neurosurg Anesthesiol* 1999;11:46-8.
3. Andrés Peiró JV, Granell JB, Moret MF, Galdó AM. Correction of spinal deformity on a lung transplantation recipient. *Spine Deform* 2017;5:72-6.
4. Amin R, Puvanesarajah V, Qureshi R, Jain A, Kebaish K, Shen FH, et al. Lumbar spine fusion surgery in solid organ transplant recipients is associated with increased medical complications and mortality. *Spine* 2018;43:617-21.

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Access this article online	
Quick Response Code:	Website: https://journals.lww.com/joacp
	DOI: 10.4103/joacp.JOACP_678_20

How to cite this article: Sapa A, Venkatraghavan L, Chowdhury T. Post-double lung transplant, emergent cervical spine surgery, and COVID pandemic: A triple threat to perioperative management. *J Anaesthesiol Clin Pharmacol* 2022;38:S133-4.

Submitted: 22-Dec-2020 **Accepted:** 23-Dec-2020

Published: 11-Mar-2022

©2022 Journal of Anaesthesiology Clinical Pharmacology | Published by Wolters Kluwer - Medknow