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Commentary: Bilobar lung torsion—Time is parenchyma in race to treatment

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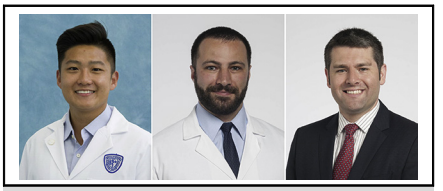

From left to right, Lin Chen, BS, Jesse M. Rappaport, MD, and Alejandro C. Bribriesco, MD

CENTRAL MESSAGE

Lobar torsion is a rare but potentially catastrophic pathology requiring a high index of suspicion for prompt diagnosis and patient-specific therapy based on time to diagnosis and vascular compromise.

Lobar torsion (LT) is a rare pathology associated with a high degree of morbidity and potential mortality.[1] First described in 1930 by Epplen and Jacobson,[2] LT is the acute obstruction of a lobar airway and vasculature secondary to parenchymal twisting around the bronchovascular pedicle. LT occurs predominately postoperatively (63.4%), with lung resection (57%) and lung transplantation (14%) the most common predisposing procedures.[1] LT also can occur spontaneously (29.4%) or in a posttrauma setting (8.3%).[3]

In this edition of *JTCVS Techniques*, Qaqish and colleagues[4] present a case of spontaneous right upper-middle bilobar torsion in the setting of community-acquired pneumonia managed with video-assisted thoracoscopy suture pneumopexy and apical pleurectomy. Their hypothesized mechanism for LT was a densely consolidated right upper lobe with incomplete horizontal fissure and complete oblique fissure, allowing a large parapneumonic effusion to rotate the right upper-middle lobes. The time from diagnosis to detorsion was 28 hours, and lung resection was not required. This is the first reported case of bilobar LT and is highly instructive in management with respect to prompt diagnosis and expedited intervention.

Clinical presentations of LT vary, making diagnosis difficult, especially in the absence of antecedent lung surgery. Early symptoms can be vague but escalate to include dyspnea, fever, and chest pain. LT imaging demonstrates opacification of the affected lung, inverted vascular pattern and abnormal location of consolidated lung.[5] Contrasted-enhanced transaxial imaging is invaluable for definitive diagnosis.[6,7]

Most cases of LT will require surgical intervention with detorsion and assessment for resection of nonviable lung. As with other ischemic tissue situations, delay in intervention leads to increased hypoxic injury, as well as associated sequelae of disrupted blood flow, such as clot formation. There is debate regarding the decision for planned lung resection after detorsion versus lung salvage. Hennink and colleagues[8] stated that "sparing the lobe is hardly ever possible," owing to unsalvageable damage and the risk of fatal complications. However, those authors have reported a median delay of 10 days from diagnosis to surgery[9,10] and a 14-day delay in that subject patient.[8] Stroke after LT surgery has been described, likely secondary to pulmonary vein embolus released after restoring blood flow through the untwisted lobe.[9,11] Intrapericardial clamping of the proximal pulmonary vein at time of lobar resection (often on completion of pneumonectomy) is one strategy to mitigate this catastrophic complication. Eight cases of LT detorsion without immediate resection have been reported.[7,12-16] Four of 8 affected lobes were ultimately nonviable, with 3 requiring interval resection

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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 Feb 20, 2021; revisions received Feb 20, 2021; accepted for publication Feb 25, 2021; available ahead of print March 2, 2021.

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JTCVS Techniques 2021;7:307-8
2666-2507

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https://doi.org/10.1016/j.xjtc.2021.02.048

and 1 patient suffering a fatal cerebral embolism postoperatively.[9,11,13] Overall, lung salvage depends on preoperative arterial flow, viability of affected tissue, and time to reoperation.[12,13]

Optimal outcomes for patients with LT hinge on early diagnosis spurred by a high index of suspicion guided by radiographic pattern recognition. A low threshold to pursue intervention is imperative. Qaqish and colleagues are to be commended for sharing this well-described report on expedited management of this previously unreported event of bilobar spontaneous LT with resultant successful lung salvage.

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