Supplementary

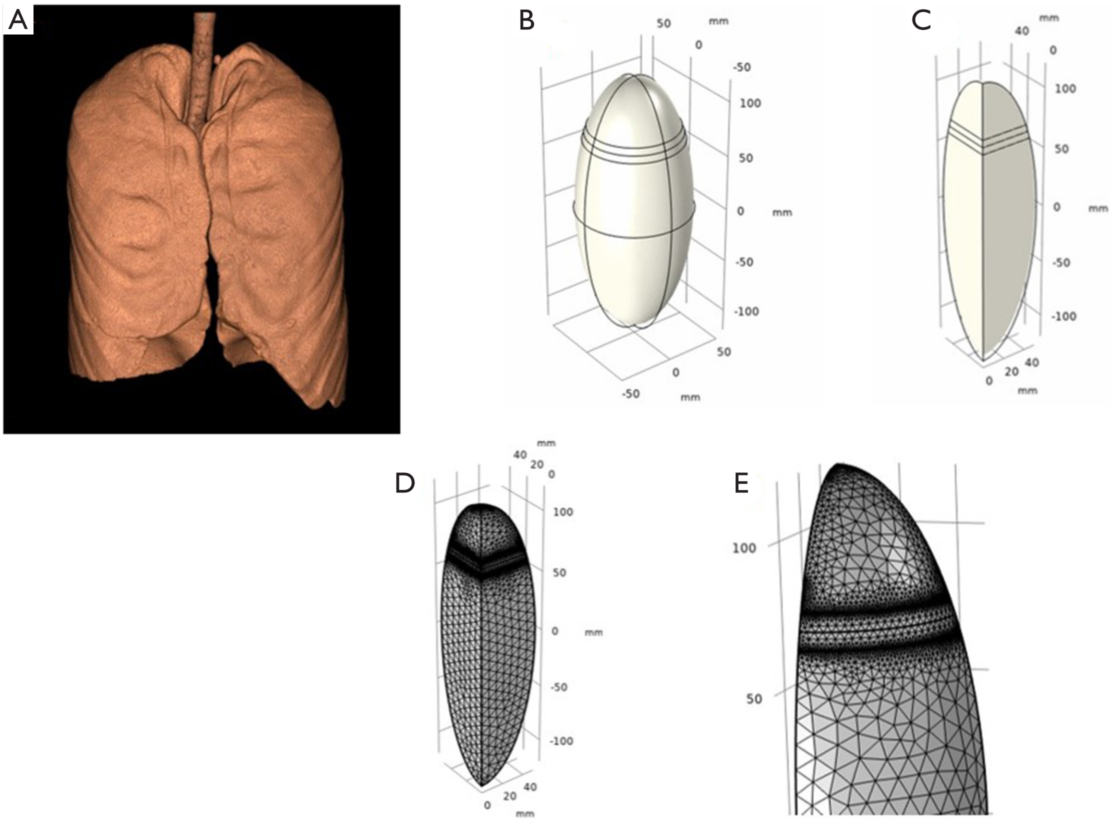

Figure S1 The approximated and reconstructed ellipsoidal-shaped lung model based on a chest CT scan of a patient with primary spontaneous pneumothorax. (A) Chest computed tomography image; (B) simplified ellipsoidal lung model; (C) one-fourth of the ellipsoidal lung model; (D) application of meshes on the lung model; (E) meshes were further delineated meshes at the stapling line.

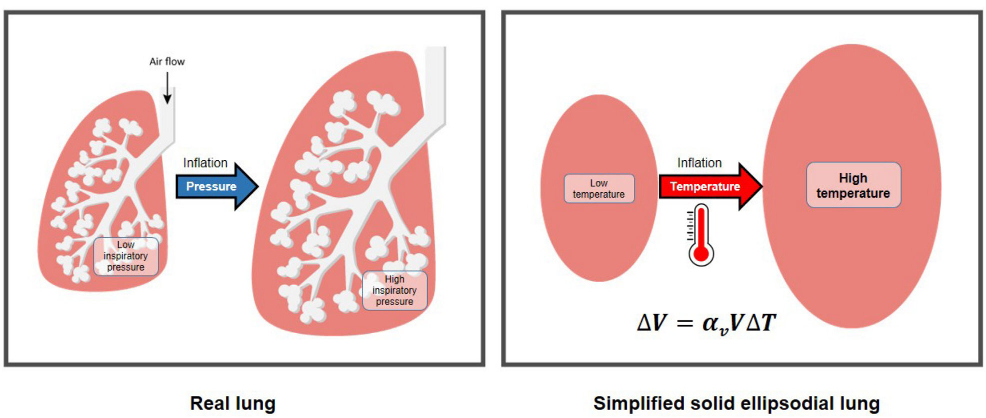

Figure S2 Thermomechanical analogy. The stress-strain relationship is presented using the thermal coefficient α_v and thermal expansion is defined as increasing volumetric strain. V, volume; α_v, coefficient of thermal expansion; T, temperature.

https://dx.doi.org/10.21037/jtd-24-1728

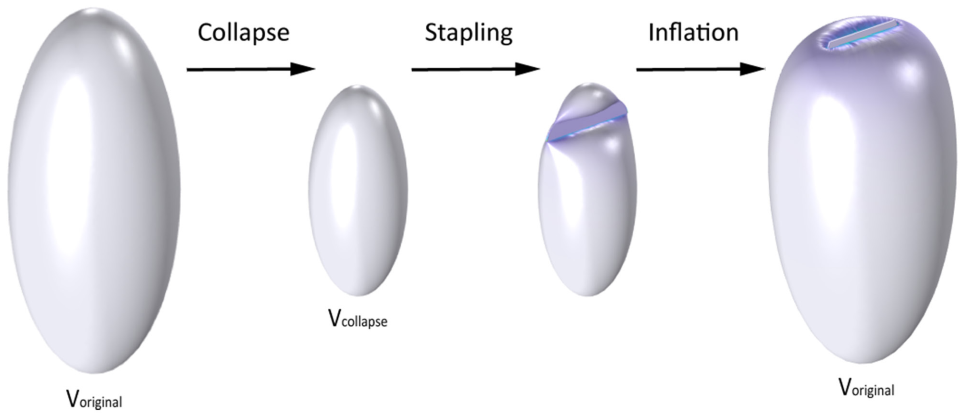

Figure S3 The simulation steps of video-assisted thoracoscopic surgery included the initial collapse of the lung volume by 10%. After stapling, the lung was reinflated to its original volume.

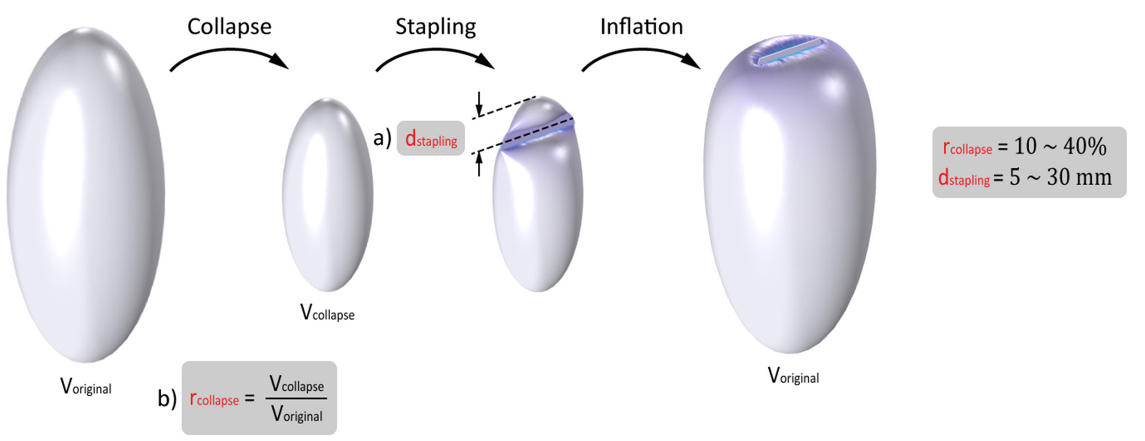

Figure S4 The steps of parametric studies. (A) Adjusting dstapling, from 5 to 30 mm (interval, 1 mm) below the apex of the lung; (B) changing rcollapse from 10–40% (interval, 2%).

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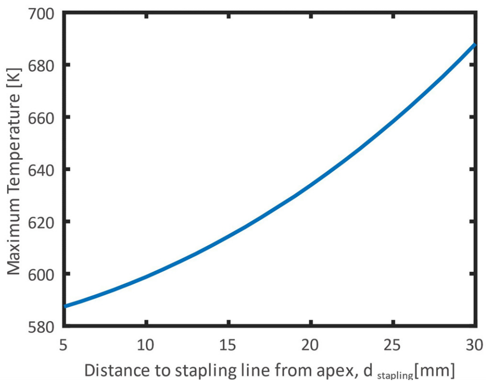

Figure S5 The maximum temperature required to revert to the original volume for various distances of the stapling line from the apex. As the distance of the stapling line from the apex increases, a higher maximum temperature is required to revert to the original volume.

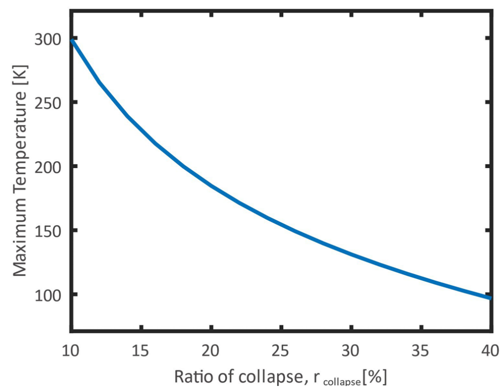

Figure S6 Association between the maximum temperature and collapse ratio. As the collapse ratio decreases, a higher maximum temperature is required to revert to the original volume.

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