Retropharyngeal space

The retropharyngeal space's (RPS's) clinical relevance is apparent in anterior cervical spine surgery with respect to postoperative hematoma, which can cause life-threatening airway obstruction. This cadaver study aims to establish guidance toward a better understanding of the tolerance of the RPS to accommodate fluid accumulation.

Methods: Five fresh-frozen cadavers were dissected in the supine position. A digital manometer and a 20 Fr Foley catheter were inserted into the RPS via an anterolateral approach. While inflating the Foley catheter, the position of the esophagus/trachea was documented using fluoroscopy, and the retropharyngeal pressure was measured. We quantified the volume required to deviate the esophagus/trachea >1 cm from its original position using fluoroscopy. We also recorded the volume required to cause a visible change to the normal neck contour.

Results: A mean volume of 12.5 mL (mean pressure 1.50 mm Hg) was needed to cause >1 cm of esophageal deviation. Tracheal deviation was encountered at a mean volume of 20.0 mL (mean pressure of 2.39 mm Hg). External visible clinical neck contour changes were apparent at a mean volume of 39 mL.

Conclusion: A relatively small volume of fluid in the RPS can cause the esophagus/trachea to radiographically deviate. The esophagus is the structure in the RPS to be most influenced by mass effect. The mean volume of fluid required to cause clinically identifiable changes to the normal neck contour was nearly double the volume required to cause 1 cm of esophageal/tracheal deviation in a cadaver model [1].

1)
von Glinski A, Elia C, Yilmaz E, et al. Space-Occupying Lesions of the Retropharyngeal Space: An Anatomical Study With Application to Postoperative Retropharyngeal Hematomas [published online ahead of print, 2020 May 13]. Global Spine J. 2020;2192568220922192. doi:10.1177/2192568220922192