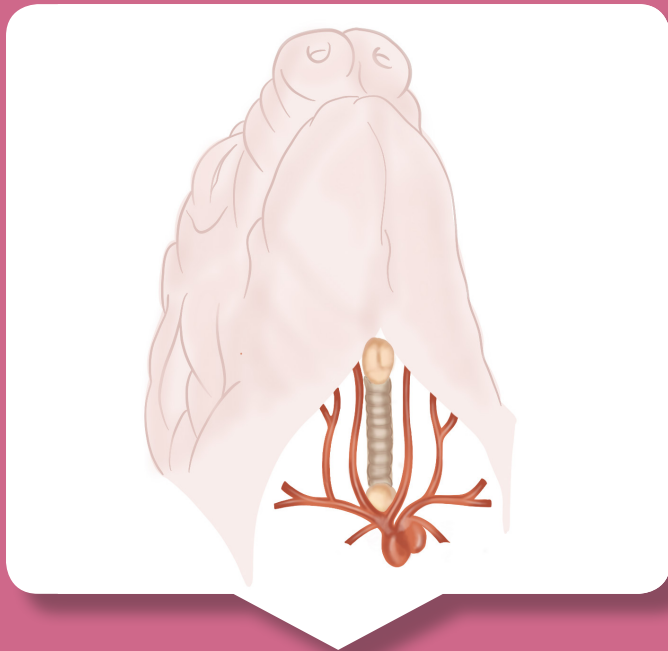
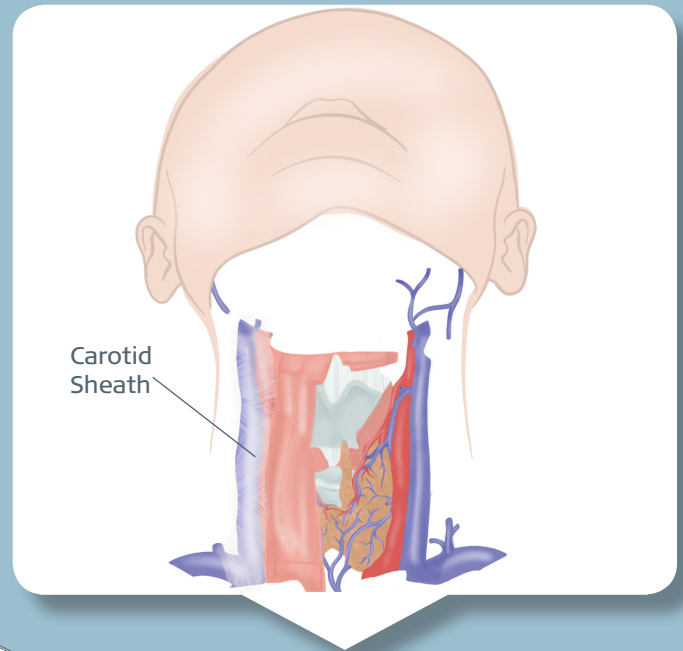


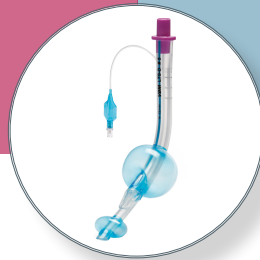
LTS-D Airway Anatomy Comparison



Impairment of carotid artery blood flow by supraglottic airways in a swine model of cardiac arrest.



Radiographic evaluation of carotid artery compression in patients with extraglottic airway devices in place.



Study Conclusion

In pigs undergoing CPR use of supraglottic airways (masks and tubes) that are designed for human use were associated with reduction in carotid blood flow compared to an ETT.

- Study conducted on 9 pigs
- Not an outcomes study
- Human and porcine anatomies are different
- There were statistically significant reductions in carotid blood flow with all supraglottic airway
- Researchers discovered that porcine blood vessels, especially arteries are much more compliant than human vessels
- Increased compliance will artificially increase any level of compression
- Extrapolating carotid compression in a pig model onto a human is anatomically and molecularly flawed

Segal, Nicolas, et al. Impairment of carotid artery blood flow by supraglottic airways in a swine model of cardiac arrest. Resuscitation. 2012 March. (83)1025-1030.

Pham, T. and Sun, W. Comparison of biaxial mechanical properties of coronary sinus tissues from porcine, ovine and aged human species. J Mech Bech Biomed Mater. 2013 February.

Study Conclusion

Until further studies are performed in which cerebral perfusion is evaluated prospectively in both hemodynamically stable and unstable human subjects, there is insufficient evidence to recommend against the use of extraglottic airways in the emergency setting on the basis of carotid artery compression.

- Retrospective study on 17 humans
- Not an outcomes study
- Swine model is not an accurate representation of the human airway
- The human common carotid and internal carotid arteries are anatomically located more laterally and the aerodigestive tract is sheathed by the middle layer of the deep cervical fascia, which may prevent the cuff or balloon from affecting adjacent structures
- There was no radiographic detectable mechanical compression of the carotid artery

White, J. et al. Radiographic evaluation of carotid artery compression in patients with extraglottic airway devices in place. Academic Emergency Medicine. 2015 May. (5):638-8.