

## **The caudal traction of ipsilateral arm toward to the knee improves the longitudinal US view of SCV for the supraclavicular approach, without reducing its size” Kim et al (2016).**

### Abstract:

**BACKGROUND:** The first step for successful ultrasound (US)-guided subclavian vein (SCV) catheterization using a supraclavicular approach is to obtain a good longitudinal image of SCV for in-plane needle placement. We evaluated the efficacy of caudal traction of ipsilateral arm on the exposure of the SCV.

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**METHODS:** We enrolled 20 infants, 20 children, and 20 adults undergoing general anesthesia. After tracheal intubation, US probe was applied as the supraclavicular approach, and the longitudinal US image of SCV was obtained in 3 different ipsilateral arm positions: neutral, caudal traction, and abduction. The length of puncturable SCV, the diameter of SCV, and the available angle for needle insertion in 3 different arm positions were analyzed.

**RESULTS:** In all patients, the length of puncturable SCV and the available angle for needle insertion were significantly increased after caudal traction ( $35.6\% \pm 27.1\%$  and  $25.0\% \pm 19.3\%$ , respectively) and decreased after the abduction ( $36.6\% \pm 22.9\%$  and  $29.5\% \pm 23.8\%$ , respectively) compared to neutral position. The diameter of SCV was not changed after applying the caudal traction in infants and children. However, in adults, the caudal traction slightly increased the diameter of SCV ( $P = .012$ ).

**CONCLUSION:** The caudal traction of ipsilateral arm toward to the knee improves the longitudinal US view of SCV for the supraclavicular approach, without reducing its size. Proper caudal traction of the arm might ensure the high success rate with safe needle insertion technique. Abduction should be avoided during US-guided supraclavicular SCV catheterization.



Reference:

Kim, E.H., Lee, J.H., Song, I.K., Kim, H.C., Kim, H.S. and Kim, J.T. (2016) Influence of caudal traction of ipsilateral arm on ultrasound image for supraclavicular central venous catheterization. The American Journal of Emergency Medicine. February 12th. .

doi: 10.1016/j.ajem.2016.01.038.

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