

Background:

A thirty year old previously healthy lady post cholecystectomy one week prior at another hospital presents with four days of hand pain. She notes that she had arterial blood gas sampling done "several times" after surgery. She presented with a cool, painful discolored left thumb on the side of the ABG sampling. No Allen test or equivalent documented.

Case Progression:

She has a discolored thumb that was tender, dusky colored, cool and hypesthetic. No radial pulse is present.

She required multiple extensive plastic and vascular procedures trying to save the thumb. However, these were not successful and she underwent thumb amputation and rehabilitation.



Teaching Points:

Ease of access, consistent anatomy and low complication rates make the radial artery a preferred site for arterial cannulation and for routine arterial blood gas sampling. Reported rates of ischemic complications are less than 0.1% but is probably under-reported. Temporary vasospasm is common after vessel penetration and even after catheter or needle removal. Low flow states (hypotension), vasculopathy and systemic disease all impact complication rates. Number of attempts do not seem to affect rates of ischemia. However most data are from studies of radial artery cannulation not ABG sampling. Our patient had no overt high risk characteristics.

An Allen test was not documented, but the need for and optimal method of pre-procedure collateral vascular assessment is controversial. The modified Allen test using finger occlusion of the radial and ulnar arteries sequentially has variable results and is not a predictor of subsequent ischemia, but is still recommended. Vigilance after procedure and early recognition is necessary to reduce chances of permanent injury.