Intercostal vessel screening prior to pleural interventions by the respiratory physician: a prospective study of real world practice

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ABSTRACT

Introduction: The rising incidence of pleural disease is seeing an international growth of pleural services, with physicians performing an ever-increasing volume of pleural interventions. These are frequently conducted at sites without immediate access to thoracic surgery or interventional radiology and serious complications such as pleural bleeding are likely to be under-reported.

Aim: To assess whether intercostal vessel screening can be performed by respiratory physicians at the time of pleural intervention, as an additional step that could potentially enhance safe practice.

Methods: This was a prospective, observational study of 596 ultrasound-guided pleural procedures conducted by respiratory physicians and trainees in a tertiary centre. Operators did not have additional formal radiology training. Intercostal vessel screening was performed using a low frequency probe and the colour Doppler feature.

Results: The intercostal vessels were screened in 95% of procedures and the intercostal artery (ICA) was successfully identified in 53% of cases. Screening resulted in an overall site alteration rate of 16% in all procedures, which increased to 30% when the ICA was successfully identified. This resulted in procedure abandonment in 2% of cases due to absence of a suitable entry site. Intercostal vessel screening was shown to be of particular value in the context of image-guided pleural biopsy.

Conclusion: Intercostal vessel screening is a simple and potentially important additional step that can be performed by respiratory physicians at the time of pleural intervention without advanced ultrasound expertise. Whether the widespread use of this technique can improve safety requires further evaluation in a multi-centre setting with a robust prospective study.