Preventing bleeding complications in percutaneous tracheostomy—another role for portable ultrasound in intensive care

Editor—I read with interest the account of acute fatal haemorrhage during percutaneous dilatational tracheostomy. After such a case, we must examine how such a tragedy may be prevented in the future. The authors correctly note that ultrasound may identify any structures at risk of haemorrhage such as aberrant blood vessels, but stop short of recommending this as being a mandatory precaution in percutaneous tracheostomy. Why?

Until now, ultrasound of the neck prior to percutaneous dilatational tracheostomy has rarely been performed. However, portable (handheld) ultrasound devices such as the Siterite™ are now becoming more commonly available in intensive care, mainly as an aid to central venous catheterization. When available, these devices may also be of use in percutaneous tracheostomy. Prior to performing the procedure but with the patient already positioned with the neck extended, the anterior neck can easily be scanned to identify any structures such as blood vessels close to the intended site of tracheostomy. This requires minimal additional training and does not significantly increase procedure time. Since purchase of a portable ultrasound device last year, this has become routine practice at Southend Hospital. By identifying patients at risk of major haemorrhage, this is likely to make percutaneous tracheostomy a safer procedure. As the technology becomes more readily available, this should become a standard precaution, making tragic cases of catastrophic haemorrhage less likely to occur.

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Editor—Thank you for the opportunity to reply to Dr King’s letter. Percutaneous tracheostomy is one of the more invasive and potentially lethal bedside procedures undertaken in the intensive care unit (ICU), and as such, any technique that will reduce morbidity and mortality is to be welcomed.

In our case report, we deliberately refrained from being dogmatic and preferred to make recommendations for a number of reasons. As this was the first reported case, we felt it was not for us to state that ultrasound scanning should be mandatory. Such recommendations should only be made after all the evidence has been considered, and by an organization such as NICE. Secondly, whilst accepting intuitively that ultrasound could be of benefit, we were mindful of the medicolegal implications of insisting on its use without sufficient evidence. Finally, portable ultrasound has its limitations. The commonly used Siterite™ has a maximal penetration depth of 4 cm, and whilst it is able to detect superficial vascular structures, it would not be of benefit for deeper structures.
(as were the problem in our case.) And, as always, the information gained from the ultrasound is only as good as the person interpreting it.

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