biopsies was not stated. Moreover, it is a common observation that the ooze from an endobronchial lesion continues after the biopsy has been taken and thus it becomes difficult to ascertain whether it was the first or the second ''bite'' that contributed to the bleeding. This is a potential confounding factor in the analysis. Furthermore, bleeding can continue for 48 h, and even longer, after biopsy, making it difficult to decide which technique has contributed to the bleeding. Therefore, it becomes important to use a protocol in which the hot and cold biopsies are performed in alternate patients rather than alternate biopsies in the same patient. If we follow this design, a semi-quantitative assessment can be made by quantifying the amount of saline instilled and the return amount and comparing between the two. This would also complement the qualitative assessment made by the bronchoscopist.

In addition, the authors have stated minimal damage even with cold biopsies. Whether this is an effect of the previous hot biopsy is also unclear, as multiple biopsies have been taken from the same lesion. Due to the small sample size, and given the fact that previous studies have shown significant pathological changes in the tissues after endobronchial electrocoagulation [2, 3], further investigation is required to confirm the findings of TREMBLAY *et al*. [1].

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REFERENCES

1 Tremblay A, Michaud G, Urbanski SJ. Hot biopsy forceps in the diagnosis of endobronchial lesions. *Eur Respir J* 2007; 29: 108–111.
2 Verkindre C, Brichet A, Maurage CA, Ramon P, Homasson JP, Marquette CH. Morphological changes induced by extensive endobronchial electrocautery. *Eur Respir J* 1999; 14: 796–799.
3 van Boxem TJ, Westerga J, Venmans BJ, Postmus PE, Sudetja TG. Tissue effects of bronchoscopic electrocautery: bronchoscopic appearance and histologic changes of bronchial wall after electrocautery. *Chest* 2000; 117: 887–891.

DOI: 10.1183/09031936.00007707

From the authors:

We would like to thank A. Nath, R. Srinivas and R. Agarwal for their interest in our study [1], and their comments regarding our study design. Their main concerns centre around the study design, in which alternative biopsies of the same endobronchial lesion were taken with ''hot'' and ''cold'' biopsy forceps, with and without electrocoagulation, respectively.

The alternative study design would have been to randomise patients to receive either only hot or only cold biopsies. This study design was chosen for two primary purposes. First, the primary study outcome of pathological diagnosis is best compared when the same lesions are biopsied with the two techniques. Secondly, using the same patient/lesion as their own control allows the use of paired statistical analytical techniques, which are more powerful than unpaired analysis.

A. Nath and co-workers express concern regarding our finding that minimal coagulation damage was found with the hot biopsies. The quoted studies on electrocoagulation effect on airways are, in fact, what led us to carry out this study. Although A. Nath and co-workers comment on the ''small sample size'' of our study, it was powered to look for a decrease in biopsy yield from 95% to 70%, as described in our methods, which may be an underestimate of power given the unpaired statistics that we used in this calculation. If a smaller difference in yield is felt to be clinically relevant, A. Nath and co-workers are correct that this study may not have detected such a difference. We stand by this conclusion as the samples were blindly reviewed by a pathologist who noted no such changes, while diagnostic rates were as high with the hot *versus* cold biopsies (slightly higher in fact). It is believed that with the use of monopolar forceps, the electrical current does not pass through the section of tissue inside the biopsy forceps, as the electrical resistance is lower if the current continues along the tip of the forceps and into the tissues, in essence protecting the sample from the current.

Quantification of bleeding is a more subjective and difficult outcome to measure. We had considered blinded assessment from video recording or simply measuring the amount of blood suctioned through the bronchoscope, but these approaches were not felt to remedy the problem. We agree that a randomisation approach in which biopsies were performed in different patients may have made this outcome measure more robust, but given that this was a secondary endpoint we stand by our study design as discussed previously. Practically speaking, although patients may have trace haemoptysis for 24–48 h after bronchoscopy, we believe this is due to old blood being expectorated rather than ongoing bleeding. During the study, we ensured that any bleeding had abated prior to proceeding to the next biopsy. In addition, given the alternative hot/cold design, any bias in bleeding assessment would occur in each group and the chance of misclassifying a clinically significant grade 3 or 4 bleed would appear very unlikely.

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STATEMENT OF INTEREST

None declared.

REFERENCES

1 Tremblay A, Michaud G, Urbanski SJ. Hot biopsy forceps in the diagnosis of endobronchial lesions. *Eur Respir J* 2007; 29: 108–111.

DOI: 10.1183/09031936.00018307