Reviewer's report

Title: Predictors of Diagnostic Yield in Bronchoscopy: a Retrospective Cohort Study comparing different combinations of sampling techniques.

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Reviewer: Rocco Trisolini

Reviewer's report:

General

Roth and colleagues report their own experience with bronchoscopic sampling procedures performed for the diagnosis of suspected lung cancer over a two year period (2003-2004). The efforts of the Authors to analyze this impressive amount of data should be acknowledged, but the retrospective nature of the study made it impossible for them to avoid several bias which severely limit the reliability and generalization of the reported results.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

1) To assess and compare the role of the different sampling bronchoscopic procedures (single or in combination) in the diagnosis of suspected lung cancer you should perform them all in every patient, as the very Authors recognize in the discussion section. This approach was not used in this study as the diagnostic procedures were left at the discretion of the examiner, and patients with similar patterns of disease frequently underwent very different sampling procedures.

2) The Authors state that the strenght of the study is the fact that it reflects the value of bronchoscopy in the clinical practice. This might be true, but in the clinical practice examiners should use "evidence-based" data to select the appropriate sampling procedure in patients with different patterns of endobronchial disease.

TBNA, for instance, was used only in 21 out of 132 patients with non-visible lesions even though, at the time the study was intiated, several studies and/or systematic reviews of the literature were available showing that TBNA significantly increases the yield of bronchoscopy in patients with non-visible lesions at bronchoscopy (e.g. Gasparini S, Chest 1995; Gasparini S, Ann Ital Chir 1999; Reichemberg F, Chest 1999; Castella J, Ann Oncol 1995; Pirozynski M, Chest 1992; Gay PC, Mayo Clin Proc 1989; ACCP evidence-based guidelines for diagnosis and management of lung cancer, Chest 2003).

Similarly, the Authors used TBNA only in 69 out of 90 patients with submucosal/peribronchial involvement even though, at the time the study was intiated, several studies and/or systematic reviews of the literature were available showing that TBNA significantly increases the yield of bronchoscopy in patients
with endobronchial cancer manifesting with peribronchial and submucosal pattern at bronchoscopy (e.g. Dasgupta A, Chest 1999; Shure D, Chest 1985; Bilaceroglu S, Monaldi Arch Chest Dis 1997; ACCP evidence-based guidelines for diagnosis and management of lung cancer, Chest 2003).

Finally, many non-visible lesions were approached in a blind fashion (without fluoroscopic control), a practice that markedly reduces the diagnostic yield of bronchoscopy and increases the risk of biopsy-related complications (especially pneumothorax).

3) By checking table 1, it looks like the Authors included in the study 30 patients with isolated mediastinal disease. Such patients shouldn't have been included as it is clear that the yield of sampling procedures other than TBNA in this setting is 0% by definition (unless infiltration of the adjacent airway wall is present).

4) The yield of bronchoscopy (16.7%), as well as that of TBNA (19%) and transbronchial biopsy (25%) in patients with non-visible lesion is much lower than in most literature studies, even though more than 70% of patients included in this study had lesions > 3 cm in size. Do the authors have an idea on the possible causes? Under-use of imaging guidance such as fluoroscopy? Limited experience of trainees with such procedures? Other factors?

5) The yield of bronchoscopy (16.7%), as well as that of TBNA (19%) and transbronchial biopsy (25%) in patients with non-visible lesion is much lower than in most literature studies, even though more than 70% of patients included in this study had lesions > 3 cm in size. Do the authors have an idea on the possible causes? Under-use of imaging guidance such as fluoroscopy? Limited experience of trainees with such procedures? Other factors?

6) The yield of bronchoscopy (34.4%) as well as that of TBNA (24.6%) in patients with constriction/compression pattern is much lower than in most literature studies. Do the authors have an idea on the possible causes? Limited experience of trainees with such procedures? High rate of indeterminate/inaccurate specimens? Problems with specimen processing? Other factors?

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

What next?: Reject because scientifically unsound

Level of interest: An article of insufficient interest to warrant publication in a scientific/medical journal

Quality of written English: Needs some language corrections before being published
Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests