

# Morphology quiz: Bronchial washing cytology from flexible bronchoscopy

## 1 | CASE HISTORY

- 75-year-old man
- Former smoker
- History of right scapular malignant melanoma (Clark level IV; Breslow thickness 4 mm) treated by local surgery 7 years ago
- Current clinical presentation: Local recurrence at the right scapular scar
- Paraclinical findings: Imagery showed a right dorsal subcutaneous tumour mass of 58 mm associated with right axillary adenopathies and proximal endobronchial obstruction of the apical segment of the left upper lobe (LB1) (Figures 1,2). Flexible bronchoscopy was performed highlighting a dark pigmented endobronchial tumour in LB1 (Figure 2B) and bronchial washing was collected for cytological analysis (Figure 3).

## 2 | MORPHOLOGY QUIZ

1. What is the most frequent origin of endobronchial tumour?
  - a. Lung
  - b. Breast
  - c. Cutaneous melanoma
  - d. Kidney
2. Which cells are usually observed in a representative bronchial washing?
  - a. Macrophages
  - b. Bronchial cells
  - c. Superficial Malpighian cells
  - d. Mesothelial cells
3. Based on the images provided in Figure 3, what is the likely cytological diagnosis of the dyskaryotic and dark pigmented cells?
  - a. Adenocarcinoma
  - b. Squamous cell carcinoma
  - c. Malignant melanoma
  - d. Lymphoma
4. What is the most pertinent marker to search by molecular biology for malignant melanoma treatment optimisation?
  - a. *ROS1* rearrangement
  - b. *BRAF* p.V600E mutation
  - c. *RAS* p.G12D mutation
  - d. *EGFR* exon 19 deletion

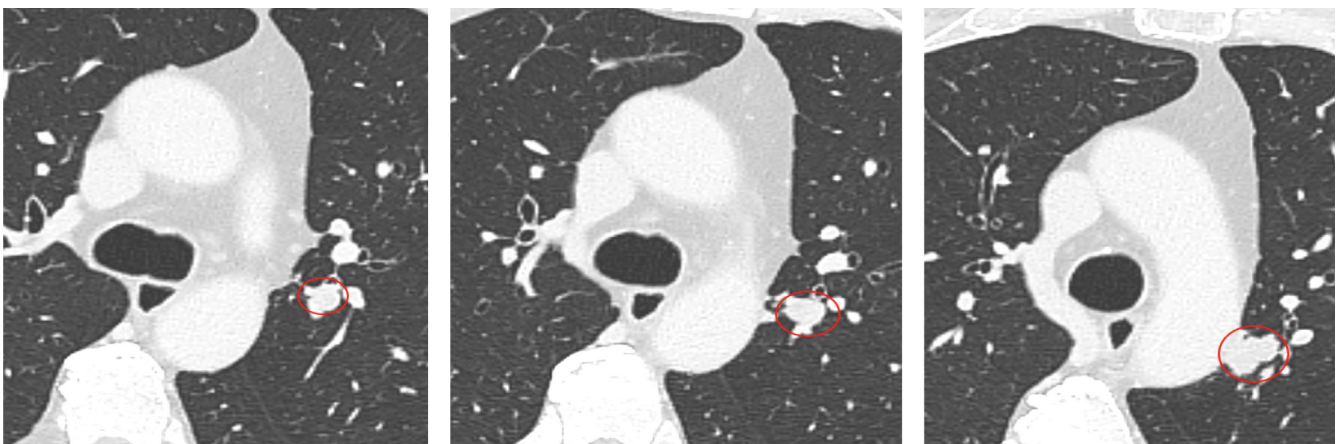
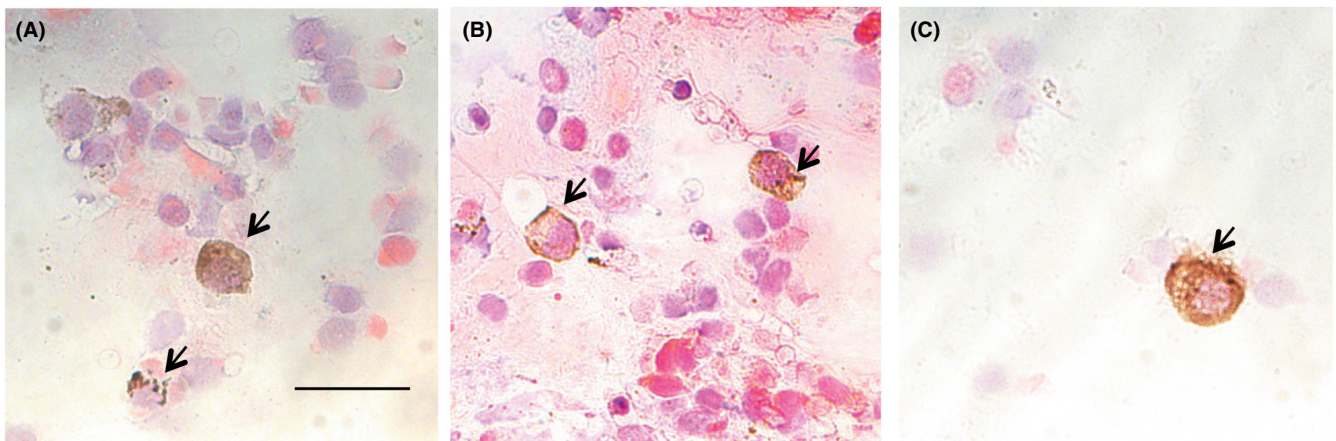
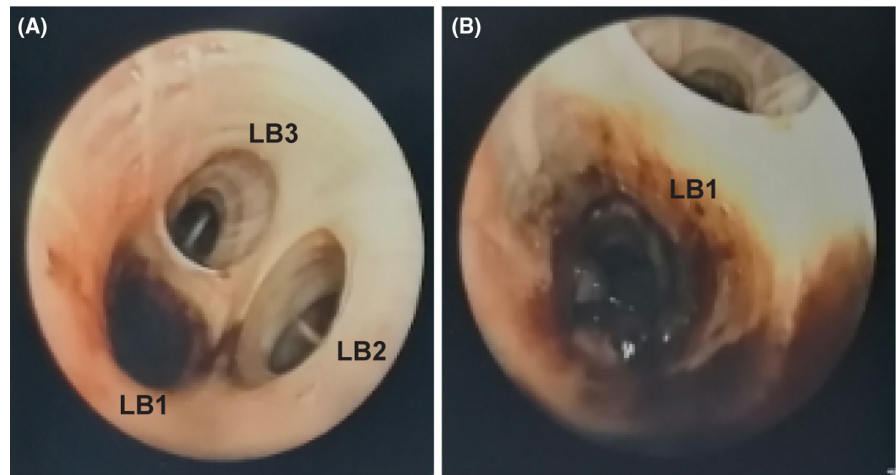


FIGURE 1 Chest CT scan slides showing the right dorsal mass, and proximal endobronchial filling (red circle)

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**FIGURE 2** Flexible bronchoscopy showing dark pigmented endobronchial tumour in LB1 (A,B). No lesion was observed in LB2 and LB3 (A). The patient presented an anatomical variant where B1 and B2 are separated



**FIGURE 3** Cytological analysis of bronchial washing. Smears from a fresh sample with Papanicolaou staining (x40), showing dyskaryotic cells with dark pigment in the cytoplasm (black arrows) among bronchial cells and neutrophil granulocytes

#### AUTHOR CONTRIBUTIONS

EK, PR, and HD: Data collection. EK: Writing the manuscript. DF, PR, HD, and PA: Reviewing the manuscript.

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#### KEYWORDS

bronchial washing cytology, flexible bronchoscopy, malignant melanoma

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#### CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

#### DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

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**ANSWERS TO THE MULTIPLE-CHOICE QUESTIONS**

1. a. Comments: Endobronchial metastasis occurs in less than 5% of extrapulmonary malignancies.<sup>1-2</sup>
2. a and b. Comments: Superficial Malpighian cells from oropharynx are usual contaminant of cytological samples obtained from a bronchoscopy procedure. A bronchial washing containing a majority of superficial Malpighian cells is considered not representative.<sup>3</sup>
- 3 c. Comments: (1) Diagnosis of metastatic endobronchial melanoma was confirmed on lung biopsy, showing positivity of malignant cells with SOX10 marker. (2) "Black bronchoscopy" corresponding to dark pigmentation of the endobronchial tree can have several aetiologies: neoplasms but also congenital causes, environmental causes, iatrogenic causes.<sup>4</sup>
- 4 b. Comments: BRAF V600E mutation was identified from lung biopsy.