

Online supplement

Table S1: Indication for bronchoscopy in the studied cohort

| Group | Patient N. | Cause of bronchoscopy |
|-------------------|-------------------|--|
| COPD (n=23) | 1 | COPD (for participation in the current study) |
| | 2 | Subsegmental atelectasis in right lower and middle lobes |
| | 3 | Solitary pulmonary nodule in right lower lobe |
| | 4 | COPD (for participation in the current study) |
| | 5 | COPD (for participation in the current study) |
| | 6 | Mass right lower lobe |
| | 7 | Hemoptysis |
| | 8 | Solitary pulmonary nodule in right upper lobe |
| | 9 | Solitary pulmonary nodule in right upper lobe |
| | 10 | Hemoptysis |
| | 11 | Follow up after left upper lobectomy |
| | 12 | Mass in left upper lobe |
| | 13 | Solitary pulmonary nodule in right upper lobe |
| | 14 | Hemoptysis |
| | 15 | Pulmonary nodule in right lower lobe |
| | 16 | Pulmonary nodules in left upper lobe with a history of oral cancer |
| | 17 | Follow up after left upper lobectomy |
| | 18 | In the study of right pleural effusion |
| | 19 | Left atelectasis |
| | 20 | Pulmonary nodule in left upper lobe |
| | 21 | Left parahilar mass |
| | 22 | Pulmonary infiltrate in HIV patient |
| | 23 | Follow up after left upper lobectomy |
| Smokers (n=20) | 1 | Right atelectasis |
| | 2 | Follow up post right pneumonectomy |
| | 3 | Pulmonary nodule in left upper lobe |
| | 4 | Hemoptysis |
| | 5 | Hemoptysis |
| | 6 | Hemoptysis |
| | 7 | Pulmonary nodule in left lower lobe with right suprarenal calcified mass |
| | 8 | Pulmonary nodule in left lower lobe |
| | 9 | Hemoptysis |
| | 10 | Hemoptysis |
| | 11 | Hemoptysis |
| | 12 | Hemoptysis |
| | 13 | Pulmonary infiltrates and micronodules in right upper lobe |

| | | |
|----------------------|----|---|
| | 14 | Hemoptysis |
| | 15 | Pulmonary nodule in right upper lobe |
| | 16 | Left atelectasis |
| | 17 | Bilateral upper lobe infiltration |
| | 18 | Pulmonary infiltrates in HIV |
| | 19 | In the workup of esophageal cancer (with normal lung fields in PET-CT scan) |
| | 20 | Left atelectasis |
| Non-smoker (n=20) | 1 | Multiple pulmonary nodules in middle lobe and right upper lobe |
| | 2 | Mass in the left upper lobe |
| | 3 | Hemoptysis |
| | 4 | Persistent cough |
| | 5 | Pathological right hilum |
| | 6 | For the study left pleural effusion |
| | 7 | Pulmonary nodules in right lower lobe |
| | 8 | Hemoptysis |
| | 9 | Follow up after right upper lobe lobectomy |
| | 10 | Laminar atelectasis of the ligula |
| | 11 | Hemoptysis |
| | 12 | Hemoptysis |
| | 13 | Multiple nodules in right lung (upper and lower lobes) |
| | 14 | Pulmonary infiltration in right middle lobe and lingula in lymphoma patient |
| | 15 | Pulmonary infiltration in previous left carcinoma of the breast |
| | 16 | Follow up after right upper lobe lobectomy |
| | 17 | Solitary pulmonary nodule in left lower lobe |
| | 18 | Follow up after right lower lobe lobectomy |
| | 19 | Follow up after electro-cryotherapy for right endobronchial hamartoma |
| | 20 | Follow up after foreign body extraction in left lower lobe |

* FCFM was performed in the non-affected lung.

Table S2: Correlation between the FCFM measurements and the extend of emphysema on CT scan in both the smokers and COPD patients.

| | | Alveolar diameter | ABI ratio | Extra-alveolar vessel diameter | Alveolar elastic fiber thickness |
|---------------------------------|----------|-------------------|-----------|--------------------------------|----------------------------------|
| Emphysema presence (yes vs. no) | <i>r</i> | 0.245 | 0.156 | 0.030 | 0.019 |
| | <i>p</i> | 0.166 | 0.384 | 0.867 | 0.916 |
| Visual scoring of emphysema | <i>r</i> | 0.317 | 0.286 | -0.146 | 0.019 |
| | <i>p</i> | 0.073 | 0.111 | 0.41 | 0.914 |
| Extent of emphysema (%) | <i>r</i> | 0.239 | 0.309 | -0.187 | -0.199 |
| | <i>p</i> | 0.223 | 0.122 | 0.339 | 0.309 |
| Left lung (affection %) | <i>r</i> | 0.266 | 0.167 | -0.295 | -0.198 |
| | <i>p</i> | 0.167 | 0.395 | 0.126 | 0.304 |
| Right lung (affection %) | <i>r</i> | 0.129 | 0.337 | -0.123 | -0.223 |
| | <i>p</i> | 0.512 | 0.085 | 0.529 | 0.256 |

Table S3 : Correlation between the FCFM measurements and the extend of emphysema on CT scan in COPD patients

| | | Alveolar diameter | ABI ratio | Extra-alveolar vessel diameter | Alveolar elastic fiber thickness |
|-----------------------------|----------|-------------------|--------------|--------------------------------|----------------------------------|
| Visual scoring of emphysema | <i>r</i> | 0.415 | 0.485 | -0.148 | 0.041 |
| | <i>p</i> | 0.07 | 0.034 | 0.519 | 0.858 |
| Extent of emphysema (%) | <i>r</i> | 0.333 | 0.498 | -0.338 | -0.043 |
| | <i>p</i> | 0.17 | 0.04 | 0.1637 | 0.86 |
| Left lung (affection %) | <i>r</i> | 0.326 | 0.423 | -0.364 | -0.033 |
| | <i>p</i> | 0.166 | 0.073 | 0.122 | 0.89 |
| Right lung (affection %) | <i>r</i> | 0.307 | 0.553 | -0.184 | -0.06 |
| | <i>p</i> | 0.193 | 0.019 | 0.435 | 0.80 |