

## **Online Supplement**

### **Normal Routine Spirometry Can Mask COPD/Emphysema in Symptomatic Smokers**

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### **Online Supplement Figures 1-16. Results of Lung Function, Lung Computed Tomography, and Pathology in Cases 1-16**

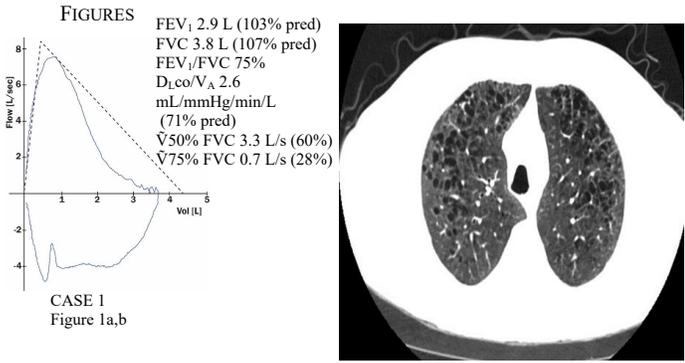
All 16 Cases were studied post 270 $\mu$ g inhaled aerosolized albuterol sulfate using a space chamber from Morris et al.<sup>10</sup> All had normal and preserved routine spirometry including FVC, FEV<sub>1</sub>, and FEV<sub>1</sub>/FVC % using NHANES III normal predicted data from Hankinson et al.<sup>12</sup>. Solid line reflects normal predicted data for expiratory airflow at 50% and 75% FVC from Knudson et al.<sup>11</sup> and all 16 Cases had abnormal FEF75% (lps). Normal predicted single breath diffusing capacity data is from Burrows et al.<sup>13</sup> and static lung volumes data measured by volume plethysmography is from Goldman et al.<sup>14</sup> The pathologic, and HRCT lung emphysema score and distance between alveolar walls (Lm) was determined and based on previous studies,<sup>16-19</sup> Bronchioles were morphologically within normal limits, and luminal diameters remained intact and comparable to luminal diameters of accompanying pulmonary arteries. Whole lung CT images in upper zones reflect greatest extent of emphysema.

The whole slide images can be viewed using a QR code reader on your mobile device. If the article is opened as a PDF, or PowerPoint slide viewing mode, clicking on the URL beneath each code will open the whole slide scan. Otherwise, pressing the Ctrl key together with clicking on the URL beneath the code will also open the whole slide scan.

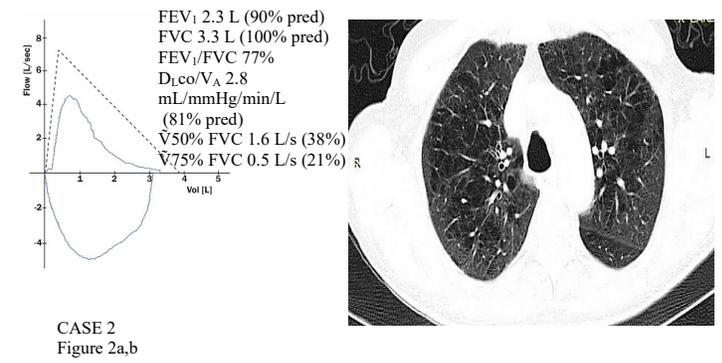
DigitalScope® whole slide image viewer is provided by the College of American Pathologists and International Medical Quality Improvement Systems (IMQIS). The viewer works with modern browsers as well as iOS and Android devices that can read QR codes natively. There are

a variety of QR code scanners that can be used to link the whole slide image files. Whole Slide Image Slides are hosted by IMQIS.

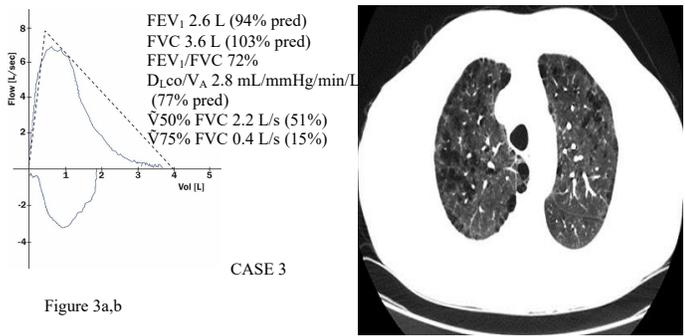
FIGURES



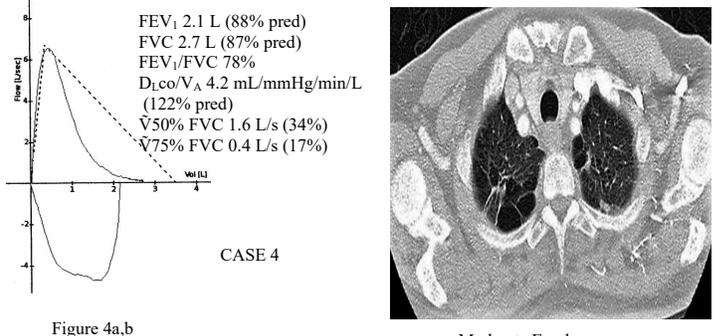
Thurlbeck Mild-Moderate Emphysema Score 30<sup>18-20</sup>



Moderate Emphysema Score 35

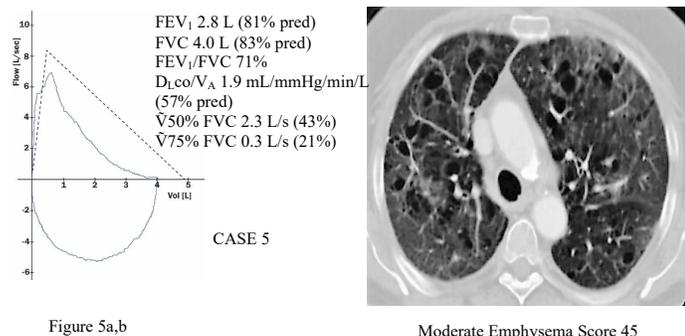


Mild-Moderate Emphysema Score 30

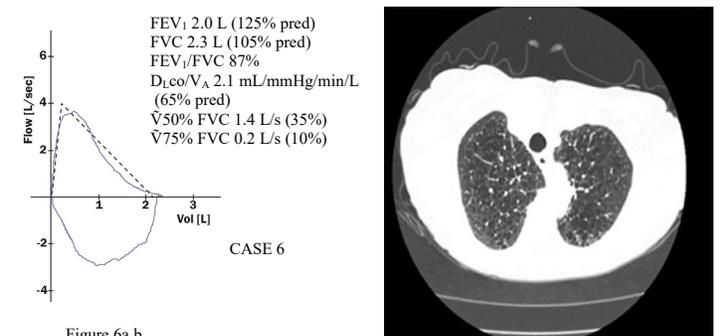


Moderate Emphysema Score 45

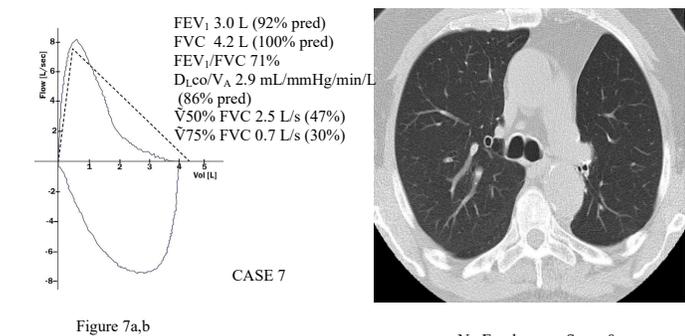
Inadequate lung tissue prevented emphysema scoring in Case 4.



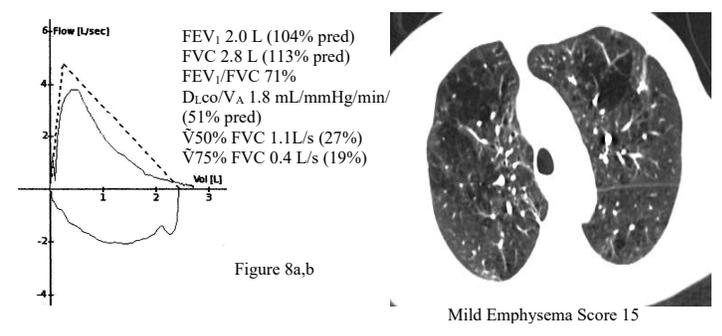
Moderate Emphysema Score 45



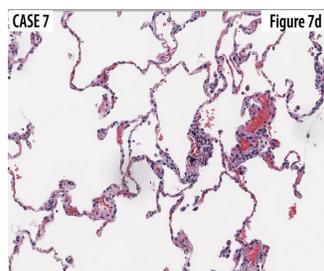
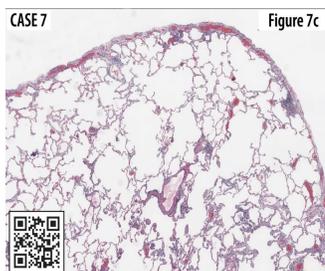
Mild Emphysema Score 15



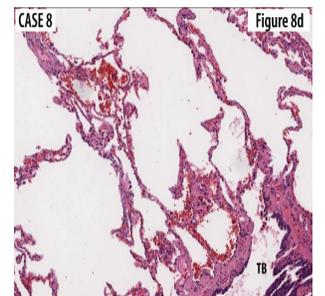
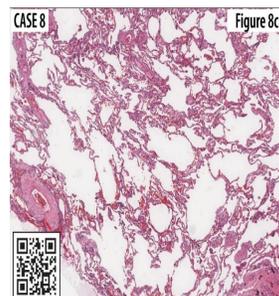
No Emphysema Score 0



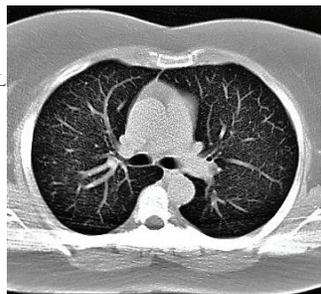
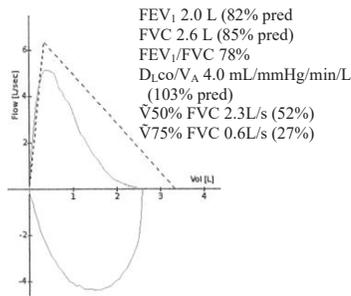
Mild Emphysema Score 15



No emphysema, Left upper lobectomy 25X

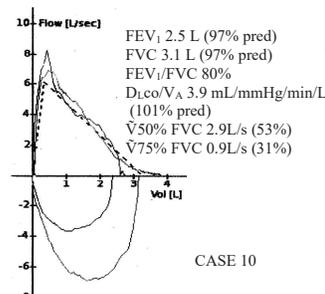


No Emphysema 35X  
 Right lower lobectomy



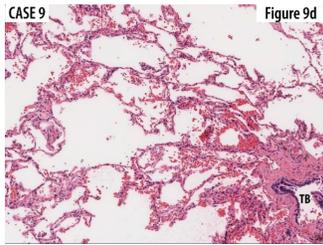
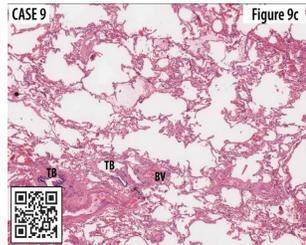
No Emphysema Score 0

CASE 9 Figure 9a,b



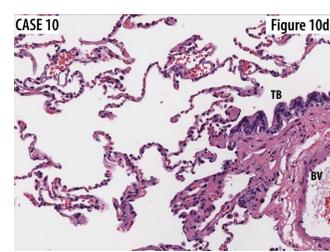
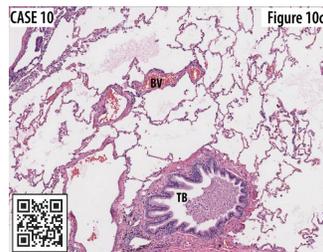
No Emphysema Score 0

Figure 10a,b



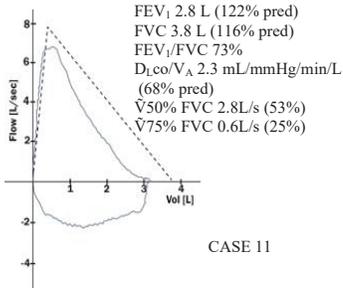
No Emphysema, wedge resection LLLobe 20X

<https://goo.gl/rKCe4B> 8X



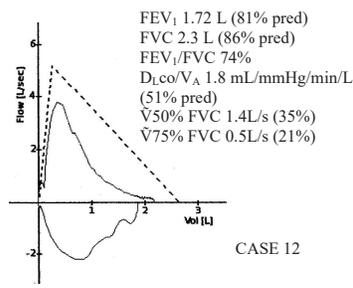
No Emphysema, LLL wedge resection 40X

<https://goo.gl/SoZhnv> 20X



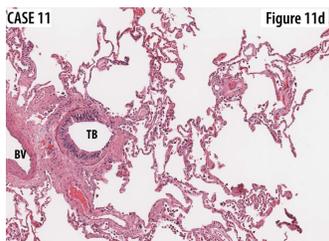
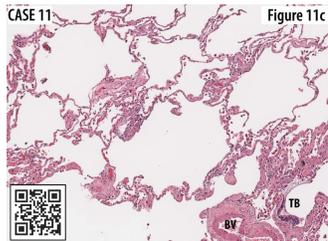
No Emphysema Score 0

Figure 11a,b



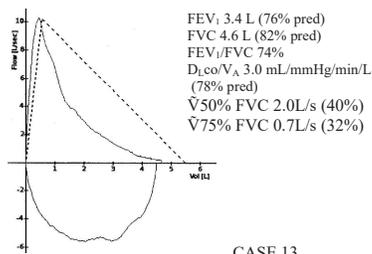
Mild-Moderate Emphysema Score 30

Figure 12a,b



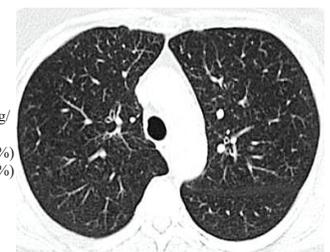
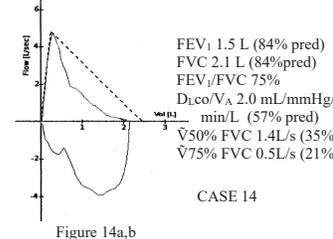
No Emphysema, LLLobe wedge resection 20X

<https://goo.gl/CkbM17> 8X



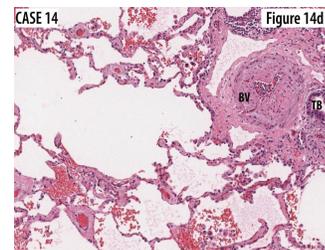
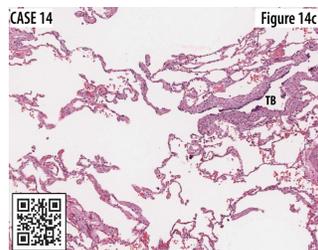
Mild Emphysema Score 15

Figure 13a,b



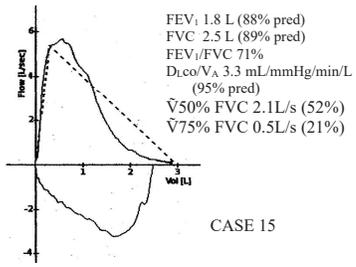
No Emphysema Score 0

Figure 14a,b



No Emphysema R Middle Lobectomy 20X

<https://goo.gl/ERLe9j> 8X

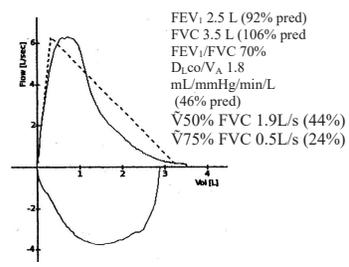


CASE 15



Moderate Emphysema Score 50

Figure 15a,b



CASE 16



Mild Emphysema Score 20

Figure 16a,b