



Not everything is disease progression— increased fluorodeoxyglucose uptake secondary to diaphragmatic paralysis

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A 46-year-old female nonsmoker with metastatic lung cancer, who was currently on targeted therapy with lorlatinib, presented with a four-week history of progressive dyspnea.

Physical examination revealed reduced breath sounds in the left lung and an SpO₂ drop to 94%. Pulmonary function tests showed a restrictive ventilatory pattern. An FDG-PET/CT scan demonstrated increased FDG uptake in the right diaphragm, a finding that was absent on prior imaging. Given the manifest signs of cervical disease progression, a diagnosis was established of left phrenic nerve compression leading to left diaphragmatic elevation and a subsequent compensatory increase in the work of the functioning side and to increased FDG uptake in the right diaphragm (Figure 1).

Increased FDG uptake is generally attributable to muscle activity, surgical interventions, or inflammatory conditions.⁽¹⁾ In the context of pulmonary pathology, bilateral FDG uptake in the diaphragm is typically secondary

to hyperventilation.⁽²⁾ However, unilateral FDG uptake is predominantly indicative of contralateral diaphragmatic paralysis. Contralateral FDG uptake is a compensatory physiological response that should not be misdiagnosed as malignant, a condition that is notably rare.^(1,3)

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AUTHOR CONTRIBUTIONS

FMC, MAFMF, and AKM: study conception, planning, and design; and data collection. FMC and MAFMF: writing of the preliminary drafts and final version of the manuscript. FMC, MAFMF, and AKM: revision of the manuscript. All authors read and approved the final version of the manuscript.

CONFLICTS OF INTEREST

None declared.



Figure 1. In A, a coronal PET/CT image reveals hypermetabolism in a small area of the anterior aspect of the right diaphragm (arrow), consistent with mechanical overexertion. In B, a coronal CT slice reinforces this observation, showing no evidence of any lesion in the diaphragm, particularly in its right anterior section (arrow). In C, a PET/CT scan taken a month later showed that signs of neoplastic progression became more pronounced in the neck, especially on the left side. This is evidenced by increased uptake in lymph nodes and by an infiltrative lesion adjacent to the left sternoclavicular joint and the scalene muscle (arrowheads). This is the typical location of the cervical portion of the phrenic nerve before it descends into the thorax. In D, a coronal CT slice shows elevation of the left diaphragm, which was not present on previous CT scans, suggesting left phrenic nerve paralysis.

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