

PATTERNS OF PULMONARY INVOLVEMENT IN LYMPHOMA – A PICTORIAL

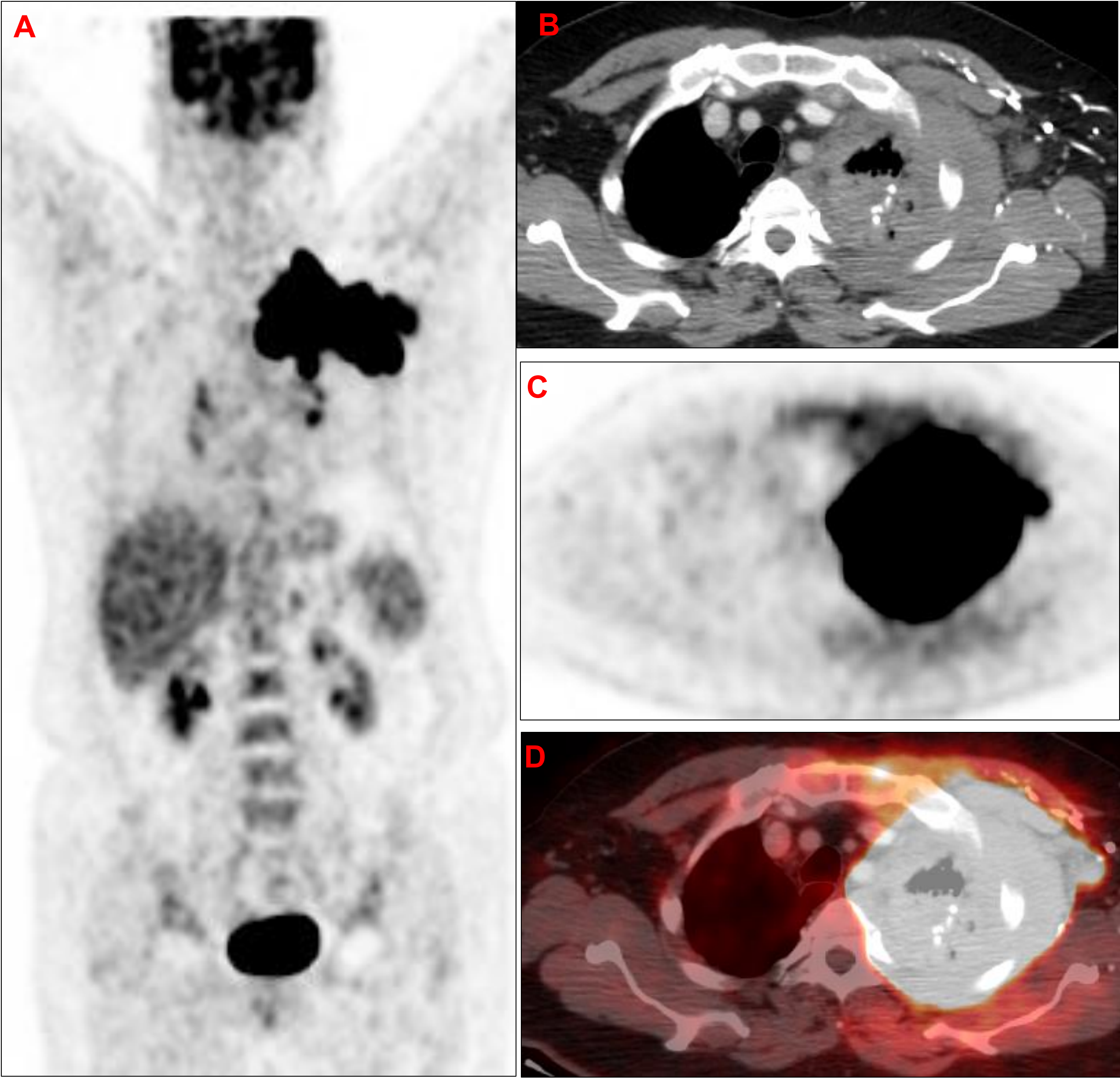
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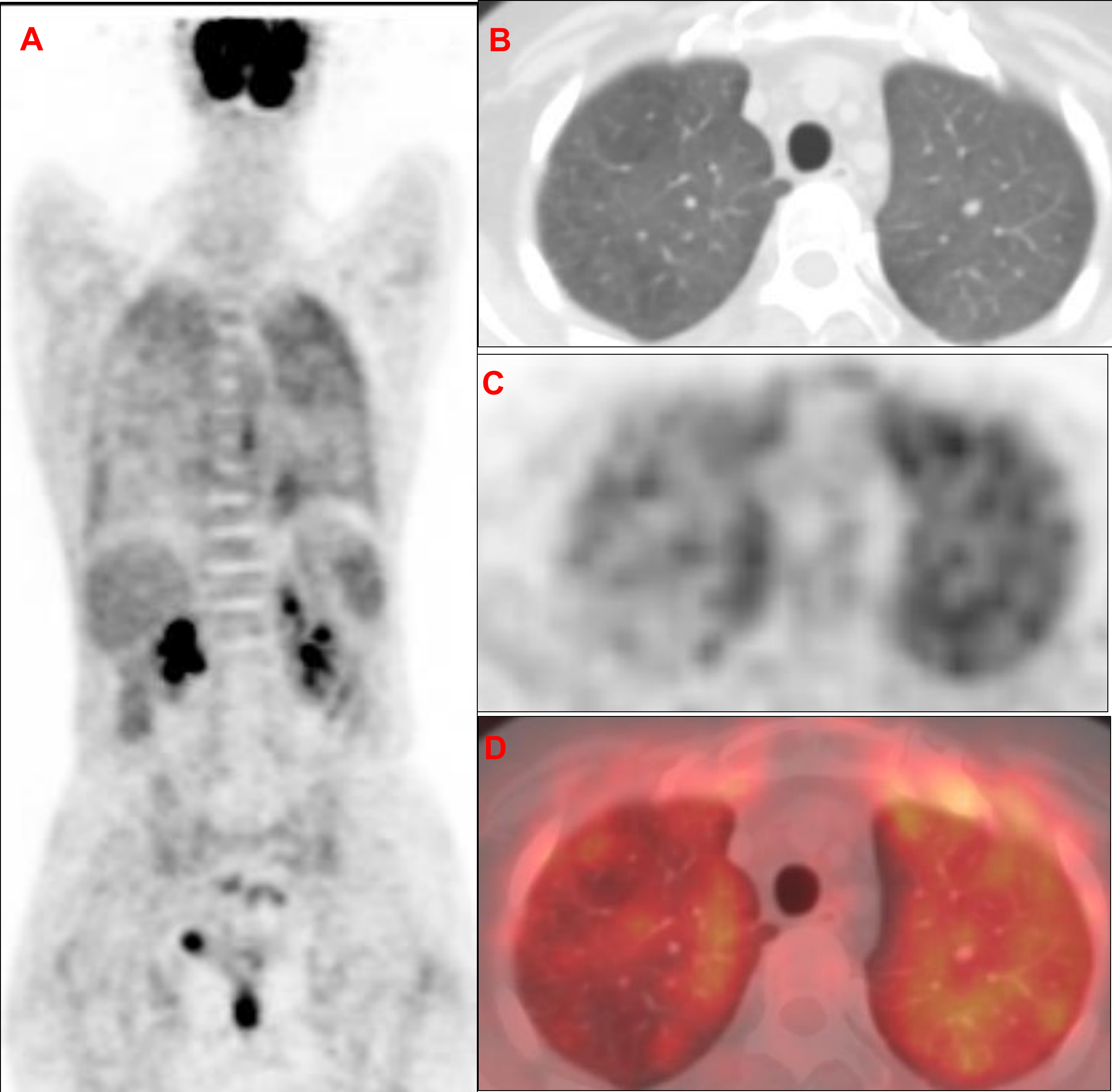
INTRODUCTION

Lymphomatous involvement of the lungs is a recognized entity, presenting along a spectrum from low-grade FDG-avid pulmonary nodules to lesions with marked morphological and metabolic features. In this pictorial compilation, we present a series of interesting cases that demonstrate some of the distinct imaging patterns of pulmonary involvement in lymphoma, based on FDG PET-CT scans reviewed retrospectively over a ten-year period (2013–2023).

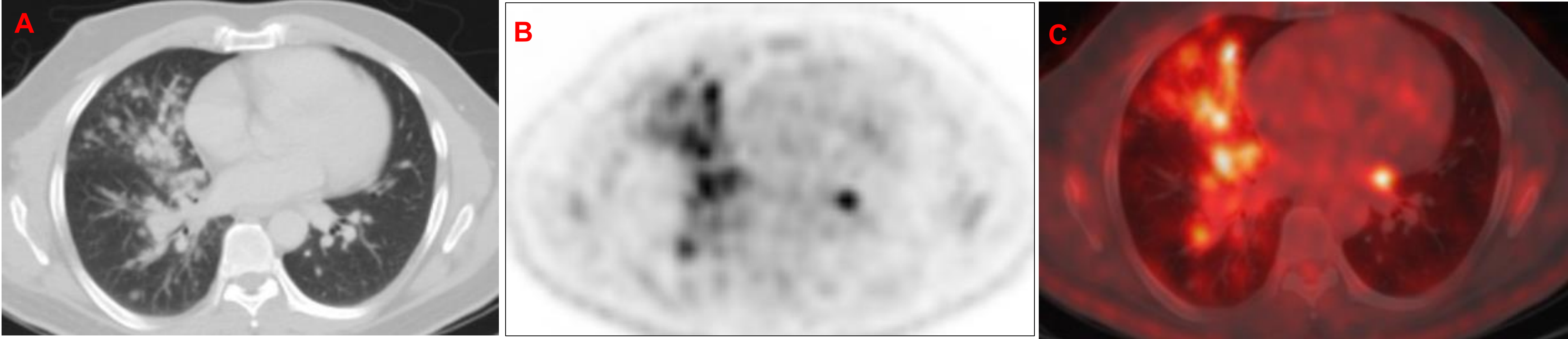
CASES



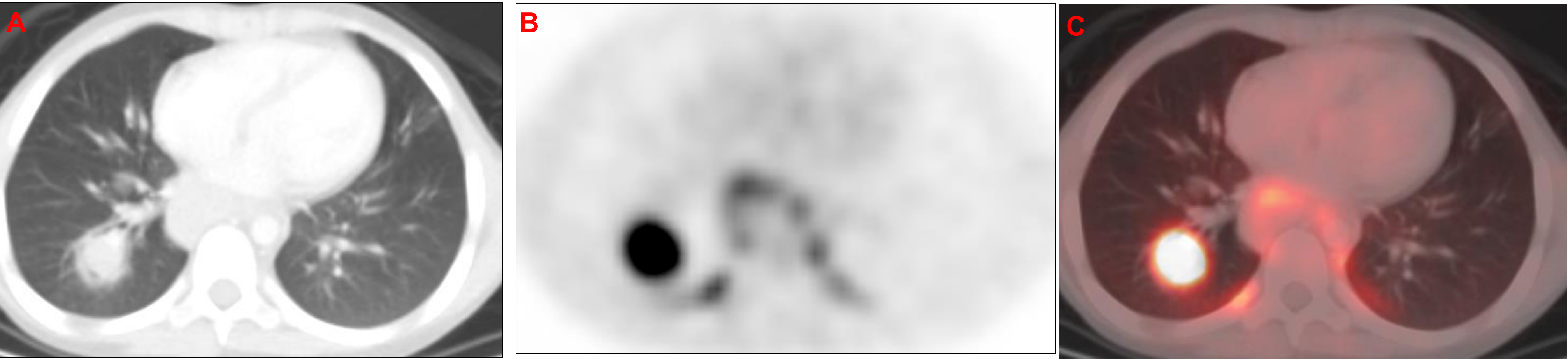
**CASE 1** : 68 years old man with **Diffuse Large B-Cell Lymphoma** on left lung biopsy underwent FDG PET-CT scan for staging purposes. Scan revealed an intensely avid huge soft tissue density mass arising from apicoposterior segment of left upper lung with extension into the left supraclavicular fossa measuring up to 9.1 x 9.4 x 8.0 cm [AP x TR x CC] , SUV 31.3. This mass was infiltrating the left chest wall with encasement of upper four ribs, however no cortical erosion or breach was appreciated in the involved ribs. (*Coronal PET only, Axial CT, PET only, Fusion image A,B,C,D*)



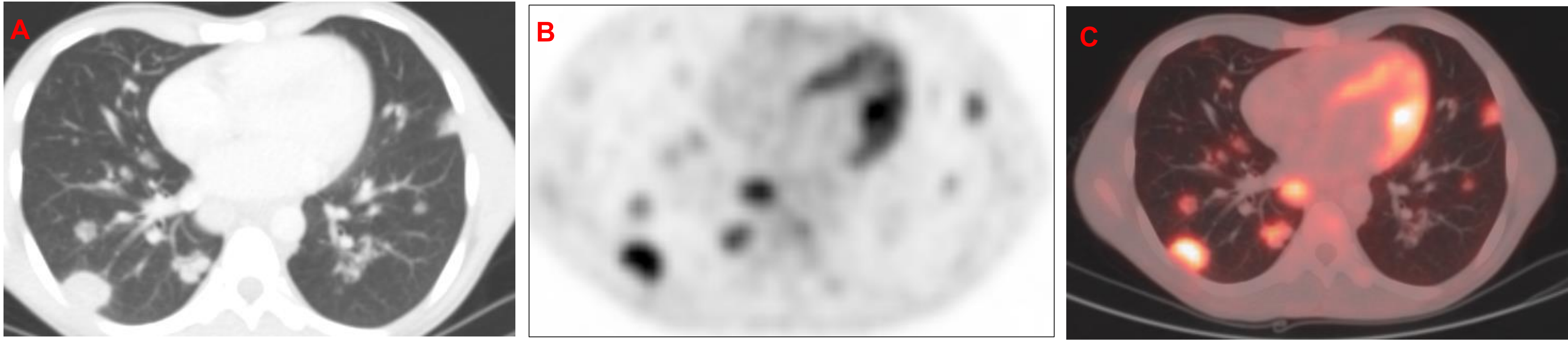
**CASE 2** : 56 years old female, diagnosed case of **Diffuse Large B-cell Lymphoma**. Received 6 cycles of chemotherapy with R-CHOP (*Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, and Prednisone*). Her response assessment scan showed complete metabolic response towards therapy. However, there was diffuse uptake in bilateral lung parenchyma with diffuse underlying ground glass changes. Findings were in favor of inflammatory etiology; highlighting effects of chemotherapeutic drug toxicity. (*Coronal PET only, Axial CT, PET only, Fusion image A,B,C,D*)



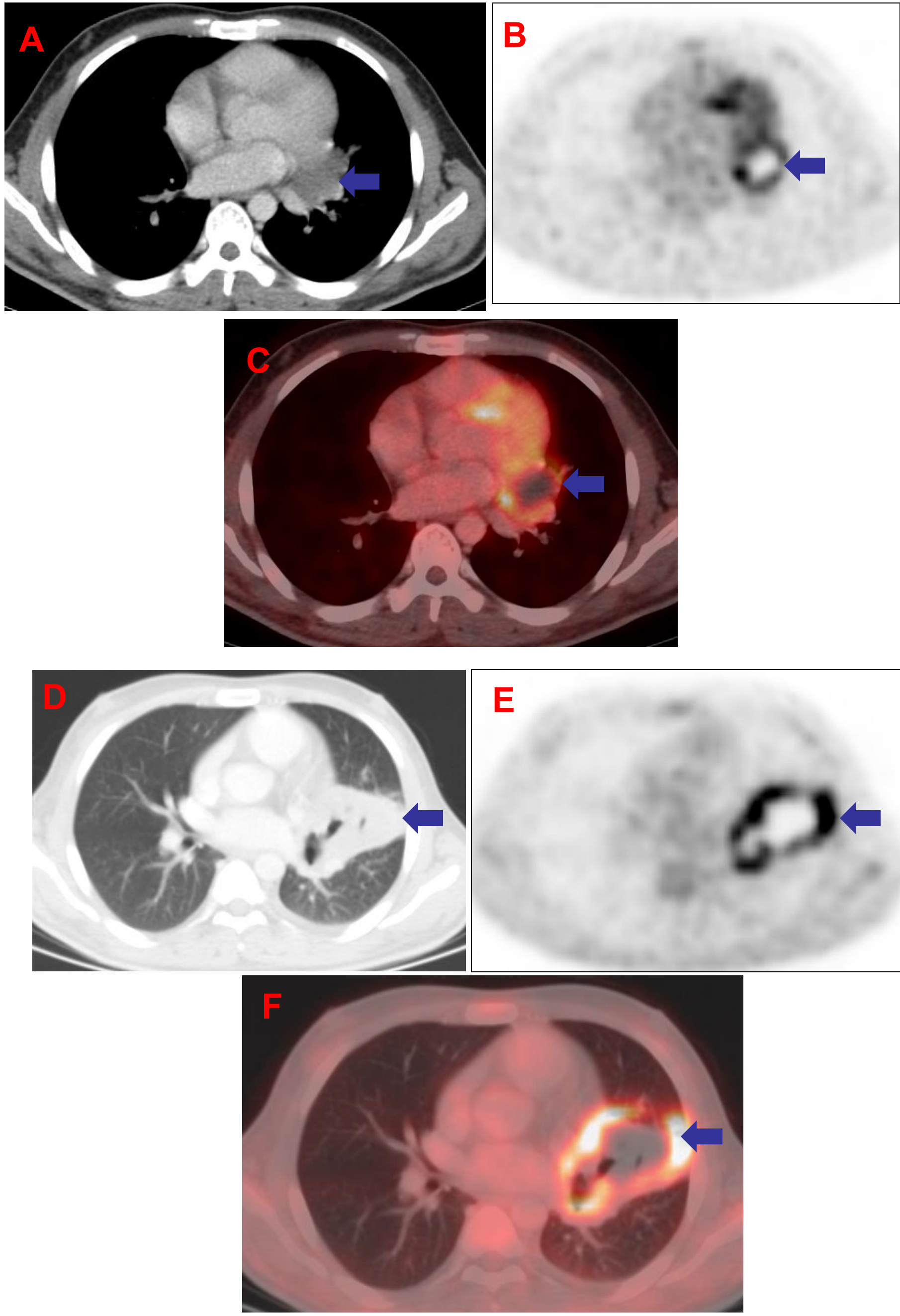
**CASE 3** : 57 years old male diagnosed case of **Classical Hodgkin's lymphoma** on Right Supraclavicular lymph node, biopsy underwent Staging PET-CT scan which revealed nodal disease above the diaphragm with pulmonary and skeletal involvement. The pattern of lung involvement in this patient was characteristic of **Lymphangitis Carcinomatosa** with dense right hilar consolidation and extensive nodularity in the right lung parenchyma, SUV of maximum 5.3. (*Axial CT, PET only, Fusion image A,B,C*)



**CASE 4** : 12 years old male with established diagnosis **Classic Hodgkin's lymphoma, nodular sclerosis type** Left Upper Neck lymph nodes, biopsy with Stage II disease, nodal disease above diaphragm on baseline PET-CT. Response assessment PET-CT scans were in favor of complete metabolic response with significant regression of cervical nodes. Further response evaluation scan demonstrated interval development of FDG avid ill- defined 2.8 cm soft tissue density nodule in right lung - SUV 11.8 suggestive of disease progression. But contrary to what was expected, the histopathology results of this hypermetabolic right lung nodule depicted moderate interstitial chronic inflammation. PET-CT scan performed after 2 months showed complete resolution of this avid lung nodule. (*Axial CT, PET only, Fusion image A,B,C*)



**CASE 5** : 18 years old male treated case of **Nodular sclerosis classic Hodgkin's lymphoma** (Right Cervical Lymph Node Biopsy) presented with signs & symptoms of disease recurrence. Previously Stage IIIS disease. Restaging with FDG PET-CT scan showed disease progression in terms of interval development of multiple hypermetabolic soft tissue density nodules scattered in bilateral lung fields, largest sub-pleural nodule in right lower lobe measures 2.2 x 1.8 cm, SUV 5.3 and in left lower lung measures 1.8 x 1.7 cm, SUV 4.1. Associated mediastinal and axillary lymphadenopathy. Histopathology of one of the avid right lung nodules confirmed recurrence of **Classic Hodgkin's lymphoma**. (*Axial CT, PET only, Fusion image A,B,C*)



**CASE 6** : 34 years old man diagnosed with **diffuse large B-cell lymphoma** (Right Inguinal Lymph Node trucut Biopsy). On his staging PET-CT scan, there was a single avid left pericardiac lung nodule measuring up to 1.2cm, SUV. Interim PET-CT scans revealed interval increase in size of this left para-cardiac soft tissue density nodule, with internal photopenic necrotic area & peripheral rim of increased metabolic activity; measuring up to 2.8 x 3.8 cm, SUV ranging up to 5.1, contiguous with the left peri-hilar nodal recess. (*shown by purple arrows A,B,C*). Subsequent response evaluation PET-CT scans demonstrated further morphological and metabolic progression in left peri-hilar region with internal development of central cavitation, measuring up to 8.2 x 6.2 cm [TR x AP] SUV 7.4. Adjacent perilesional air space foci with persistent encasement of left main bronchus and left superior pulmonary artery (*shown by purple arrows D,E,F*)

