

CASE 2

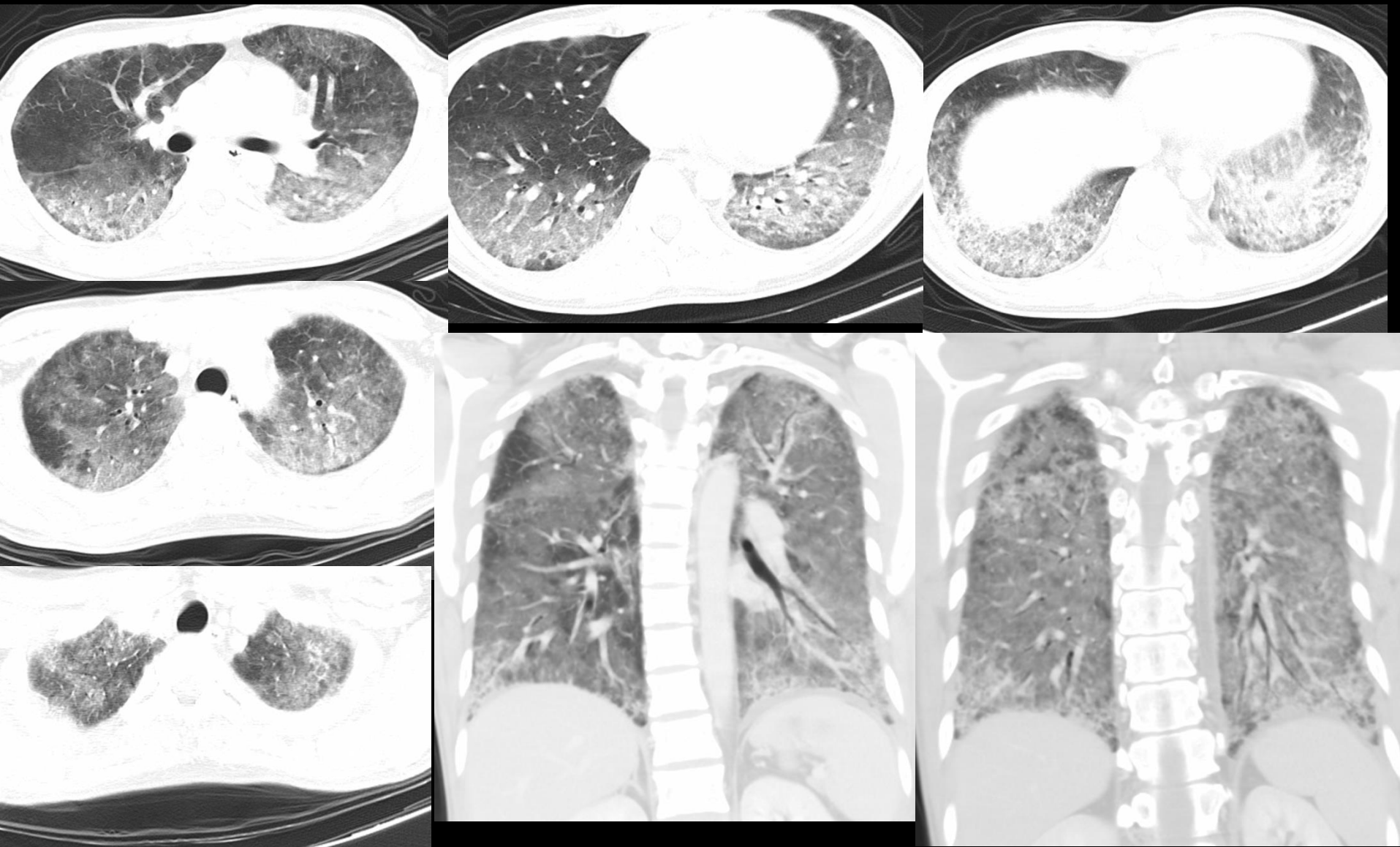
Case 2

- 34 y/o male
- S: Progressive dyspnea for days
- O: Fever up to $38\sim 39^{\circ}\text{C}$
- 2021-01-09 CXR & Chest CT

2021-01-09 CXR



2021-01-09 Chest CT



Differential diagnosis

- HIV-related disease
 - CMV infection
 - Pneumocystis jiroveci pneumonia (PJP)
- Atypical infection
 - Legionella pneumonia
 - Viral pneumonia
- Hypersensitive pneumonitis

Diagnosis

- CMV pneumonitis

簽收日期	1100108
簽收時間	0841
工作單號	5900011416
試管編號	5900011416
報告日期	1100112
報告時間	1736
委外代檢機構	雙和醫院
CMV Viral Load(血液)外送	403.0 IU/mL

CMV IgG (血液)(委外) [巨大細胞病毒抗體 酵素免疫法]			>250.000 AU/ml [<6.000]
CMV IgG 結果 [巨大細胞病毒抗體 酵素免疫法]			Positive
CMV IgG 生物參考區間 [巨大細胞病毒抗體 酵素免疫法]			Negative:<6.0 AU/mL; Equivocal:6.0-15.0 AU/mL; Positive:>15.0 AU/mL
CMV IgM (血液)(委外) [巨細胞病毒核抗原抗體]			0.080 index [<0.85]
CMV IgM 結果 [巨細胞病毒核抗原抗體]			Negative
CMV IgM 生物參考區間 [巨細胞病毒核抗原抗體]			Negative:<0.85 Index; Grayzone:0.85-0.99 Index; Positive:>=1.00 Index

Lym count				0.506 10 ³ /uL [1.050-3.180]
CD3+				79.29 % [56.00-86.00]
CD3+/4+				2.60 % [33.00-58.00]
CD3+/8+				72.43 % [13.00-39.00]
CD3+絕對值				401.19 /uL [742.00-2750.00]
CD3+/4+絕對值				13.15 /uL [404.00-1612.00]
CD3+/8+絕對值				366.50 /uL [220.00-1129.00]
CD4/CD8 RATIO				0.04 [0.60-2.50]
CD16+/CD56+				12.64 % [5.00-26.00]
CD16+/CD56+絕對值				63.95 /uL [84.00-724.00]
CD19+				6.56 % [5.00-22.00]
CD19+絕對值				33.18 /uL [80.00-616.00]

Imaging lung manifestations of HIV/AIDS

- CD4 numbers in the blood determines possible organisms responsible for pulmonary infection

TABLE 1: Differential Diagnosis of Pulmonary Findings in Patients With HIV Infection

Pulmonary Consolidation	Ground-Glass Opacity	Cystic Lesions	Peribronchovascular Opacities
Infection	Infection	PCP (CD4 < 200 cells/mm ³)	Neoplastic
Bacterial	Viral	Lymphocytic interstitial pneumonia	Kaposi sarcoma (CD4 < 200 cells/mm ³)
CD4 < 200 cells/mm ³	Atypical bacterial		Lymphoma
Mycobacterial	CD4 < 200 cells/mm ³		Lymphangitic carcinomatosis
Fungal	PCP		
	CD4 < 100 cells/mm ³		Lymphocytic interstitial pneumonia
Neoplastic	Cytomegalovirus		Sarcoidosis
Lymphoma			
Lung cancer	Interstitial lung disease		
	Lymphocytic interstitial pneumonia		
	Nonspecific interstitial pneumonia		

Note—PCP = *Pneumocystis jiroveci* pneumonia.

Table 2: Intergation of clinical date

A) Based of CD4

- CD >400 : Increase risk of
 - Bactetial infection
 - *Mycobacterium tuberculosis*
- CD4 200-400 : Increase risk for
 - Recurrent bacterial infections
 - *Mycobacterium tuberculosis*
 - Lymphoma and Lymphoproliferative disorders
- ~~CD4 < 200~~ Increase risk for
 - PCP
 - Disseminated *Mycobacterium tuberculosis*
- ~~CD4 < 100~~ Increase risk of
 - PCP
 - A typical *Mycobacterium tuberculosis*
 - CMV
 - Kaposi's sarcoma
 - Lymphoma

B) Others

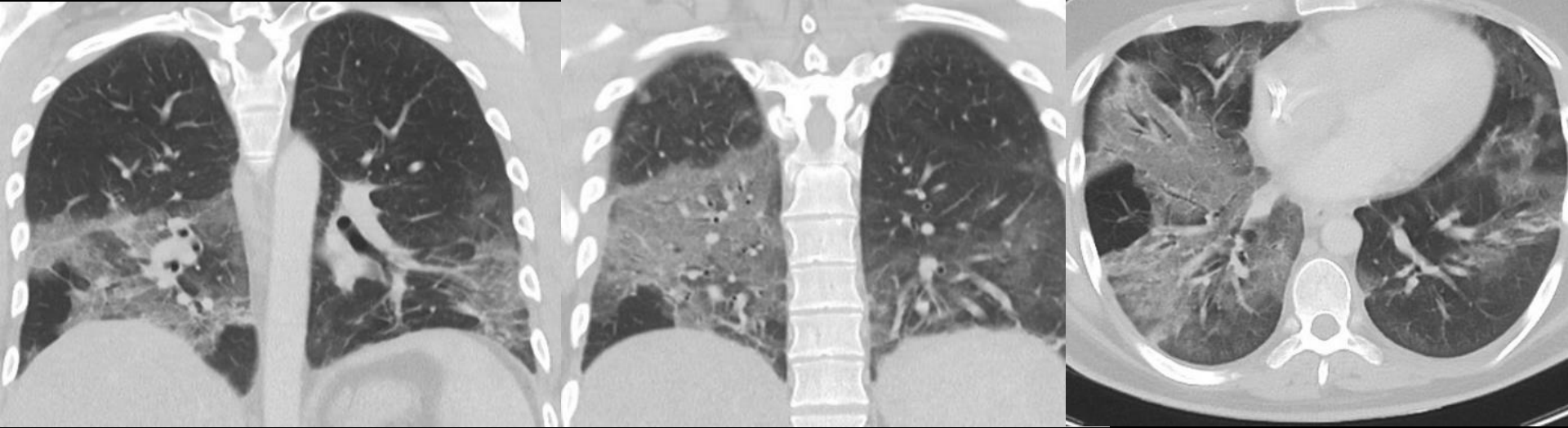
- Transmission rout: Kaposi's sarcoma is almost exclusively in homosexual and bisexual men and their partners
- Intravenous drugs abuser: at increase risk of infection and *Mycobacterium tuberculosis*
- Being on therapy, Steroid, HAART, prophylaxes therapy
- Prior history of infection
- Overall patients status and clinical presentation

Allen CM, Al-jahdali HH, Irion KL et-al. Imaging lung manifestations of HIV/AIDS. Ann Thorac Med. 2010;5 (4): 201-16.

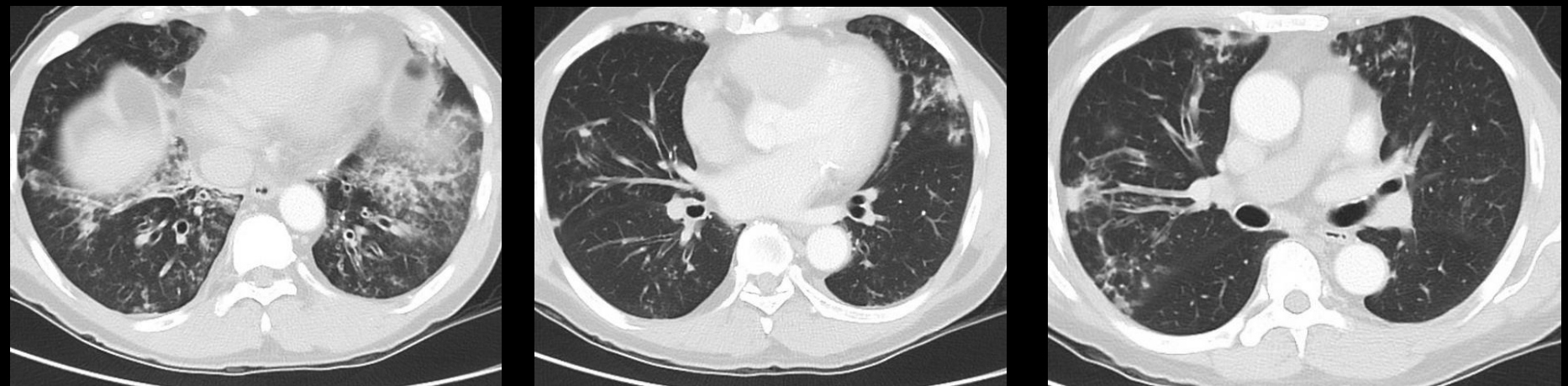
Lichtenberger JP, Sharma A, Zachary KC et-al. What a differential a virus makes: a practical approach to thoracic imaging findings in the context of HIV infection--part 1, pulmonary findings. AJR Am J Roentgenol. 2012;198 (6): 1295-

CMV pulmonary infection

- The imaging findings are varied and overlap other AIDS-related diseases, most notably PCP
 - ✓ GGO: ~67% cases
 - ✓ Perihilar & lower zone mixed alveolar-interstitial infiltrates
 - ✓ Confluent consolidation: may be more marked towards the lower lobes
 - ✓ Small nodules: Tend to have bilateral symmetrical & involve all zones
 - ✓ Lessly: bronchiectasis, tree-in-bud
- PJP: GGO, reticular opacities, septal thickening, crazy paving
 - ✓ May contain (not always) small intrapulmonary cysts/ pneumatoceles
 - ✓ May have a more apical distribution
 - ✓ The ground glass changes may be more homogeneous
 - ✓ Lymphadenopathy is uncommon (10%)



90 days post bone marrow transplant. Now swinging fevers



Renal transplant recipient, immunosuppressed. Fevers for 2 wks
Microbiology post bronchoscopy was positive for CMV

Typical findings in CMV pneumonitis on CT:

- Multiple nodules
- Consolidation areas: Predominantly involving the lung bases

