HIV and Malignancy

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NRITLD

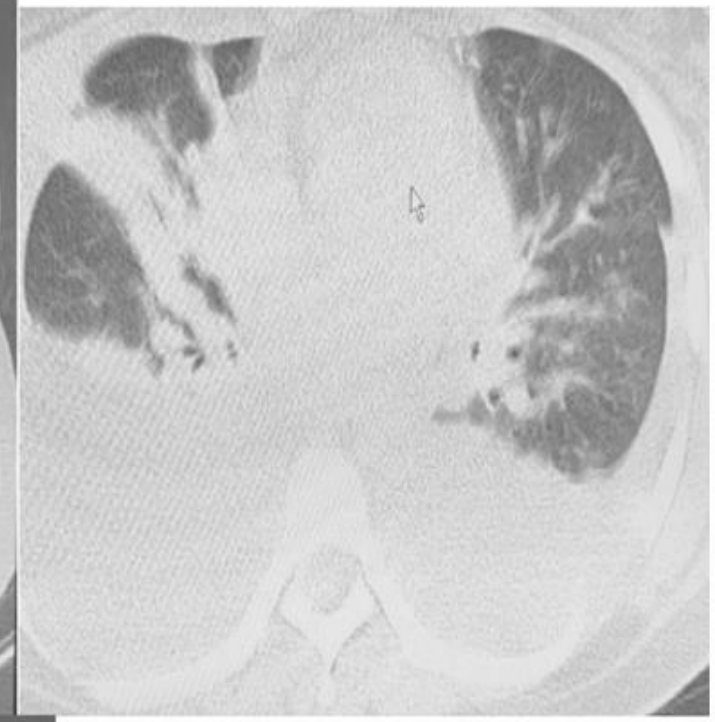
SBMU

- A 27- year- old woman with a 10 pack- year smoking history was admitted to Masih Daneshvari Hospital in Tehran, Iran, presenting with a 15- day history of progressive dyspnea, non- productive cough, anorexia, and significant unintentional weight loss.
- Her past medical history was notable for a hospitalization 1 month prior due to the appearance of multiple painless, violaceous to black cutaneous plaques with a generalized distribution.

- At the time of admission, the patient was alert and oriented. Vital signs included a heart rate of 115 beats/min, respiratory rate of 24 breaths/min, body temperature of 37.1°C, and oxygen saturation of 85% on room air.
- Physical examination revealed widespread, non- tender, violaceous skin lesions over the face, abdomen, and extremities

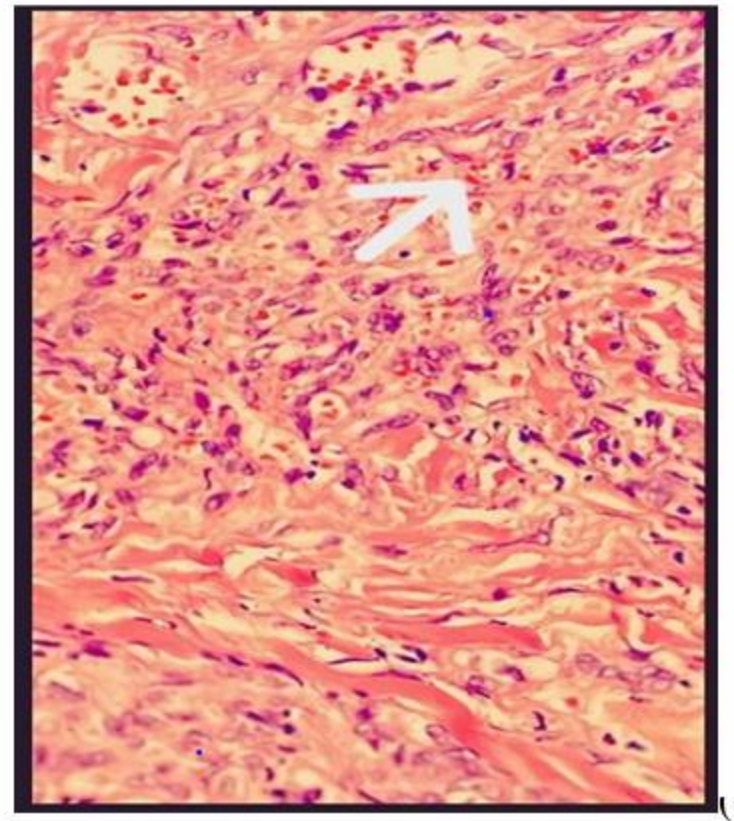
- Initial laboratory evaluation revealed leukopenia with a white blood cell (WBC) count of 2200/µL, with a differential of 90% polymorphonuclear cells and 10% lymphocytes. Hemoglobin was measured at 9.3 g/dL, and the platelet count was 110,000/µL, indicating mild thrombocytopenia.
- Arterial blood gas analysis showed a pH of 7.35, partial pressure of carbon dioxide (PCO_2) of 45 mmHg, and bicarbonate (HCO_3-) level of 21 mEq/L, suggestive of a compensated respiratory acidosis

FIGURE 3 | Chest radiograph demonstrating massive bilateral pleural effusions, with blunting of the costophrenic angles and obscuration of diaphragmatic and lower lung borders.



- Given the clinical appearance and associated systemic symptoms, an HIV serologic panel was obtained, which returned positive.
- Histopathological evaluation of a skin biopsy from one of the lesions revealed the presence of spindle- shaped cells, dilated vascular channels, extravasated erythrocytes, hemosiderin- laden macrophages, and a perivascular infiltrate of plasma cells, findings consistent with KS

(a)



(b)

- The patient was initiated on antiretroviral therapy (ART) consisting of dolutegravir and a fixed- dose combination of tenofovir disoproxil fumarate (TDF) and emtricitabine (FTC) (Truvada).
- Due to a markedly reduced CD4+ count of 20 cells/µL, she was also started on prophylactic trimethoprim- sulfamethoxazole.
- Further evaluation revealed a purified protein derivative (PPD) test result and serologies for hepatitis B and C viruses Negative

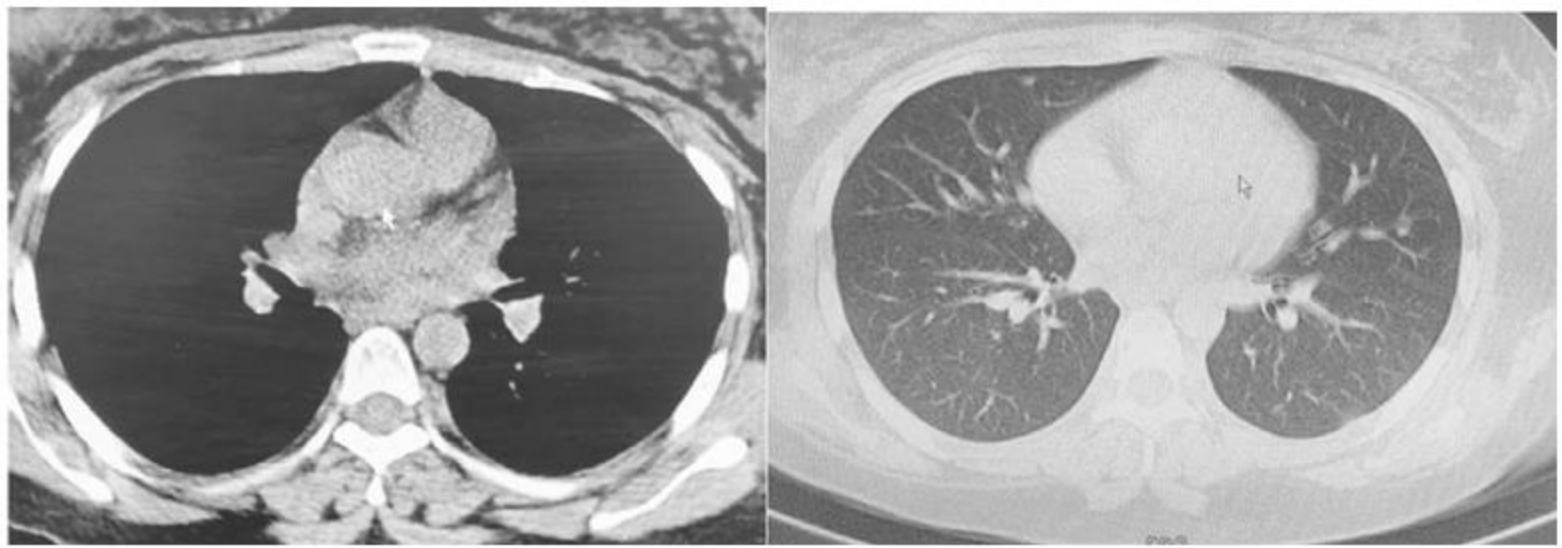
- Given the presence of massive hemorrhagic pleural effusions, a thoracic surgery consultation was obtained for pleural biopsy, drainage of the pleural effusion, and placement of a chest tube.
- The patient subsequently underwent rigid bronchoscopy, which revealed no endobronchial lesions or abnormalities. Diagnostic thoracoscopy was performed, during which multiple nodular lesions were observed on both the parietal and visceral pleura.

Characteristics	Result
Appearance	Turbid
Color	Red
Protein	5.4 g/L
Glucose	40 mg/dL
Lactate dehydrogenase (LDH)	1,485 U/L
WBC	2,450/mL (PMN = 55%, Lymphocyte = 41%)
RBC	10,000/mL
Adenosine deaminase (ADA)	47 U/L
Bacterial smear and culture	Negative
Fungal smear and culture	Negative
Pan fungal PCR	Negative
Acid-fast bacilli	Negative
Mycobacterium tuberculosis polymerase chain reaction (PCR)	Negative
Cytomegalovirus (CMV) PCR	Negative
Human herpes virus 8 (HHV-8) PCR	**Positive**

	A: Parietal pleura, No. 1: biopsy	B: Parietal pleura, No. 2: biopsy
Macroscopic Description	One fragment of nodular tan-yellow membranous tissue measuring 2.5×2.3×0.2 cm.	Three fragments of cream-tan elastic tissue, collectively measuring 0.7×0.6×0.2 cm.
Diagnosis	**Parietal pleura**—Chronically inflamed fibroadipose tissue involved by *Kaposi sarcoma*.	**Visceral pleura**—Chronically inflamed fibroadipose tissue involved by *Kaposi sarcoma*.

- Liposomal doxorubicin (Doxil) was administered at a dose of 20 mg/m2 every 21 days for a total of 6 months, in com bination with ongoing ART and prophylactic trimethoprim- sulfamethoxazole.

FIGURE 5 | Clinical improvement of cutaneous Kaposi sarcoma lesions following 6 months of treatment with liposomal doxorubicin and antiretroviral therapy. Marked reduction in the number and size of violaceous plaques on the skin is evident.



- Because of an increased likelihood of both first and second primary cancers among people with HIV, enhanced cancer prevention, screening, and treatment efforts are needed for people with HIV both before and after an initial cancer diagnosis.
- It is recommended that clinicians who are treating patients with cancer inquire and screen for HIV if serostatus is not established

- AIDS-defining cancers and non–AIDS-defining cancers, especially virally based cancers, occur more frequently in people with HIV and merit increased attention
- Higher CD4 count (≥350 cells/μL) and maximal viral suppression are associated with lower 5-year mortality among patients with HIV and any cancer diagnosis

- While most cancers are not diagnosed at younger ages in people with HIV, lung cancer, anal cancer, and myelomas may occur at younger ages among people with HIV compared with those without HIV.
- People with HIV are at greater risk for oral/pharyngeal and kidney cancers

- All patients should be asked about tobacco use at every healthcare encounter, and those who smoke should be strongly encouraged to stop smoking and offered smoking cessation assistance, including pharmacotherapy and behavioral interventions.

- Adults aged between 50 and 80 years with a ≥ 20 pack-year smoking history and who currently smoke or have quit within the past 15 years receive screening noncontrast low-dose computed tomography (LDCT) scan of the chest to detect lung cancer
- Persons with HIV may receive the same mortality benefit from LDCT screening as those not living with HIV if the CD4 count is >500 cells/µL and the patient is ART-adherent

- Because alcohol increases risk of certain cancers, moderation in alcohol consumption should be recommended.
- Vaccinations against HPV and HBV are essential to reduce the risk of cervical, anal, head, and neck cancers and hepatocellular carcinoma

- Providers should be vigilant for cancer, especially human oncogenic viral-based cancers, associated with Epstein-Barr virus (EBV), HPV, HCV, and HBV, even if no specific screening is recommended.
- Screening for prostate, breast, lung, and colon cancer should be conducted according to guidelines for the general population.

- Breast cancer is the second leading cause of cancer-related deaths in women in the United States after lung cancer .
- It does not appear to be increased in prevalence among people with HIV, although unusual clinical presentations and rapid progression have been reported, suggesting that breast cancer may behave more aggressively in this setting (bilateral disease, poorly differentiated car cinoma, and early metastasis)

- Biennial mammogram screening is recommended for persons aged 40–74 years
- A digital anal rectal exam should be performed annually, whether or not high-resolution anoscopy (HRA) is available

- Transgender women, cisgender men aged >35 years who have sex with cisgender men, and all other people with HIV aged >45 years should be screened with an anal Papanicolaou (Pap) test if there is access to or ability to refer for HRA (preferred) and treatment.
- The IDSA recommends HPV testing with cytology only and not just HPV testing alone.

- For low-grade squamous intraepithelial lesions or worse, the patient should be referred for HRA and HPV testing if aged <45 years.
- Patients aged at least 45 years should be referred for HRA and HPV testing.

- All high-grade squamous intraepithelial lesions (HSILs) should be treated, ideally with hyfrecation, and monitored routinely among people with HIV and aged >35 years.
- All patients with anal cancers should be referred to surgical oncology for treatment.

- Persons with HIV aged between 21 and 29 years should have a cervical Pap test annually. If the results of 3 consecutive cervical Pap tests are normal, follow-up Pap screening should be in 3 years.
- Abnormal Pap test results require either follow-up colposcopy by a qualified practitioner or repeat Pap test in 6–12 months.

- For persons aged ≥30 years, cervical Pap tests should be done annually. If the results of 3 consecutive Pap tests without an HPV test are normal, a follow-up Pap should be performed in 3 years.
- If the Pap test is done with HPV testing and both the cytology and HPV testing are negative, follow-up cervical cancer screening can be done in 3 years after a single Pap smear

- Unlike for people without HIV, there is no age limit for Pap screening.

- If HPV testing reveals HPV16 or HPV16/18, referral for colposcopy is recommended.

- Shared decision-making for prostate-specific antigen (PSA) testing is recommended for patients aged 50–69 years with at least a 10-year life expectancy.
- Screening for hepatocellular carcinoma every 6 months by ultrasound with or without alpha-fetoprotein is recommend ed for those with cirrhosis from any cause, those with chronic hepatitis B, and those with a history of chronic hepatitis C (treated or untreated) and stage F3 or F4 fibrosis

Screening for and prevention of cancer	Smoking	Screen at every visit and for smokers, advise about benefits of cessation and offer pharmacotherapy and referral to behavioral interventions.	Provide resources per local guidelines, including classes, agents that facilitate smoking cessation.
	Low-dose chest computed tomography scan	Those aged between ages 50 and 80 years who have ≥20 pack-years of smoking and are current or former smokers should have an annual low-dose computed tomography scan of the lungs.	
	Prostate cancer screening	Digital rectal exam: considered primary evaluation before PSA screening; consider for patients aged 55–69 years. PSA screening: Age 50–69 years: discuss risks and potential benefits with patient. Age ≥70 years: PSA screening is not recommended.	The impact of HIV on prostate cancer risk is not yet known. African Americans and people with a relative with prostate cancer have a higher burden of prostate cancer. Clinicians should follow US Preventative Services Task Force or American Cancer Society guidelines and consider patient wishes.

Type of Intervention	Intervention	Recommendation	Comments
	Colon cancer screening	Perform for those aged 45–75 years if average risk (including personal and family history). Age 76–85 years: individualize screening based on overall health and prior screening. Consider screening earlier if first-degree relatives diagnosed with colon cancer prior to age 50 years.	Screening tests include: stool-based screening (guaiac fecal occult blood test, FIT, FIT-DNA) every year (or up to 3 years for FIT-DNA) or colonoscopy every 10 years if normal, or more frequently if polyps are identified.
	Breast cancer screening	Age 50–75 years: mammography performed at least every 2 years.	Age 40–49 years: inform of the potential risks and benefits of screening and offer screening every 2 years.
	Cervical cancer screening	Age <21 years: Pap test within 1 year of sexual activity, no later than age 21 years. Age 21–29 years: Pap test at diagnosis of HIV, repeat yearly × 3, then if all normal, Pap test every 3 years. Age <30 years: no HPV testing unless abnormalities are found on Pap test. Age ≥30 years: Pap test only, same as age 21–29 years. Or Pap test with HPV testing, if both negative, then Pap test with HPV every 3 years.	Abnormal Pap test and/or HPV follow-up similar to general population. Note: In general, continue screening past age 65 years.
	Anal cancer screening	Digital anorectal exam: perform at least annually if asymptomatic. Anal Pap: screen transgender women and men aged >35 years who have sex with men and all other people with HIV aged >45 years, with anal Pap smears if there is access to or ability to refer for high-resolution anoscopy and treatment.	Abnormal anal Pap tests should prompt referral for high-resolution anoscopy.
	Hepatocellular carcinoma screening	Perform alpha-fetoprotein and liver ultrasound every 6 months.	For patients with cirrhosis from any cause or chronic hepatitis B, as well as fibrosis levels F3 or F4 among patients with hepatitis C.