CLINICAL VIGNETTE

A Rare Case of Disseminated Kaposi Sarcoma after Glucocorticoid Use

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Case Presentation

A 33-year-old transgender female with past medical history of HIV on bictegravir/emtricitabine/tenotovir/alafenamide (BIKTARVY), Kaposi Sarcoma (KS), Herpes Simplex Virus (HSV)-2, lymphogranuloma venereum (LGV), late latent syphilis undergoing treatment, and prior methamphetamine use presented with one week of worsening nonproductive cough, shortness of breath, and bloody mucoid stools. The patient was admitted 3 weeks prior for night sweats and dry cough for 4 months. Infectious evaluation including legionella, coccidiomycosis, TB, stool culture, ova/parasite were all negative. Pending further laboratory confirmation, and she was discharged on empiric sulfamethoxazole/trimethoprim and prednisone for pneumocystis pneumonia (PCP), outpatient penicillin injections for syphilis, and doxycycline for LGV. However, her PCP direct fluorescent antibody (DFA) returned negative after her discharge. She was not taking her Biktarvy prior to last admission, and her CD4 count 3 weeks ago was 80 cells/uL, with HIV RNA load at 260312 copies/ml. Her initial vital signs were notable for temperature of 38.1°C, heart rate 112 beats/min, and oxygen saturation in the mid-90s on room air. Physical exam was largely unremarkable except for increased work of breathing and a violaceous plaque on the left hard palate. Initial laboratory data was significant for WBC of 14.2 K/cumm, Hemoglobin 11.0 g/dl, CD4 count of 165 cells/ul, and HIV RNA load of 270 copies/ml. Procalcitonin was 0.03 ng/ml, and COVID-19 PCR was negative. Blood cultures, repeat stool cultures, stool ova/parasite, and cryptosporidium DFA were all negative. CT chest with contrast showed worsening of multifocal areas of dense mass-like consolidation and adjacent ground-glass opacity, with obliteration of segmental and subsegmental bronchi. In the setting of HIV/AIDS was suspicious for pulmonary KS in addition to other infectious/neoplastic etiologies.

The patient was continued on Biktarvy and doxycycline. Empiric Ceftriaxone was started, Bactrim was decreased to prophylactic dose, and prednisone was discontinued. Bronchoscopy with bronchoalveolar lavage (BAL) showed erythematous plaque-like lesions in the oropharynx and tracheobronchial tree bilaterally consistent with Kaposi Sarcoma. Colonoscopy was deferred to outpatient given the chronicity of her symptoms, hemoglobin stability, and poor respiratory status. A full staging computerized tomography (CT) showed bilateral femoral adenopathy that was biopsied and confirmed to be a Human Herpesvirus 8 (HHV-8) positive, spindle cell variant of Kaposi Sarcoma. After a baseline echocardiogram, patient was started on systemic doxorubicin therapy in conjunction with Biktarvy. Her hospital course was complicated by episodes of fever, tachycardia, and tachypnea thought to be from immune reconstitution inflammatory syndrome (IRIS), but her symptoms gradually improved. At one-month follow-up, her cough, dyspnea, and hematochezia had resolved.

Discussion

Kaposi Sarcoma is an AIDS defining illness and is the second most common cancer in HIV patients after Non-Hodgkin's Lymphoma.[1] AIDS-related KS is most often seen in homosexual or bisexual men and has a strong association with HHV-8, also known as the KS herpesvirus (KSHV). The pathogenesis of AIDS-related KS has been linked to immunosuppression in HIV patients infected with KSHV, and CD4+ T-cell count has been shown to be an important factor associated with the development of KS. Patients with CD4 <200 had a 11 times higher risk of getting KS than those with CD4 ≥500.[2] Since the introduction of Antiretroviral Therapy (ART), the annual incidence of KS has decreased by as much as 39% in some epidemiologic studies.[3]

Interestingly, corticosteroid therapy has been associated with the induction and exacerbation of KS in HIV patients and non-HIV patients undergoing immunosuppressive therapy, with an interval of 22 days to 20 years between initiation of steroid therapy to appearance of KS in one study.[4] Our patient was started on prednisone 3 weeks prior to admission for the treatment of presumed PCP pneumonia. It is possible that corticosteroids played a role in the progression of KS.

KS is often recognized by its cutaneous lesions, which appear as nontender, nonpruritic, pink to purple macules or papules most commonly on the lower extremities, nose, oral mucosa, and genitalia. Although KS is often diagnosed based on the characteristic appearance of its lesions, the diagnosis should be confirmed histologically as certain opportunistic infections can mimic KS lesions, including bacillary angiomatosis, blastomycosis, and cryptococcosis[1]. Visceral KS involvement is less common with only 15% incidence in 469 patients with AIDS-related KS in one study.[5] The most frequent sites of visceral involvement are the oral cavity, gastrointestinal tract, and respiratory system. Oral lesions can cause dysphagia and secondary infection. Pulmonary lesions can present with dyspnea, dry cough, fever, hemoptysis, and appear as slightly

raised cherry-red lesions on bronchoscopy. Gastrointestinal lesions are usually asymptomatic but can cause bleeding or obstruction.[6]

The treatment of AIDS-related KS is based on a TIS staging system developed by the modified AIDS Clinical Trials Group (ACTG). The staging is based on tumor (T), immune status (I), and systemic illness (S), with a 0 indicating good risk and 1 indicating poor risk for each category.[6] Asymptomatic limited cutaneous disease that is cosmetically acceptable is often treated with ART alone, while symptomatic and cosmetically unacceptable cutaneous disease should be treated with ART and the least toxic or invasive therapy possible. Topical treatment, intralesional chemotherapy, radiation, and local excision are some available options. The first-line treatment for patients with advanced cutaneous, oral, visceral, or nodal KS like our case is usually ART with clinical trial or systemic therapy. Liposomal doxorubicin is the preferred first-line systemic therapy, with an alternative option being paclitaxel. Given doxorubicin's cardiotoxicity, a baseline echocardiogram should be performed before initial and repeat courses of doxorubicin.[1]

Despite initial response, continued surveillance with history, physical exams, lab work including CD4+ T-cell count, HIV viral load, as well as imaging studies for disseminated disease are crucial, as HHV-8 is not eradicated with the treatment of KS. Our patient was classified as T1I1S1 indicating poor risk with estimated 3-year survival of 53% based on prior studies. However, the overall survival of AIDS-related KS has greatly improved with the introduction of ART and liposomal anthracycline chemotherapy, with a 5- and 10-year survivals of 85% and 83%, respectively in recent studies.[5]

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