S Afr J Surg. 2025;63:98-100. Online first
https://doi.org/10.36303/SAJS.00917

S Afr J Surg
ISSN 038-2361

CASE REPORT

Anal plasmablastic lymphoma with complete response to antiretroviral therapy – a case report

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Summary
A 40-year-old male, known to be positive with the human immunodeficiency virus (HIV), presented with a large perianal mass and faecal obstruction. His CD4 count was 121 cells/mm^3 suggesting advanced HIV disease, and he was started on second-line antiretroviral therapy. Magnetic resonance imaging (MRI) confirmed a large mass involving the anorectal junction. A biopsy of the tumor revealed a plasmablastic lymphoma (PBL). A diverting colostomy was performed for faecal obstruction. While awaiting chemotherapy treatment, the tumour rapidly decreased in size with complete clinical resolution. PBL is rare and has a dismal prognosis. Spontaneous regression of PBL has been reported but regression on second-line antiretroval therapy has not been previously described.
Keywords: lymphoma, plasmablastic, human immunodeficiency virus, anal tumour, Ammon regression

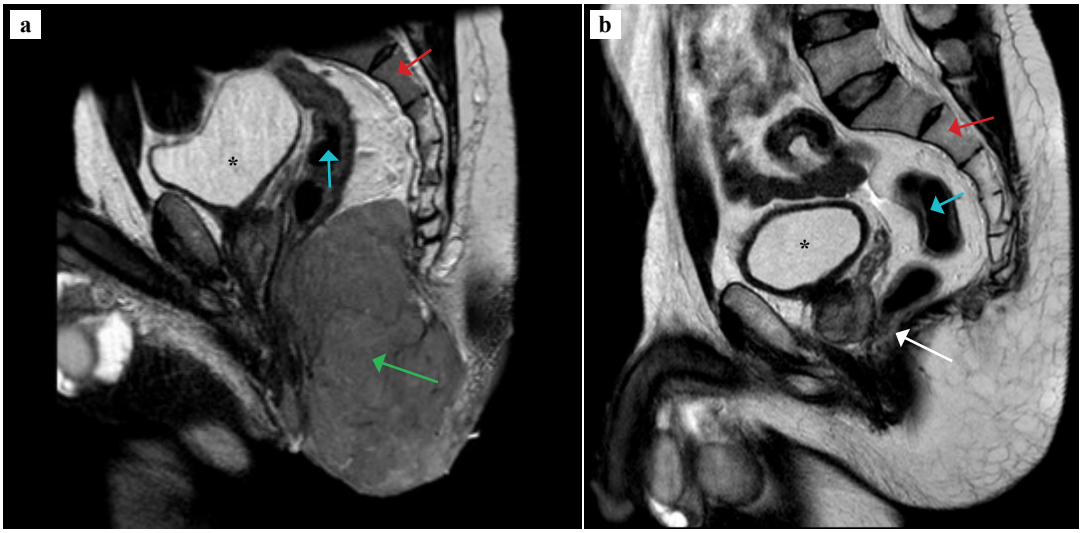
Case report

A 40-year-old male presented with perianal pain and rectal bleeding of six months duration. He was aware of a mass next to his anus that had been enlarging during this period. More recently, he also had difficulty in passing stools. He reported no weight loss but complained of night sweats. He had been diagnosed with human immunodeficiency virus (HIV) infection three years previously and reported having been on conventional first-line antiretroviral (ARV) treatment (tenofovir, efavirenz, emtricitabine) for this period.

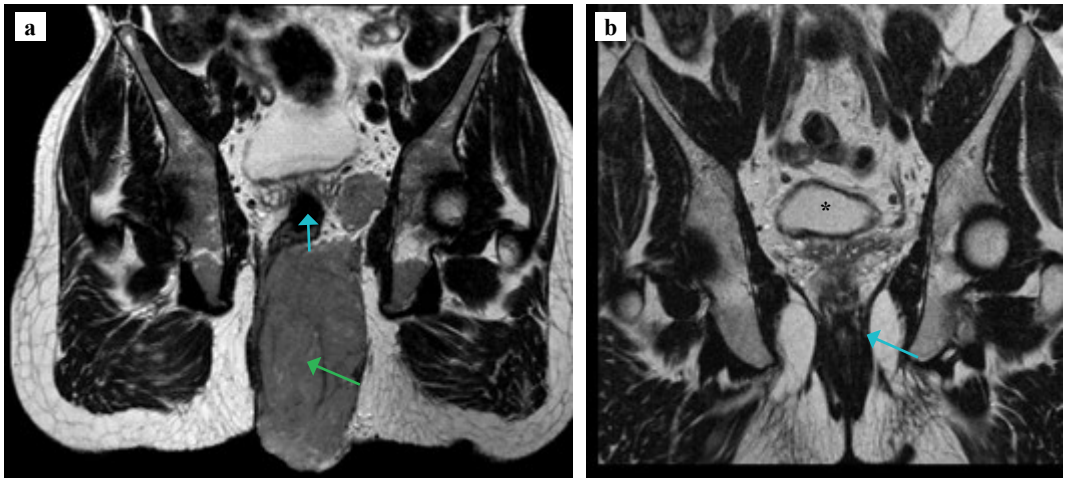
Clinical examination revealed a healthy-looking man with no systemic abnormalities. There was a large perianal mass to the left and posterior to the anal orifice (Figure 1a). The surface was devoid of skin and superficially ulcerated but the defect did not have an elevated margin. The tumour involved the anal orifice which was displaced to the right. The mass extended high into the ischio-anal space on digital rectal examination. The anus was almost completely obstructed and sigmoidoscopy was not possible. There were no palpable groin lymph nodes. Routine blood tests revealed no abnormalities. The patient's CD4 count was 121 cells/mm^3 suggesting advanced HIV disease but the viral load was not determined.

A core needle biopsy was performed. Microscopic examination revealed an unremarkable epidermis with no signs of dysplasia. The dermis contained a sheeted, poorly cohesive malignant lymphoid proliferation. Large cells, most of which had a plasmacytoid appearance, were identified. These cells had prominent basophilic nucleoli and eccentric nuclei. The cytoplasm was abundant and amphophilic. Mitotic figures could be seen. A morphological diagnosis of a high-grade lymphoma was made.

Figure 1a: Site of large ulcerated lesion protruding to the left of the gluteal cleft
Figure 1b: Complete resolution of the lesion after anti-retroviral therapy



Figures 2a and 2b: T2-weighted sagittal pre- (a) and post-treatment (b) MRI images. Figure 2a shows a large ulcerating predominantly homogenous hypointense mass protruding through the left gluteal cleft (green arrow in 2a). There is complete resolution of the mass after antiretroviral therapy (white arrow in Figure 2b). Note urinary bladder (asterisk in 2a and 2b), rectum (blue arrow) and sacrum (red arrow).



Figures 3a and 3b: Coronal T2-weighted pre- (a) and post-treatment (b) MRI images. Figure 3a shows a large ulcerating predominantly homogenous hypointense mass protruding through the left gluteal cleft (green arrow in 3a). There is complete resolution of the mass after antiretroviral therapy (blue arrow in Figure 3b). Note urinary bladder (asterisk in 3b) and rectum (blue arrow in 3a).

A panel of immunohistochemical stains were performed in the presence of adequate positive and negative controls. In addition, Epstein-Barr encoding region in situ hybridisation (EBER-ISH) was positive in most lesional cells. Based on the cellular morphology and immunohistochemical profile the diagnosis of a high-grade lymphoma was confirmed. The features were considered to be best in keeping with a plasmablastic lymphoma (PBL).

Computerised tomography (CT scan) of the chest, abdomen and pelvis showed a large localised tumour adjacent to the anus and rectum, and bulging externally next to the anus. There were no abnormalities in the abdomen or chest. A staging magnetic resonance imaging (MRI) scan confirmed a large predominantly homogenous hypointense mass extending into the surrounding structures. (Figures 2a and 3a.) The mass was predominantly perineal with involvement of the anorectal junction. There was also involvement of the internal and external anal sphincters, as well as components of the levator ani complex. There were large lymph nodes in the pelvis and left ischiorectal fossa.

To address the patient's faecal obstruction a sigmoid colostomy was performed. Due to the low CD4 count and the presence of an advanced AIDS defining tumour, second-line ARV therapy (tenofovir, lamivudine, dolutegravir) was immediately commenced. The mass rapidly decreased in size over a period of six months, while awaiting commencement of proposed cyclophosphamide, hydroxydaunorubicin, oncovin and prednisone (CHOP) chemotherapy, and had a complete clinical resolution (Figure 1b). Chemotherapy was nevertheless commenced. A repeat MRI after six months confirmed the complete clinical response (Figures 2b and 3b). The patient's colostomy was uneventfully reversed one year later. He is currently well and disease free.

Consent for publication of this case was given by the patient as well as the Research Ethics Committee of the Faculty of Health Sciences of the University of Pretoria (Ref 730/2023).

Discussion

PBL is a rare, highly-aggressive subtype of diffuse B-cell non-Hodgkin lymphoma occurring mainly in

immunocompromised subjects.[1] It is strongly associated with HIV and has a dismal prognosis. PBL is typically extranodal but other sites have been reported in HIV-positive patients. It was first described in the oral cavity of HIV-positive patients by Deleclusse et al.[2] Nodal disease alone is extremely rare.[1]

The pathogenesis of PBL is poorly understood but there is an association with Epstein-Barr virus (EBV) in the majority of the patients who are also HIV positive.[1] A third of patients reported with PBL have HIV infection. While the association of PBL with human herpes virus 8 (HHV8) is not clear, some studies have found HHV8-associated proteins in PBL tissue.[3] The majority of patients (60%) with PBL present with advanced disease and are symptomatic at initial presentation. Our patient was diagnosed with HIV three years prior to PBL presentation and had been on ARV treatment during that period.

There are no established guidelines on the management of PBL due to the rarity of the condition. Different chemotherapy regimens have been used with variable outcomes. The current National Comprehensive Cancer Network (NCCN) guidelines recommend infusional etoposide phosphate, prednisone, oncovin, cyclophosphamide and hydroxydaunorubicin EPOCH rather than the previous CHOP regimen.[4] Patients with PBL on ARV treatment seem to have a better outcome than HIV negative patients, possibly due to immune restoration and the ability to combat the disease more effectively.[5]

Spontaneous regression of PBL has been reported in immunocompetent patients after biopsy without any treatment. The postulated mechanism of regression is by immune stimulation by infection after biopsy.[6] The trauma of biopsy and stress could also stimulate immune response leading to regression. Despite the usually dismal prognosis of PBL, some patients have a better outcome. Resolution of PBL without chemotherapy has been reported in HIV infected patients on ARV treatment alone.[7,8] The dramatic response of our patient's tumour to second-line ARV treatment is remarkable and unique. This was presumably due to immune restoration.

Perianal conditions affect 30% of patients with HIV infection. These are mostly perianal abscesses, ulcers and condylomata.[7] Anal PBL cases have been reported, with varying clinical presentations, mostly as bleeding and ulceration.[8] Two cases similar to our patient, both with large protruding perineal soft tissue masses and constipation in the presence of AIDS have been reported.[9,10] Although anal PBL is extremely rare, lymphoma needs to be considered in the differential diagnosis of perianal conditions in HIV-positive patients. Notwithstanding the poor prognosis, some patients may have complete resolution of disease on ARV treatment alone, as described in this patient.

Acknowledgement

We acknowledge the assistance of Professor VOL Karusseit of the Department of Surgery with critical review of the manuscript, and assistance with writing.

Conflict of interest

The authors declare no conflict of interest.

Funding source

This study received no funding.

Ethical approval

Consent for publication of this case was given by the Research Ethics Committee of the Faculty of Health Sciences of the University of Pretoria (Ref 730/2023).

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