Anal Cytology Screening: An Aid to Diagnose Tuberculosis Infection in HIV/AIDS

Case

A 19-year-old heterosexual male, resident of Uzbekistan and a known case of human immunodeficiency virus (HIV), presented with complaints of warty lesions around penis, scrotum, and anal areas for last 2 years. There was no history of fever or any other systemic complaint. He gave history of high-risk sexual behavior. General physical and systemic examination was normal except for multiple warty lesions around anus, scrotum, and penis, pinkish in color, 3–5 mm in size, nontender, and nonindurated [Figure 1]. His recent absolute CD4 count was 509 cells/µl. He was on combination antiretroviral therapy (tenofovir, emtricitabine, and lamivudine) and isoniazid prophylaxis.

As a part of evaluation, liquid-based anal cytology was done in outpatient department. Large warty lesions were excised, and smaller lesions were cauterized under local anesthesia. Anal cytology smear showed many polymorphs, necrotic debris with superficial and intermediate squamous epithelial cells. Few epithelioid cell granulomas were seen [Figure 1]. Occasional epithelial cells showed enlarged irregular nucleus with perinuclear halo, that is, low-grade squamous intraepithelial lesion. On Ziehl Neelsen (ZN) staining, acid fast bacilli were demonstrated in the anal smear [Figure 1].

Human Papilloma Virus (HPV) DNA testing was also done on same sample by hybrid capture-2 technique and was positive for high-risk strains.

Discussion

Anal liquid-based cytology in patients of HIV/AIDS has been suggested by many guidelines as a standard of care to ensure early diagnosis of malignant and premalignant conditions. Despite widespread availability of Papanicolaou Liquid Based Cytology (LBC), it is rarely used by clinicians in this setting. In a recent review, it was suggested that incidence of anal cancer in patients living with HIV/AIDS is increasing. The risk is more in patients who have history of sex with men or those with condylomata.11

Anal cancer is rare to diagnose and difficult to approach with 5-year survival rate of 65.7%.5 The incidence of anal cancer is increasing at an average rate of 2.2% per year for the last decade. Much of this increase is due to the rise of new high-risk immunocompromised populations in the last three decades, including HIV-infected patients and organ transplant recipient.

Anal canal tumors have similarity to cervical cancer as it shares high rate of HPV coinfection—particularly HPV 16 subtype with studies reporting rates over 90% in cervical cancer, while perianal tumors’ HPV coinfection rate varies from 30% to 80%.5 In select high-risk populations, HPV testing has been shown to be an important and clinically useful screening tool in conjunction with anal liquid-based cytology testing. Bethesda system used to report cervical cytology is followed in anal LBC sample is collected in the same manner as is used in conventional pap using either broom-type device or plastic spatula and endorectal brush. The sample cells are suspended in a methanol-based fixative solution. The ThinPrep processor disperses the sample to separate debris; cells are then collected onto a filter with a vacuum and transferred to a microscope slide for cytological interpretation.

Gastrointestinal tuberculosis accounts for 1% of all cases of tuberculosis, among which 1% is in anal region. Anal tuberculosis generally presents as perianal nonhealing ulcer, perianal abscess, anal fissure, perianal warts, or atypical presentations like pilonidal sinus. Diagnosis depends on the microscopic detection of acid fast bacilli using ZN staining and culture.5

Conclusion

Although liquid-based cytology is a screening tool for ruling out malignant/premalignant lesions of anus, it can occasionally help in diagnosis of opportunistic infections. There are handful of reports on diagnosis of fungus, varicella, and protozoal infection diagnosed on liquid-based anal cytology.5 There are handful of reports on tuberculosis detected on cervical cytology in females.7–8 To the best of our knowledge, this...
is the first report of anal tuberculosis diagnosed in men by liquid-based cytology.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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