

Correlation of HIV Status to Non-HPV Associated Benign Surgical Perianal Pathologies

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ABSTRACT

Purpose: To describe correlation of benign non-HPV associated perianal conditions and HIV status in patients seen at Princess Marina Hospital.

Methods: A one-year (January–December 2017) retrospective study conducted at Princess Marina Hospital, Gaborone. The University of Botswana, Ministry of Health and Princess Marina Hospital granted ethical clearance. Data was collected from the Accident and Emergency department triage forms and medical records.

Results: One hundred and fourteen (114) patient files were reviewed. Sixty-six (66) were male and 44 were female. The mean age was 35.0 years (SD = 11.9). Of the 114 patients 68 were HIV negative, 40 were positive and 6 had unknown HIV status. The commonest diagnosis was haemorrhoids accounting for 56.1% (64/114) followed by perianal abscess & fistulae in ano at 36.0% (41/114). In the HIV positive group, the infectious perianal conditions occurred in patients with a relatively lower mean CD4 count. Abscesses & fistulae in ano are more common in HIV positive patients while haemorrhoids and anal fissures are common in HIV negative patients. The above-mentioned association was found to be statistically significant ($p < 0.001$).

Conclusion: The commonest non-HPV-associated perianal condition presenting at PMH is haemorrhoids followed by perianal abscess & fistula in ano. HIV positive patients tend to develop perianal abscesses & fistulae in ano. HIV positive patients who present with infectious pathologies tend to have a relatively lower CD4 count.

Key words: perianal conditions, anorectal pathologies, benign perianal diseases

INTRODUCTION

The relationship between human immuno-deficiency virus (HIV) infection and Human Papilloma Virus (HPV) associated perianal conditions has been extensively studied (1). However, there is limited information in the literature regarding correlation of other benign non-HPV associated perianal conditions to HIV status.

Purpose

The purpose of this study is to assess the correlation between HIV status and

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benign non-HPV associated perianal conditions. In 1999, Nadal et al published a paper looking at perianal diseases in HIV-positive patients compared to seronegative population. In this study benign perianal conditions (ulcers, fistulae, haemorrhoids, abscesses) were significantly more prevalent in HIV-positive than negative patients (2). Although these findings seemed to suggest that benign perianal conditions were more prevalent in HIV positive than negative patients, there has not been much work towards answering this question since this work was published. Answering this question may aid clinicians in identifying patients with a high likelihood of HIV-positivity, triggering HIV-testing and leading to early commencement of HAART in those found to be positive.

Infectious benign perianal conditions, mainly anorectal abscesses and anal fistulae, are common presentations in hospital emergency departments. These conditions significantly interfere with daily activities of life and work, with far reaching socio-economic implications (3). There is a general impression that perianal abscesses, recurrent perianal abscesses and fistulae in ano are more prevalent in HIV positive than negative patients (4,5). Limited information from literature search also suggest that haemorrhoids are more prevalent in HIV-positive than in the negative population (2).

Anecdotal evidence suggests that patients presenting with benign perianal conditions at the Accident and Emergency department in Princess Marina Referral Hospital (A&E – PMH) tend to be subjected to high rates of HIV testing.

In this study we aimed to, review A&E – PMH patient records, assessing for any correlation between benign non-HPV associated perianal conditions and HIV status.

METHOD

Princess Marina Hospital (PMH) is a 567-bed capacity, high patient volume referral hospital in the capital city of Botswana, Gaborone, receiving patients from the rest of the country.

We collected one-year data retrospectively (January –December 2017) from A&E – PMH triage forms and patients records. All patients who presented with benign non-HPV associated perianal conditions and non-neoplastic conditions were included in the study. All patients with anal warts condyloma acuminata or anal cancer were excluded from the study. Collected Variables included patient demographics (age and sex), laboratory results (white cell count, CD4 count, Viral

load), HIV status, diagnoses, physical exam findings, management, disposition and comorbidities. Data was stored on an access database that is password protected.

Statistical analysis

Statistical analysis was carried out using IBM SPSS version 25 software. The following descriptive statistics techniques were used:

Frequency bar charts and tables were used to describe the frequency of diagnoses of perianal conditions seen at Princess Marina hospital. The findings were then stratified according to HIV status groups looking for differences in diagnoses and laboratory test results.

For metric variables, distribution curves were used to depict their distribution (central tendency, dispersion) in HIV positive and negative patients

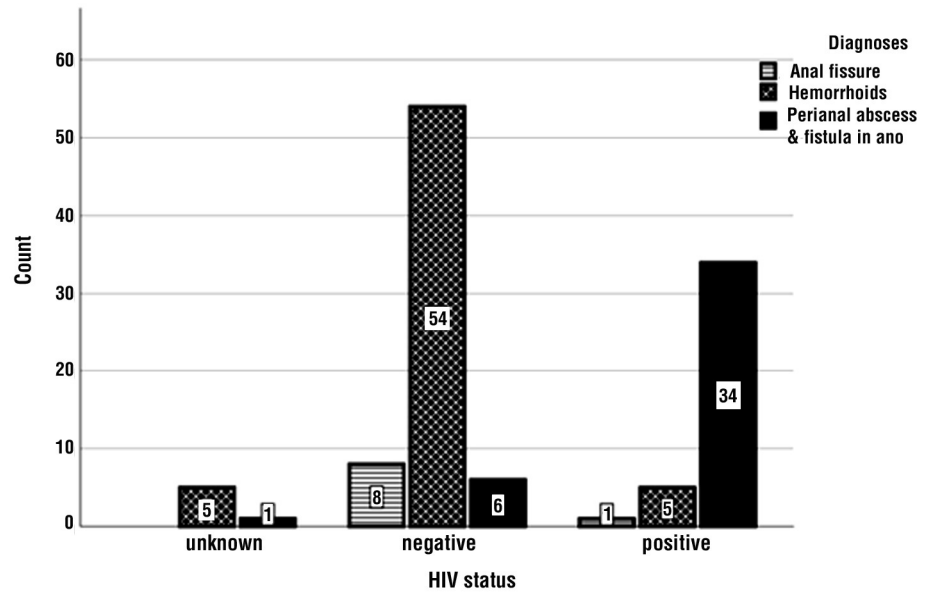
Correlation between variables were investigated using non-parametric tests (Chi square for categorical data and lambda for nominal data) and parametric test (Pearson coefficient for metric data). The significance level of a p value of less than 0.05 was set.

RESULTS

One hundred and fourteen (114) patient files were reviewed. Sixty-six (66) were male and forty-four (44) were female. The mean age was 35.0 years (SD = 11.9). The mean age for male and female were 36.2 (SD = 11.5) and 33.1 (SD = 12.5) respectively. Of the 114 patients 68 were HIV negative, 40 were positive and 6 had unknown HIV status. The six patients with unknown HIV status had no documented HIV status on their medical records. All of the HIV positive patients were on highly active antiretroviral therapy (HAART). We retrieved a total 34/40 (85%) absolute CD4 counts for the HIV positive group and only two patients had absolute CD4 count below 200 (177 and 186) while the rest were 283 and above. The mean absolute CD4 count was 556.2 (SD = 188.5).

The commonest benign perianal condition was haemorrhoids accounting for 56.1% (64/114) followed by perianal abscess & fistulae in ano at 36.0% (41/114) while anal fissures were the least common presentation at 7.9% (9/114). The majority of haemorrhoids were internal haemorrhoids (82.8%), external haemorrhoids constituted 14.1% and mixed haemorrhoids represented only 3.1%. *Figure 1* demonstrates the distribution of diagnoses in the HIV status groups. Abscesses & fistulae in ano are more common in HIV positive group as is

Figure 1 - Frequency of perianal diagnoses in each HIV status group



hemorrhoids and anal fissures in the HIV negative group. The above-mentioned trend of correlation between HIV status and proportion of specific diagnoses was found to be statistically significant ($p < 0.001$) using the lambda correlation measure as shown on *table 1*.

Using Spearman’s correlation, no statistically significant correlation was found between CD4 count and white cell count of the patients. However, patients with infectious diagnoses were found to have a relatively lower mean CD4 count of 539.3(SD = 181.16) when compared to the non-infectious diagnoses group which had a mean CD4 count of 688.5 (SD = 180.65)

Disposition

Twenty-two (22) of the 114 presentations were admitted into the hospital wards and the rest were

discharged home. Of the 22 patients who were admitted 12 were HIV positive and 10 were negative. The admission rate for the HIV positive patients was 30.0% vs 14.7% for the HIV negative groups. Of the 22 admissions 77.3 % (17) were perianal abscesses & fistulae in ano while 22.7 % (5) were haemorrhoids. Infectious perianal pathologies had a high admission rate.

DISCUSSION

Perianal conditions are common in the middle age group and are the most common reason for surgical referral (7-9) in HIV positive patients. These pathologies affect the most economically productive age group, which has socio-economic implications.

More than 80% of patients with benign perianal conditions are discharged home. Princess Marina

HIV* Diagnoses Crosstabulation					
Count		Diagnoses			Total
		Anal fissure	Hemorrhoids	Perianal abscess & fistula in ano	
HIV	negative	8	54	6	68
	positive	1	5	34	40
Total		9	59	40	108
Directional measures					
		Lambda	Symmetric	Value	Approximate significance
Nominal by nominal			Diagnoses dependent	.640	.000
				.592	.000

Table 1 - Significance of Observed Associations of HIV Status and Diagnoses measured using lambda statistic

hospital though a tertiary hospital also serves as the district and primary hospital for Gaborone and surrounding areas hence most patients self-refer. This pattern of referral has been shown in previous studies conducted at PMH (10- 12). The implications of this is increased patient load on a staff constrained setting. It may be of benefit to develop a policy to redirect these patients to lower level facilities or to PMH outpatient clinics. This would offload the A&E department, which is more often overloaded with patients.

The HIV status documentation in this study is very high (94.7%) for patient with perianal conditions compared to other studies conducted at the same A&E department. On one of these studies, the HIV status was unknown for 84% compared to 5% in our study (10). This may be due to the general association of all perianal pathologies with HIV positivity. A number of studies have shown high prevalence of infectious perianal conditions in HIV positive patients and this observation tends to be extrapolated to other non-infectious perianal pathologies. The high anti-retroviral treatment rate (100%) in this study may be due to the "Treatment for all HIV positive patients" policy adopted in Botswana where CD4 count is no longer used as a criterion for commencement of treatment. The high treatment rate may also reflect the diminishing stigma associated with HIV infection; hence, more patients come forward for testing and treatment.

Infectious perianal conditions predominately occurred in the HIV positive group. This has been shown in previous studies (7). In the HIV positive group, the infectious perianal conditions occurred in patients with a relatively lower mean CD4 count compared to the subgroup with non-infectious perianal conditions. In one study, the development of anorectal pathologies in general was associated with CD4 count less than 350 cells/ml. Other risk factors were; not being on highly active antiretroviral therapy, ano-rectal intercourse and more than one sexual partner (8). Immunocompetence seems to be a great factor in predisposition to development of infectious perianal conditions.

The observed high admission rate of HIV positive patient is thought to be due to the sepsis associated with the diagnoses affecting HIV positive patients. The perianal abscesses and fistulae in ano were the commonest diagnoses in HIV positive patients as opposed to the non-infectious conditions (haemorrhoids and anal fissures) in the HIV negative group. The relatively high admission rate in HIV positive vs negative patients has cost implications to both the service provider and the HIV positive members of the society. This may be a

reflection of a high burden of disease in the HIV positive group. Information on length of hospital stay was not collected in this study. A comparison of length of hospital stay for the HIV positive and negative group would be relevant for the outcomes and cost assessments.

Recommendations

We recommend the creation of a locally relevant referral structure, which would identify patients who would be better served at outpatient clinics or at the A&E department. A referral structure should be developed, communicated with the public and all referring institutions with the aim of offloading the A&E department of local clinic or outpatient clinic cases. The likelihood of being HIV positive when having a perianal abscess or fistula in ano is relatively higher compared to other non-infectious perianal conditions. More and well-powered studies are needed to define perianal abscesses as AIDS-defining infections. Development of perianal abscesses on an HIV positive patient on treatment may suggest a lower CD4 count hence we recommend checking such patients' CD4 count.

CONCLUSION

The commonest benign perianal condition presenting at PMH is haemorrhoids followed by perianal abscess & fistula in ano with anal fissures being the least common. HIV positive patients tend to develop perianal abscesses and fistulae in ano while haemorrhoids and anal fissures are common in HIV negative patients. In the HIV positive group patients who present with infectious pathologies (perianal abscess & fistulae in ano) tend to have a relatively lower CD4 count compared to the group that presents with non-infectious pathologies (haemorrhoids and anal fissures).

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Conflict of interest

The authors have declared no competing interest.

Ethical consideration

The University of Botswana Institutional review board, the Ministry of Health and wellness human research unit as well as the Princess Marina Institutional review board granted ethical clearance. Informed consent was waived.

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