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Esophageal Mycoses in HIV-Immunocompetent Subjects and Risk Factors for Occurrence

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Abstract

Purpose: To determine the prevalence and risk factors for the occurrence of esophageal mycosis in HIV negative subjects. **Methodology:** This is a prospective, descriptive and analytical cross-sectional study over seven months from March 1 to October 1, 2022, carried out in the endoscopy unit of the Hepato-Gastroenterology department of the Cocody University Hospital. Included were all patients in whom esogastroduodenal endoscopy (EOGD) (found esophageal mycosis and whose HIV serology was negative. Excluded were HIV positive patients and patients who refused to have HIV serology performed. **Results:** Out of 1588 EOGD performed during the study period, 76 cases of esophageal mycosis with negative HIV serology were identified, giving an endoscopic prevalence of 4.8%. The average age of our patients was 45 years. There was a male predominance with a sex ratio of 1.5. The main defects found were cirrhosis (21.05%), obesity (18.42%), cancer (11.84%), and diabetes (9.21%). The main clinical signs were epigastralgia (60.53%), vomiting (31.58%) and regurgitation (26.32%). Esophageal mycosis without esophagitis was the most common endoscopic finding in 76% of cases. 25% of patients consumed alcohol. African pharmacopoeia was the most commonly used treatment with 55.26% followed by PPIs 34.21%. The main clinical signs were epigastralgia (60.53%), vomiting (31.58%) and regurgitation (26.32%). Esophageal mycosis without esophagitis was the most common endoscopic finding (76%). 46.05% of patients had associated erythematous and/or erosive and/or congestive gastropathy. In univariate analysis, there was no statistically significant association between esophageal mycosis and age ($p = 0.46$), sex ($p = 0.52$) and alcohol consumption ($p = 0.74$). African pharmacopoeia ($p = 0.002$), Proton Pump Inhibitors ($p = 0.0002$), cirrhosis ($p = 0.02$), cancer ($p = 0.027$) and obesity ($p = 0.0002$) were statistically significant risk factors for the occurrence of esophageal mycosis. **Conclusion:** The risk factors implicated in the occurrence of esophageal mycosis in HIV negative subjects were the use of proton pump

inhibitors, African pharmacopoeia and conditions such as cirrhosis, obesity or cancer.

Keywords

Esophageal Mycosis, Risk Factors, HIV Negative

1. Introduction

Esophageal mycosis is one of the most common opportunistic infections in immunocompromised patients but is rare in immunocompetent individuals [1]. However, according to some studies, this condition is increasingly observed in immunocompetent subjects. Immune defenses can be weakened by various pathologies, but also by therapeutics. With the exception of studies conducted in immunocompromised individuals, there is little data proving a causal effect between the occurrence of esophageal mycoses and risk factors in immunocompetent subjects, hence the interest of our study. Aim: To determine the prevalence and risk factors for the occurrence of esophageal mycosis in human immunodeficiency virus (HIV) negative individuals. Methodology: Seven-month prospective descriptive and analytical cross-sectional study from March 1 to October 1, 2022, carried out in the endoscopy unit of the Hepato-Gastroenterology department of the Cocody University Hospital. Included were: all patients in whom endoscopy esogastroduodenal (EOGD) found esophageal mycosis and whose human immunodeficiency virus (HIV) serology was negative. Excluded were HIV positive patients and patients who refused to have HIV serology performed. Patients with no mycosis on EOGD and negative HIV serology were included as controls, and 81 patients were included blindly. Parameters studied: demographic (age, sex); clinical: defects (diabetes, cancer, obesity, chronic renal failure, cirrhosis); current treatments (antibiotics, corticosteroids, cytotoxics, anti H2, African pharmacopoeia, Proton pump inhibitor = PPI); oesophageal signs (odynophagia, dysphagia, epigastralgia, pyrosis, regurgitation, hiccups); biological (retroviral serology performed by the rapid test Determine HIV 1 and 2); endoscopic: EOGD looking for whitish lumps adherent to the oesophagus with or without inflammation and associated oesophago-gastro-duodenal lesions. We studied the relationship between oesophageal mycosis and demographic data, defects and medication use. Risk estimation was performed using the Odds ratio (OR). We used Pearson's chi^2 test as a test of independence and Fisher's exact test at the 5% significance level.

2. Results

1588 EOGD performed during the study period, 76 cases of esophageal mycosis with negative HIV serology were identified, giving an endoscopic prevalence of 4.8%. The average age of our patients was 45 years. There was a male predominance with a sex ratio of 1.5. The main defects found were cirrhosis (21.05%),

obesity (18.42%), cancer (11.84%), and diabetes (9.21%). The main clinical signs were epigastralgia (60.53%), vomiting (31.58%) and regurgitation (26.32%). Esophageal mycosis without esophagitis was the most common endoscopic finding in 76% of cases. 25% of patients consumed alcohol. African pharmacopoeia was the most commonly used treatment with 55.26% followed by PPIs 34.21%. The main clinical signs were epigastralgia (60.53%), vomiting (31.58%) and regurgitation (26.32%). Esophageal mycosis without esophagitis was the most common endoscopic finding (76%). 46.05% of patients had associated erythematous and /or erosive and /or congestive gastropathy. In univariate analysis, there was no statistically significant association between esophageal mycosis and age ($p = 0.46$), sex ($p = 0.52$) and alcohol consumption ($p = 0.74$). African pharmacopoeia ($p = 0.002$), Proton Pump Inhibitors ($p = 0.0002$), cirrhosis ($p = 0.02$), cancer ($p = 0.027$) and obesity ($p = 0.0002$) were statistically significant risk factors for the occurrence of esophageal mycosis. In multivariate analysis, we found that taking African pharmacopoeia had an increased risk of 2.74 (CI = 1.43 - 5.34); and taking Proton Pump Inhibitors had an increased risk of 4.69 (CI = 2.01 - 11.86). Similarly, in cirrhotic patients, the risk of developing esophageal mycosis was 3.33 (CI = 1.24 - 9.72), and in cancer patients, the risk was 5.25 (CI = 1.20 - 36.76).

3. Discussion

In our series, the endoscopic prevalence of esophageal mycosis was 4.8%. This prevalence is close to that found in Bamako (Mali) by Maiga *et al*. [2], which was 3.07% with a male/female sex ratio of 1.91. This was similar to that reported by Amri *et al*. [3] in Morocco who found a prevalence of 4.5% in HIV negative patients. On the other hand, Choi *et al*. [4] in South Korea found a lower hospital prevalence of 0.32%. The average age of our population was 45 years, which was close to that found in Morocco by Naoui *et al*. [5] of 46 years. On the contrary, Amri *et al*. [3] and Yakoob *et al*. [6] had reported an average age of 50 years and 53 years, respectively. A male predominance emerged in our study with a sex ratio of 1.5. This male predominance was found in most studies [3]-[6]. In our series, the most common defects were cirrhosis (21.05%), obesity (18.42%), cancer (11.84%), diabetes (9.21%) and chronic renal failure (6.58%). Our results were superimposable with those found by Aboutarik *et al*. [7] who had noted as defects diabetes (17.5%), cirrhosis (10%), cancer (10%) and chronic renal failure (7.5%). Cirrhosis, cancer and obesity constituted risk factors statistically linked to the occurrence of esophageal mycosis ($p < 0.05$) in our series. Yakoob *et al*. [6] had noted a significant relationship between the presence of esophageal mycosis and cancer ($p = 0.001$). African pharmacopoeia and the use of Proton Pump Inhibitors constituted statistically significant risk factors for esophageal mycosis ($p < 0.05$). Choi *et al*. [4] found in their study a significant relationship between the presence of esophageal mycosis and African pharmacopoeia ($p = 0.006$). Immune defenses can be weakened by various pathologies but also by therapeutics, thus broad-spectrum antibiotics can eliminate certain bacteria that inhibit fungal growth, thus

increasing fungal proliferation [8]. In recent years, proton pump inhibitors have been widely used and some reports establish a link between their use and the development of esophageal mycosis [9]. Studies have also shown that corticosteroid therapy and cytotoxic drugs can cause the occurrence of esophageal mycoses [10].

The limitations of our study include its hospital-based setting and theoretical framework, which restrict the generalizability of our findings to the broader population of patients with esophageal mycoses. This study does not provide information on changes or trends over time within individuals; the long-term evolution of esophageal mycoses is unknown.

4. Conclusion

Esophageal mycosis should no longer be considered as a pathology linked only to HIV AIDS, given that a prevalence of 4.8% has been noted in HIV negative subjects. Thus, certain risk factors have been incriminated in the occurrence of esophageal mycosis, in particular treatments with proton pump inhibitors or African pharmacopoeia and conditions such as cirrhosis, obesity or cancer.

Ethical Considerations

A research authorization was obtained from the Scientific Medical Department.

Each patient was informed of the purpose of our study, and their consent was sought, recorded in writing and validated by their signature. The data was collected in strict compliance with medical secrecy. The information contained in our survey sheet was confidential.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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