Original Research Paper

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General Medicine

ESOPHAGIAL CANDIDIASIS IN ROUTINE ENDOSCOPY AT A TERTIARY CARE TEACHING HOSPITAL BASED STUDY

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KEYWORDS :

INTRODUCTION:

- Esophageal candidiasis is the most frequent opportunistic fungal infection in immunocompromised host.
- Patients who have a neoplastic disease or have Human Immunodeficiency Virus (HIV) infection or undergoing with antibiotic therapy that may eliminate certain bacteria that inhibit fungal growth, thereby enhancing candida overgrowth. Impaired cellular immunity often considered as the major predisposing factor in patients to esophageal mucosal colonization of Candida species.

AIMS AND OBJECTIVES:

- The aim of this study was to determine the prevalence and risk factors for Esophageal candidiasis in routine endoscopy in tertiary care center.

MATERIALS AND METHODS:

- A total of 1210 patients (715 males and 495 females) who underwent Upper GI endoscopy for various indications, were included in the study.
- Total duration of the study was 20 months ie. March 2015 to October 2016.
- Study population included 309 patients with h/o DM (diabetes mellitus).
- Upper GI endoscopy was performed in all these patients and brush cytology was taken from the suspicious lesion for KOH staining.

Inclusion and Exclusion Criteria:

Inclusion Criteria:

- Indications of Upper GI endoscopy were dyspepsia, abdominal pain, anemia, GI bleed, dysphagia and odynophagia.

Exclusion Criteria:

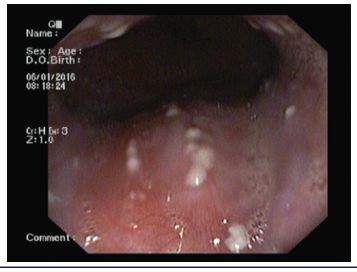
- The exclusion criteria was children less than 10 years of age.

RESULTS:

- Out of 1210 patients, 143 patients had Curdy white plaques on endoscopy. Brush cytology was taken from all suspicious lesions.
- 114/143 (79.7%) patients had evidence of candida species on KOH staining.
- Among Total of 1210 patients 114 (9.42%) were diagnosed to have Esophageal Candidiasis in which 88 (77.2%) were male and 26 (22.8%) were females.
- In subgroup analysis 39/309 (12.6%) diabetic patients while 75/901 (8.3%) non-diabetic patients had esophageal candidiasis.
- The most common coexisting Endoscopy finding was reflux esophagitis 21/114 (18.4%).

CONCLUSION:

- This study shows that patients of Diabetes Mellitus are more prone to develop candida infection (12.6%) compared to non-diabetic patients (8.3%). ($P < 0.05$)
- This study also reinforces that the use of antibiotics, corticosteroids as well as heavy drinking were significant risk factors for Esophageal candidiasis in healthy individuals.



Curdy white plaques seen in mid esophagus s/o Candidiasis, which was confirmed on KOH staining as Candida albicans.

Figure 1

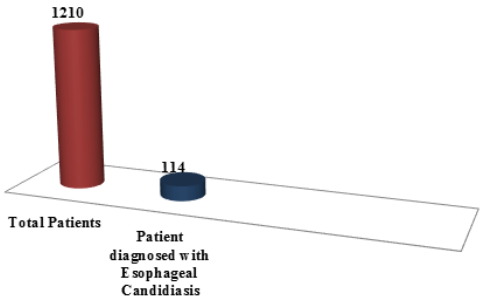


Figure 2

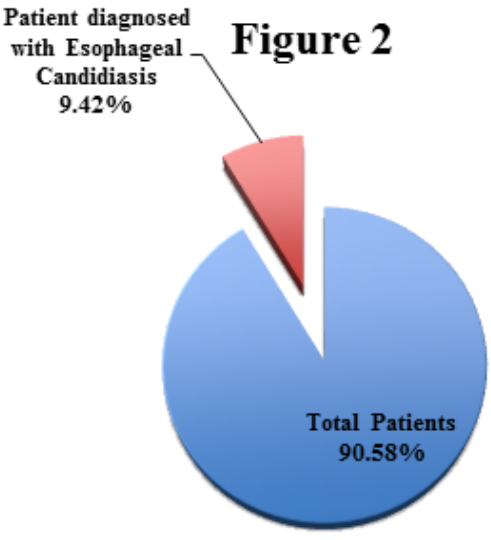


Figure 3

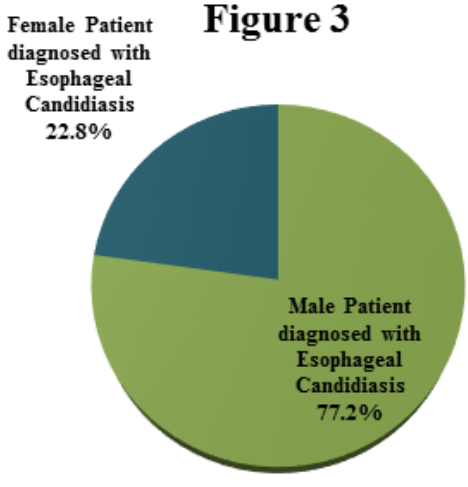


Figure 4

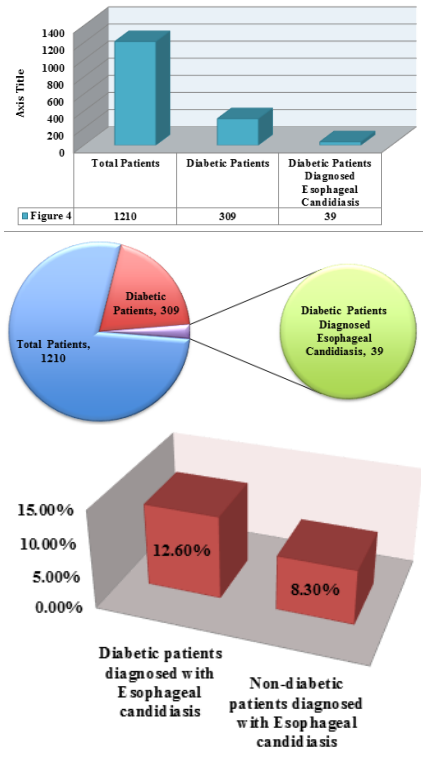


Figure 5

DISCUSSION:

EC is one of the most common opportunistic infections in patients with impaired cellular immunity, such as HIV infection [1]. However, it can be found in individuals with no HIV infection and no evidence of opportunistic infections to suggest immunodeficiency [2, 3].

The prevalence of EC as observed by Choi et al (0.32%, 281/88,125) [4] is lower compared to data reported by Underwood et al (0.71%, 18/2,527) [5] and by Naito et al (1.17%, 41/3,501) [6]. Since the early 1980s, most studies of EC have involved HIV-infected patients. However, the frequent use of screening endoscopy has led to more frequent diagnosis of EC in healthy individuals [7, 8].

In terms of pathogenesis, the development of EC is described as a two-step process consisting of colonization of the esophagus and subsequent invasion of the epithelial layer [9, 10]. It is already well accepted that Candida colonizes the esophagus of 20% of healthy adults. Once colonization has been established, impaired cellular immunity permits invasion of the epithelial layer, such as HIV infection [9, 10]. Although EC is well known to occur in immunocompromised hosts, it has only rarely been reported in apparently immunocompetent persons. When it is present in such hosts, it is presumed to accompany a series of predisposing medical conditions [5, 11]. However, in clinical practice, such underlying conditions are hard to be identified for every case.

A recent study investigated the prevalence and clinical presentation of EC along with the presence and impact of potent predisposing factors in the immunocompetent patient. During the study period, among 30,052 patients who underwent upper gastrointestinal endoscopy, 55 (0.18%) were diagnosed as having EC. Age distribution revealed a skewed distribution to the right, indicating that EC in the immunocompetent patient follows an age-related pattern, revealing that EC is much more common in patients above the age of 50 [12]. Another retrospective case-control study of EC in individuals older than 65 years found this condition to be a strong predictor of poor survival in older people irrespective of their functional status [13].

Gastric acid suppression is considered to be an important risk factor for the development of EC. Proton pump inhibitors [14, 15], H2-receptors antagonists and prior vagotomy produce hypochlorhydria [16], which alters the colonization of the stomach by oral cavity bacteria and yeast and is thought to increase the risk of infectious esophagitis. The association of acid suppression therapy with EC was also shown by a recent retrospective case-control study that included 250 patients [17]. Another retrospective study found acid-suppressive therapy with PPIs and H2-receptor antagonists as the most common predisposing risk factor for EC [5].

The use of antibiotics and both systemic and inhaled corticosteroids has also been associated with the development of EC. Antibiotics may predispose immunocompetent patients to fungal infection by allowing overgrowth and colonization of the species. Systematically administered corticosteroids predispose to infection by suppressing both lymphocyte and granulocyte function [2]. Inhaled corticosteroids may be deposited in the esophagus after swallowing and facilitate subsequent colonization and infection with Candida [18, 19]. EC may also occur in patients with chronic debilitating disease who have received broad-spectrum antibiotics, steroids and immunosuppressants [20, 21].

DM is an important and well recognized risk factor for EC [22]. The association of DM with EC was further shown by a retrospective study including 51 patients [23]. The same study described uncontrolled DM, along with carcinoma, corticosteroid and antibiotic use as the most common risk factors for EC [23]. The association of DM with EC is often described when it is poorly controlled [23, 24]. Another retrospective study from Korea involving 281 HIV-negative patients with EC found that there was no underlying disease in 69.8% of patients, while DM (8.2%) and malignancy (7.8%) were the two most common concomitant diseases [4].

In terms of symptomatology, patients with EC may remain asymptomatic or may present with one of the classic symptoms of infectious esophagitis, such as dysphagia, odynophagia and chest pain. As reported by Naito et al in 1988, 3,501 patients undergoing routine EGD in their study, 41 were found to have EC, and two-thirds of those patients had no esophageal symptoms [6]. For EC, EGD with brushings or biopsy remains the most sensitive and specific method of diagnosis [2, 6, 8].

EC requires systemic antifungal therapy [25], and it should never be managed with local agents [26]. Oral fluconazole is generally recommended for the treatment of EC due to its excellent efficacy, ease of administration and low cost [27]. For patients with documented EC that is refractory to fluconazole after 1 week of treatment, voriconazole and posaconazole are alternative choices in the outpatient setting. Itraconazole oral suspension is also effective, but causes more nausea. In patients in whom intravenous therapy is necessary, an echinocandin can be used [27]. In three randomized trials, fluconazole was superior to ketoconazole, flucytosine and itraconazole for the treatment of EC [28, 29]. In a number of trials and smaller studies, the effectiveness of fluconazole therapy has ranged from 80% to 90% [26, 30, 31].

In conclusion, EC is a rare condition among immunocompetent patients. Such patients may lack clinical symptoms and/or predisposing factors. However, underlying conditions occur more frequently in the symptomatic patient. Endoscopic findings correlate neither with clinical manifestations nor with the presence of risk factors [12]. The lack of correlation between clinic symptoms and endoscopic findings was also shown by another retrospective study [23].

In our patient the most likely predisposing factor for EC was uncontrolled DM, and although it is hard to attribute all her symptoms to this etiology, it was an important consideration given her significant symptomatic improvement following therapy with fluconazole. She was educated on the need for a more stringent control of her DM to prevent long-term complications and end-organ damage.

We conclude that although EC in the majority of cases is an incidental finding during EGD, its detection and treatment can provide significant symptomatic relief to patients. It should be considered in the presence of esophageal symptoms of dysphagia, odynophagia and retrosternal discomfort, and this is a particularly pertinent consideration in patients with an underlying predisposing condition like HIV, uncontrolled DM, malignancy, corticosteroid and/or PPI use.

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