

## INCIDENCE AND PRESENTATION OF ESOPHAGEAL CANDIDIASIS NON-HIV PATIENTS

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### Abstract

**Background:** Esophageal candidiasis (EC) mostly occurs in the immunocompromised host<sup>1</sup>. However, it may also affect healthy people and is frequently asymptomatic. The clinical significance of asymptomatic esophageal candidiasis (AEC) is still unclear. The aims of the study were to investigate the incidence of esophageal candidiasis in non HIV patients. **Materials and Methods:** A total of 228 patients who underwent a health inspection that included upper endoscopy were enrolled. We retrospectively reviewed the subject's self-reporting questionnaires, medical records and endoscopic findings. Careful history about complaints and clinical examination were carried out. Through endoscopy examination done with pentax vera 2 upper GI endoscopy at Vishnu medical centre and results were analysed. **Results:** Out of the 228 total diagnostic endoscopies performed, a total of 25 cases of esophageal candidiasis were reported. Dysphagia was identified as the most common presentation of esophageal candidiasis within the age range of 41-60 years. **Conclusion:** It has shown that dysphagia was the most common symptom observed in patients with esophageal candidiasis. Therefore, it is recommended that all older patients above 50 years of age with complaints of dysphagia should be screened for esophageal candidiasis.

## INTRODUCTION

Since the early 1980s, the majority of studies on esophageal candidiasis (EC) have focused on HIV-infected patients.<sup>[1]</sup> However, the increasing use of screening endoscopy has resulted in more frequent diagnosis of EC in individuals without HIV infection. In Korea, the precise prevalence of EC and its associated risk factors remain largely unidentified. The pathogenesis of EC involves a two-step process, beginning with colonization of the esophagus by *Candida*, followed by invasion of the epithelial layer.<sup>[2]</sup> Several factors have been implicated in increasing the risk of EC, including the use of proton pump inhibitors, H<sub>2</sub>-receptor antagonists, prior vagotomy, which can elevate gastric pH and alter the colonization of the esophagus by oral cavity bacteria and yeast. Additionally, broad-spectrum antibiotics can predispose immunocompetent patients to fungal infections by disrupting the normal flora and

promoting *Candida* overgrowth. The administration of corticosteroids can also increase susceptibility to infection by suppressing lymphocyte and granulocyte function. EC can also occur in the presence of functional or mechanical esophageal obstruction, leading to stasis and excessive fungal growth.<sup>[3]</sup> Although EC is commonly observed as an opportunistic infection in immunocompromised patients, such as those with HIV infection, cases of EC have also been identified in healthy individuals. In such cases, underlying medical conditions that predispose individuals to EC are often present. More recently, the widespread use of proton-pump inhibitors has raised concerns about the potential development of EC, with some reports suggesting a link between omeprazole use and the occurrence of EC. It is important to recognize that these medications may contribute to alterations in the gastrointestinal environment that promote *Candida* overgrowth.<sup>[4]</sup> Certain medications like corticosteroids and cytotoxic drugs have also been

proposed as potential risk factors for EC. However, apart from HIV infection, there is limited data available to establish a causative relationship and determine the exact prevalence and risk factors of EC in healthy individuals. Patients with esophageal candidiasis may present with various symptoms, although many individuals remain asymptomatic. The most common symptoms associated with EC include dysphagia, odynophagia (painful swallowing), and retrosternal chest pain. Odynophagia is considered a characteristic feature of esophageal candidiasis. Other possible symptoms include abdominal pain, heartburn, weight loss, diarrhea, nausea, vomiting, and melena (dark stool caused by upper gastrointestinal bleeding). An associated candida infection in the oropharynx can be a contributing finding. Diagnosis of esophageal candidiasis is typically confirmed through upper endoscopic evaluation. Visualization of white plaques or exudates on the esophageal mucosa confirms the diagnosis.<sup>[5]</sup> These plaques and exudates adhere firmly to the mucosa and are not easily washed off with water irrigation. Mucosal breaks or ulcerations may also be observed. Biopsies or brushings of the plaques can be subjected to histologic testing to confirm the presence of Candida infection.<sup>6</sup> The present study aimed to assess the incidence and clinical characteristics of EC, as well as identify independent risk factors, specifically in healthy individuals. By conducting this investigation, we aimed to contribute to the understanding of EC in the absence of HIV infection and shed light on the factors that predispose healthy individuals to this condition.

## MATERIALS AND METHODS

This retrospective study done to find the incidence and clinical characteristics of esophageal candidiasis in non-HIV patients. A total of 250 non-HIV patients who underwent upper endoscopy at Vishnu Medical Centre were included in this study. Patients with HIV infection were excluded from the analysis. Patients' demographic data, medical records, and endoscopic findings. A thorough history-taking and physical examination were conducted to assess the presence of dysphagia and other relevant symptoms. Upper gastrointestinal (GI) endoscopy was performed on all participants using the Pentax Vera 2 system. The esophageal mucosa was visually inspected for abnormalities, including the presence of white plaques or exudates, which are characteristic findings of esophageal candidiasis. Mucosal breaks or ulcerations were also noted. Biopsies or brushings of the plaques were collected for histologic testing to confirm the presence of Candida infection. Descriptive statistics, such as frequencies and percentages, were calculated to summarize the demographic characteristics of the

study population and the incidence of esophageal candidiasis.

## RESULTS

Out of a total of 228 diagnostic endoscopies conducted, 25 cases of esophageal candidiasis were identified and reported. The mean age of the patients diagnosed with esophageal candidiasis was determined to be 60 years. In terms of gender distribution, males were predominantly affected, accounting for 16 cases, while females accounted for 9 cases. The results of this study indicate that the majority of patients diagnosed with esophageal candidiasis were within the age range of 41-60 years. There was a slight decrease in the number of cases among patients above 60 years, with only a small number of patients in the older age groups. Among the age groups, the highest number of cases (9) was observed in the age range of 51-60 years, followed by the age group of 41-50 years with 7 cases. Regarding the symptoms reported by the patients, dysphagia was the most frequently observed symptom in individuals diagnosed with esophageal candidiasis, with 10 cases. Odynophagia and retrosternal pain were also reported, although less frequently, with 5 cases each. Abdominal pain was a rare symptom in this study, reported by only 1 patient. Similarly, heartburn was reported by a small number of patients, with 2 cases.

## DISCUSSION

In the year 2022, a total of 228 endoscopies were performed at Vishnu Medical Centre. Among these cases, 25 individuals were diagnosed with esophageal candidiasis based on classical endoscopic findings of white lesions observed in the esophagus. The mean age of the patients with esophageal candidiasis was determined to be 60 years. In terms of gender distribution, males were predominantly affected, with 16 cases, while females accounted for 9 cases. Age wise distribution 40 to 60 year of age most of them were affected. In the study conducted by Weerasuriya et al.<sup>[6]</sup> the average age of participants was reported to be 53 years, and the majority of participants were male. The most commonly reported complaint in their study was acid regurgitation. However, the most common complaint observed in our study was dysphagia. Consistent findings have been observed in previous studies, where the mean age ranged from  $53.1 \pm 14.1$  years to  $60.3 \pm 15.0$  years.<sup>[7-9]</sup> and the median age reported worldwide was 55.5 years.<sup>[10]</sup> Advanced age has been identified as a risk factor for esophageal candidiasis (EC) in individuals without HIV infection, primarily attributed to age-related impairments in immune function, such as defects in hematopoietic bone marrow and peripheral lymphocyte migration, maturation, and function.<sup>[11]</sup> Additionally, the reduction in cellular immunity

within the epithelial layer may contribute to *Candida* colonization in older patients.<sup>[7,12]</sup>

Treatment of esophageal candidiasis typically involves the administration of antifungal therapy. Unlike oropharyngeal candidiasis, which can be treated with topical agents, esophageal candidiasis necessitates systemic antifungal agents for effective management.<sup>[13]</sup> The primary medication used for treating esophageal candidiasis is oral fluconazole, with a recommended dosage of 200 to 400 mg per day for a duration of 14 to 21 days. In cases where oral intake is not feasible, intravenous fluconazole at a daily dose of 400 mg can be utilized initially, transitioning to oral fluconazole once the patient can tolerate oral medications.<sup>[14]</sup> For recurrent esophageal candidiasis, fluconazole at a dosage of 100 to 200 mg three times per week may be prescribed as a suppressive therapy. Studies have shown that micafungin at a daily dose of 150 mg intravenously is as effective as fluconazole at 200 mg daily. Itraconazole at 200 mg per day orally or voriconazole at 200 mg twice daily for 14 to 21 days are alternative treatment options. Amphotericin B deoxycholate at a daily dose of 0.3 to 0.7 mg/kg can be considered for refractory candida esophagitis, although its use is limited due to serious side effects and should be avoided whenever possible. Posaconazole at 400 mg twice daily has shown efficacy in refractory cases of esophageal candidiasis. Caspofungin is another treatment option and is preferred over amphotericin. As esophageal candidiasis is often an opportunistic infection occurring in immunocompromised individuals, it is crucial to identify and address the underlying cause of immunosuppression.<sup>[15]</sup> In immunosuppressed patients presenting with symptoms of odynophagia or dysphagia, empirical antifungal therapy should be initiated for a period of 14 to 21 days. If no improvement is observed within 72 hours of treatment, upper endoscopy is recommended. Adjustments in the dosage of azole agents may be necessary for patients with renal insufficiency. It should be noted that azoles have teratogenic properties, therefore, in pregnant patients with esophageal candidiasis, amphotericin B is the preferred choice.<sup>[16]</sup>

## CONCLUSION

Esophageal candidiasis (EC) is a prevalent form of infectious esophagitis, and it represents the most common type of fungal infection affecting the esophagus. Among the different parts of the gastrointestinal tract, the esophagus is highly susceptible to candida infection. In present study dysphagia was the most common symptom observed in patients with esophageal candidiasis. The highest number of cases was observed in the age group of 51-60 years, followed by the age group of 41-50 years.

Figure 1,2,3 shows endoscopic image of esophageal candidiasis

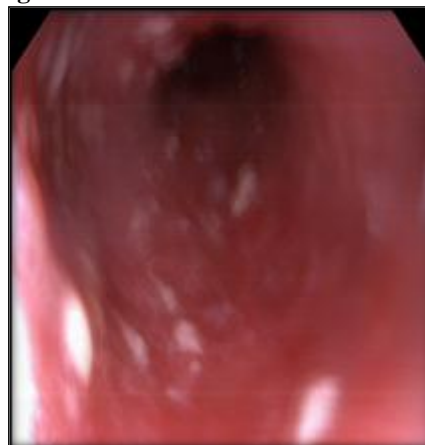


Figure 1:

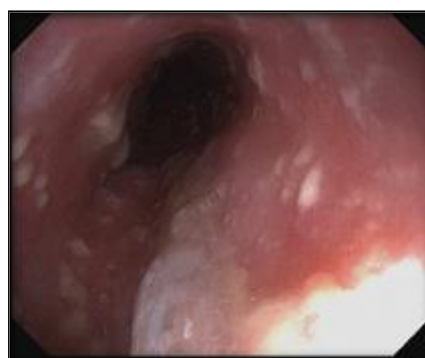


Figure 2:



Figure 3:

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