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Mucormycosis in an Ulcerative Colitis Patient: A Rare Case Report

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Abstract

Introduction: Mucormycosis of the gastrointestinal tract is a rare invasive fungal infection and due to late diagnosis, it is associated with a high mortality rate.

Case Presentation: The studied patient was a 20-year-old woman, known case of Ulcerative colitis, admitted to emergency unit of Alzahra hospital of Isfahan University Of Medical Sciences, Iran, in May of 2013 by abdominal pain, fever, and leucopenia. With possible diagnosis of typhlitis, she underwent laparotomy. Gangrene, inflammation, and obstruction of 30 centimeter of jejunum and momentum were detected. Pathology reported neutropenic enteritis due to zygomatic infection consist with intestinal mucormycosis.

Conclusions: In patients with high clinical suspicion of gastrointestinal tract mucormycosis, the emergence of early diagnosis, correction of underlying risk factors, and treatment are of great importance.

Keywords: Mucormycosis, Inflammatory, Bowel, Disease

1. Introduction

Mucormycosis is a fetal opportunistic infection caused by fungi of the order Mucorales, with most cases caused by Rhizopus or Mucor species.

Spores of this fungi are transmitted by airborne, thus, most of people have ample exposure (1).

Rhino cerebral and pulmonary are the most common, followed by gastrointestinal infections. All parts of the alimentary tract are vulnerable to infection: stomach, ileum, and colon are most commonly affected (2). However primary GI mucormycosis is an uncommon disease, which due to late diagnosis is associated with a high mortality rate (3).

We report a case of gastrointestinal mucormycosis in an inflammatory bowel disease patient treated by corticosteroid and azathioprine.

2. Case Presentation

A 20-year-old woman, known case of Ulcerative colitis, was admitted to the emergency unit of Alzahra hospital of Isfahan University of Medical Sciences, Iran, in May of 2013 for her abdominal pain and fever. Her symptoms began 7 days before admission. She did not complain of nausea and vomiting.

Ulcerative colitis (UC) confirmed by gastroenterologist according to clinical manifestations and colon biopsy 3 years ago. Her prescription for UC contains mesalazine and Azathioprine, which was added to her regimen therapy 40 days before onset of symptoms.

When she presented to the emergency unit, her leukocyte count was 300, hemoglobin level was 6.1 g/dL, platelets was 6.000, and positive CRP (with number 98). Peripheral blood smear revealed sever decreasing in white blood cells and platelets, also hypochrome and anisopoikilocytosis of red blood cell. Bone marrow biopsy showed hypo cellular marrow most probably due to azathioprine treatment. With possible diagnosis of typhlitis broad spectrum of antibiotics were prescribed and Azathioprine discontinued.

After 72 hours her fever did not stop and ascites was added to her problems. Therefore, antifungal (Amphotericin) was added to her treatment.

Abdominal and pelvic spiral computed tomography (CT) was done, which demonstrated wall thickening of small bowel loop in left side (jejunum) and right lateral of rectum. Spiral CT scan also reported ascites (Figure 1).

During her admission she developed constipation, nausea, and vomiting, thus, her second Abdominal CT scan was performed, which suggested small bowel obstruction.

She underwent laparotomy. Gangrene, inflammation and obstruction of 30 centimeter of jejunum and omentum were detected.

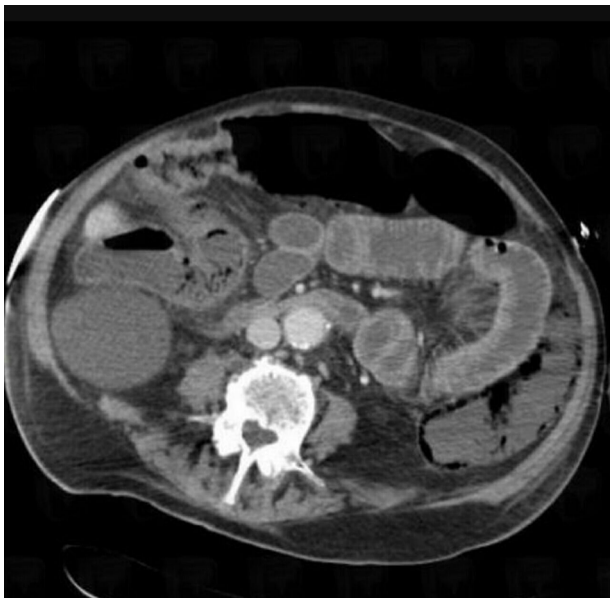

Figure 1. Abdominal CT of the Patient

Pathology reported neutropenic enteritis due to zygomatic infection consist with intestinal mucormycosis (Figures 2 and 3).

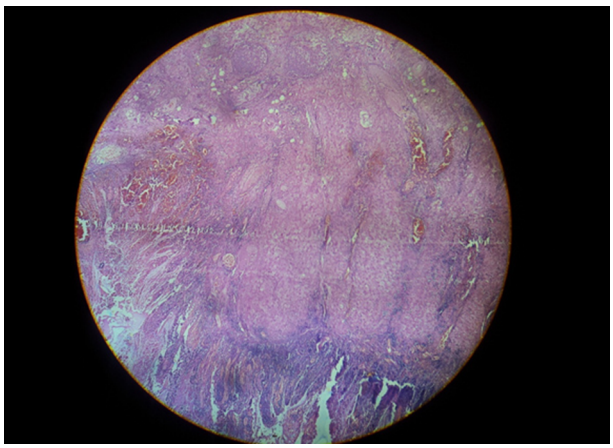

Figure 2. Empty Looking Fungal Hyphe H and E

Unfortunately, after her surgery, the patient passed away.

3. Discussion

Mucormycosis is a life threatening infection that was reported for the first time by Paultauf in 1885 (4). It is a rare

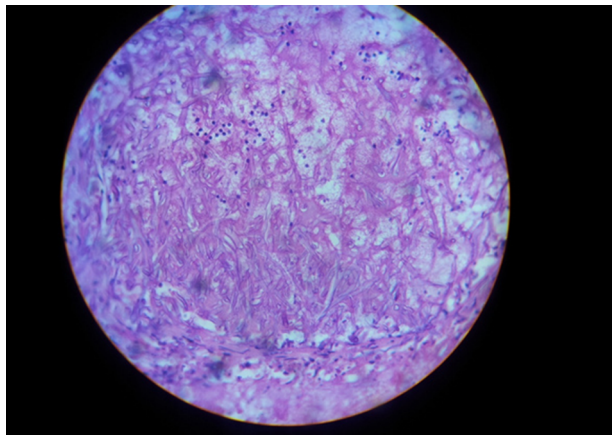

Figure 3. Fungal Hyphe in the Patients' Biopsy

invasive fungal infection, most often seen in immunosuppressed patients. Risk factors of mucormycosis include diabetes, corticosteroid use, transplantation, leukemia, lymphoma, following long term use of corticosteroids, and cytotoxic drugs (5, 6).

This infection has different clinical manifestations due to affected organs, involve nasal sinuses, orbit, brains, skin, lung, and gastrointestinal (2).

Mucormycosis of the gastrointestinal tract is rare. It mainly occurs in premature neonates, rarely in neutropenic adults and infrequently in other immunocompromised conditions (7-13).

However, some cases reported this infection in immunocompetent patients (3, 14, 15).

All parts of the alimentary tract are vulnerable to gastrointestinal mucormycosis infection; however, the stomach is the most common site and ileum and colon being commonly affected (7). The route of infection is believed to be secondary to ingestion of the fungi, which then may colonize the gastrointestinal tract.

The symptoms of gastrointestinal mucormycosis depends on the site of infection. Nonspecific abdominal pain and distention associated with nausea and vomiting are the most common symptoms. Fever and hematochezia may also occur. The symptoms could mimic intra-abdominal abscess (3).

Diagnosis of mucormycosis is based on histopathology and multiple PCR (5, 16). There are no reliable serologic or skin tests for zygomycosis. Therefore, the diagnosis is usually made by a biopsy of infected tissues (17).

The biopsy demonstrates the characteristic wide, ribbon-like, aseptate hyphal elements that branch at right angles. The hallmark of zygomycosis infections is the virtually uniform presence of extensive angioinvasion

with resultant vessel thrombosis and tissue necrosis (3).

Treatment of mucormycosis depends on local or disseminated type of infection. Local type can be treated by surgical debridement of necrotic material and disseminated type can be cured by administration of liposomal or lipid-based formulation of amphotericine B (6).

3.1. Conclusion

Although the survival rate for patients with mucormycosis is approximately 50%, mortality can be as high as 100% in cases of disseminated disease (6). In patients with high clinical suspicion of mucormycosis, therefore, the importance of early diagnosis, correction of underlying risk factors, and treatment cannot be overemphasized.

Acknowledgments

This study was performed in Isfahan University of Medical Sciences, faculty of medicine.

Footnote

Authors' Contribution: Peyman Adibi supervised the study, Mohammad Hossein Sanei reported the pathologic specimens, Tahmine Tavakoli developed the original idea and Kiyan Heshmat-Ghahdarijani wrote the manuscript.

References

1. Morton J, Nguyen V, Ali T. Mucormycosis of the intestine: a rare complication in Crohn's disease. *Gastroenterol Hepatol (N Y).* 2012;**8**(2):137–40. [PubMed: 22485084].
2. Shiva Prasad BN, Shenoy A, Nataraj KS. Primary gastrointestinal mucormycosis in an immunocompetent person. *J Postgrad Med.* 2008;**54**(3):211–3. [PubMed: 18626171].
3. Kudva R, Kudva A. Mucormycosis of Intestine in an Immunocompetent Individual. *Int J Sci Res.* 2014;**4**:1–3.
4. Paltauf A. Mycosis mucorina. *Arch Pathol Anat Physiol Klinische Med.* 1885;**102**(3):543–64. doi: 10.1007/bf01932420.
5. Spellberg B, Walsh TJ, Kontoyiannis DP, Edwards JJ, Ibrahim AS. Recent advances in the management of mucormycosis: from bench to bedside. *Clin Infect Dis.* 2009;**48**(12):1743–51. doi: 10.1086/599105. [PubMed: 19435437].
6. Spellberg B, Edwards JJ, Ibrahim A. Novel perspectives on mucormycosis: pathophysiology, presentation, and management. *Clin Microbiol Rev.* 2005;**18**(3):556–69. doi: 10.1128/CMR.18.3.556-569.2005. [PubMed: 16020690].
7. Spellberg B. Gastrointestinal mucormycosis: an evolving disease. *Gastroenterol Hepatol (N Y).* 2012;**8**(2):140–2. [PubMed: 22485085].
8. Gatling RR. Gastric mucormycosis in a newborn infant; a case report. *AMA Arch Pathol.* 1959;**67**(3):249–55. [PubMed: 13626326].
9. Amin SB, Ryan RM, Metlay LA, Watson WJ. Absidia corymbifera infections in neonates. *Clin Infect Dis.* 1998;**26**(4):990–2. doi: 10.1086/513940. [PubMed: 9564488].
10. Hosseini M, Lee J. Gastrointestinal mucormycosis mimicking ischemic colitis in a patient with systemic lupus erythematosus. *Am J Gastroenterol.* 1998;**93**(8):1360–2. doi: 10.1111/j.1572-0241.1998.00417.x. [PubMed: 9707066].
11. Martinez EJ, Cancio MR, Sinnott J, Vincent AL, Brantley SG. Nonfatal gastric mucormycosis in a renal transplant recipient. *South Med J.* 1997;**90**(3):341–4. doi: 10.1097/00007611-199703000-00017. [PubMed: 9076311].
12. Mazza D, Gugenheim J, Baldini E, Mouiel J. Gastrointestinal mucormycosis and liver transplantation; a case report and review of the literature. *Transpl Int.* 1999;**12**(4):297–8. [PubMed: 10460879].
13. Knoop C, Antoine M, Vachiery JL, Depre G, Alonso-Vega C, Struelens M, et al. Gastric perforation due to mucormycosis after heart-lung and heart transplantation. *Transplantation.* 1998;**66**(7):932–5. [PubMed: 9798707].
14. Choi HL, Shin YM, Lee KM, Choe KH, Jeon HJ, Sung RH, et al. Bowel infarction due to intestinal mucormycosis in an immunocompetent patient. *J Korean Surg Soc.* 2012;**83**(5):325–9. doi: 10.4174/jkss.2012.83.5.325. [PubMed: 23166893].
15. Carr EJ, Scott P, Gradon JD. Fatal gastrointestinal mucormycosis that invaded the postoperative abdominal wall wound in an immunocompetent host. *Clin Infect Dis.* 1999;**29**(4):956–7. doi: 10.1086/520482. [PubMed: 10589934].
16. Kauffman CA, Malani AN. Zygomycosis: an emerging fungal infection with new options for management. *Curr Infect Dis Rep.* 2007;**9**(6):435–40. doi: 10.1007/s11908-007-0066-4. [PubMed: 17999877].
17. Tekin R. Gastrointestinal mucormycosis causing an acute intestinal obstruction in neonate patient. *J Microbiol Infect Dis.* 2011;**1**(1):35–7. doi: 10.5799/ahinjs.02.2011.01.0009.