

## Case Report

# Mucormycosis of the Gastrointestinal Tract in a Child: A Rare Entity

Anwar-ul-Haq, Nadeem Akhter and Ilyas Bader

Department of Paediatric Surgery, The Children Hospital, Pakistan Institute of Medical Sciences, Islamabad.

Mucormycosis is a rare infection caused by fungi of the order Mucorales. The infection occurs in the rhinocerebral, respiratory, gastrointestinal or cutaneous regions depending upon the port of entry. It is found more in immunocompromised adults. In children the predisposing conditions include prematurity, neutropenia, acidosis and corticosteroid therapy. Mucormycosis of the gut is even a rarer entity, which may be found in neonatal age, mimicking the picture of necrotising enterocolitis. We present a rare pathology of intestinal mucormycosis in an 18 months old child who presented with abdominal mass and fever.

## Case Report

An 18 months old child presented with 2 months history of fever and abdominal mass. He was treated for enteric fever in another hospital and also received antimalarials but had no relief. He had no symptom of intestinal obstruction. A globular, hard, non-tender, fixed mass about 10x10 cm was palpable in the right hemi abdomen. The clinical impression was that of some tumor, like Neuroblastoma, Nephroblastoma or Lymphoma. Leukocyte Count was 20,000/cmm. Hb was 7g/dl. ESR was 70. Renal function and Liver function tests were within normal range. Abdominal sonogram was suggestive of an inflammatory mass causing mild hydronephrosis and hydroureter on ipsilateral side. CT scan abdomen

showed a soft tissue mass in the right lumbar region in relation to the gut loops. The impression was again that of an inflammatory mass or lymphoma. Patient was initially treated conservatively with antibiotics but was not settling. He developed symptoms of intestinal obstruction for which an exploratory laparotomy was performed. On laparotomy he had a huge mesenteric mass and matting of gut loops which were also plastered to the abdominal wall. The omentum was also trapped in adhesions. It was not possible to remove the mass so multiple biopsies were taken. Histopathology showed mucormycosis with aseptate hyphae pattern. Mesenteric lymph nodes were reported to have reactive hyperplasia. Patient was put on Amphotericin B. Post operatively the patient developed fecal fistula but was also passing stools per rectum. The fecal fistula was treated conservatively. The child was kept in regular follow up program but he lost follow up after a month. Till such time the output from the fistula was getting reduced and he was on full oral feed. No surgical intervention was done afterwards.

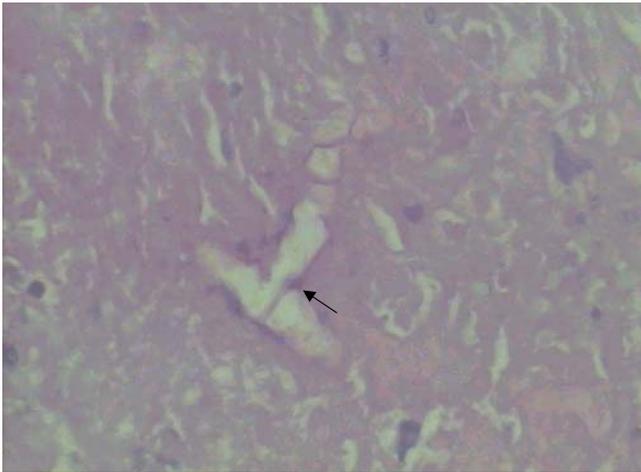
## Discussion

A ubiquitous fungus belonging to the order Mucorales of the class Zygomycetes causes Mucormycosis. These organisms are found in the soil and decaying organic matter. The genera causing disease in human include Mucor, Rhizopus and Absidia.<sup>1</sup> The infective form of the fungi are air born spores which cause infection in the rhinocerebral, respiratory, gastrointestinal or cutaneous region depending upon the route of entry into the body, i.e., by inhalation, ingestion or injection.

---

For correspondence  
Dr. Anwar-ul-Haq  
17-B, Mehran Block, Gulshan-e-Jinnah, F-5/1,  
Islamabad.

Mucormycosis is more common in immunocompromised adults particularly in case of diabetic ketoacidosis, lymphoma, leukemia and renal failure on peritoneal dialysis.<sup>2</sup> The premature neonates, children with neutropenia, acidosis and those receiving corticosteroid therapy are more prone to develop the infection. Mucormycosis of the gut is very rare and is caused by ingestion of the spores. This can mimic a picture of and is difficult to differentiate from necrotizing enterocolitis in neonates and premature babies.<sup>3</sup>



**Mucormycosis of the Gut Showing Aseptate Hyphae Pattern**

In gastrointestinal mucormycosis of children, it is the stomach, which is most commonly involved followed by large gut, small gut and esophagus. Patient may present with abdominal mass initially.

Our patient also presented with abdominal mass and high grade fever, which was not responding to the routine antimicrobials. Typically, it invades

blood vessels, producing thrombosis and tissue infarction. This infection spans all pediatric age groups and can lead to hollow viscus perforation and bowel obstruction.<sup>4</sup> In our case the development of fecal fistula seems to be due to angio-invasion by the fungi leading to focal gut necrosis and fistula formation.

The disease is uniformly fatal in children. Diagnosis has been difficult, resulting in inadequate therapy. Histologic and bacteriologic confirmation of invasive infection, followed by systemically administered amphotericin B and surgical excision, are the hallmarks of effective treatment.<sup>5</sup> The laparotomy findings are typical (black necrotic tissue involving the bowel), and when seen in the immunocompromised patient, should make one suspect gastrointestinal mucormycosis. Aggressive surgical debridement of devitalized tissue augmented by intravenous antifungal medication is the mainstay of treatment.<sup>4</sup> We followed the same protocol, i.e., Amphotericin B. The child was responding to that as the output from his fistula was reducing and he was passing more stools per rectum.

## References

1. Mooney JE, Wanger A. Mucormycosis of the gastrointestinal tract in children. Report of a case and review of the literature. *Pediatr Infect Dis J* 1993; 12: 872-876
2. Sharma MC, Gill SS, Kashyap S, Kataria R, Gupta DK, Sahni P et al. Gastrointestinal mucormycosis – an uncommon isolated mucormycosis. *Indian J Gastroenterol* 1998; 17: 131-133
3. Sridhar S, Atanu KJ, Susana T, Rekha S. Mucormycosis in neonatal gastrointestinal tract. *Indian Pediatrics* 2001; 38:294-297
4. Vadeboncoeur C. et al [Abstract of :Gastrointestinal mucormycosis causing an acute abdomen in the immunocompromised pediatric patient--three cases" *J pediatr Surg* 1994;29:1248-9] [electronic]
5. Michalak DM, Cooney DR, Rhodes KH, Telander RL, Kleinberg F. [Abstract of: Gastrointestinal mucormycoses in infants and children: A cause of gangrenous intestinal cellulitis and perforation. *J pediatr Surg* 1980;15(3):320-4] [electronic]