



Journal Homepage: - www.journalijar.com
**INTERNATIONAL JOURNAL OF
 ADVANCED RESEARCH (IJAR)**

Article DOI:10.21474/IJAR01/4319
 DOI URL: <http://dx.doi.org/10.21474/IJAR01/4319>



RESEARCH ARTICLE

IDENTIFICATION OF CANDIDA ALBICANS IN ABDOMINAL SURGERY PATIENTS.

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Manuscript Info

Manuscript History

Received: 23 March 2017
 Final Accepted: 28 April 2017
 Published: May 2017

Key words:-

abdominal surgery, *Candida albicans*, treatment.

Abstract

Candidiasis occurs in neutropenic patients or in those undergoing abdominal surgery. Independent predictive factors are multiple prior antibiotic treatment courses, the presence of intravascular devices, previous colonization by *Candida* as well as the rupture of skin or cutaneous anatomical barriers. *Candida* species frequently contribute to polymicrobial infections that occur following gut perforation, anastomotic leaks after bowel surgery, and acute necrotizing pancreatitis. The reservoir of *Candida albicans* is mainly the human digestive tract, and a colonization stage usually precedes an established infection. The diagnostic clue may be found on examination of the ascitic fluid. The *Candida* infection is a serious medical condition that requires an immediate medical attention. The invasive *Candida* infections are characterized by fever and shock along with low blood pressure, an elevated heart rate, respiratory distress and multiorgan failure. However, an early diagnosis of candidiasis can prevent these complications. A high index of suspicion with clinical- microbiological correlation is necessary for the timely diagnosis and treatment of fungal infections to avoid fatal outcomes.

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Introduction:-

Candida species (spp) have emerged as the seventh most common health care-associated pathogen in the critically ill with an associated mortality rate of 19-50% (1-4). *Candida* species frequently contribute to polymicrobial infections that occur following gut perforation, anastomotic leaks after bowel surgery, and acute necrotizing pancreatitis (1,2). Candidiasis occurs in neutropenic patients or in those undergoing abdominal surgery. Independent predictive factors are multiple prior antibiotic treatment courses, the presence of intravascular devices, previous colonization by *Candida* as well as the rupture of skin or cutaneous anatomical barriers. *Candida albicans* is the predominant species causing candidiasis (3). The reservoir of *Candida albicans* is mainly the human digestive tract, and a colonization stage usually precedes an established infection. Peritonitis in patients with preexisting liver disease and ascites may be secondary to a local abdominal condition potentially requiring surgery for cure or

alternatively, may be spontaneous in origin. For the latter, antimicrobials are therapeutic while surgery is contraindicated. The diagnostic clue may be found on examination of the ascitic fluid(4,5).

For many years, there has been debate over the importance of *Candida* isolated from the sites of intra-abdominal infection. The organism is a normal commensal of the gastrointestinal tract and its isolation is often difficult to interpret. Generally, infection is suspected when the organism is cultured from samples obtained intraoperatively or directly from an intra-abdominal collection(6,7). When *Candida* is cultured from subsequently obtained drainage fluid samples, colonization is a possibility. However, although there are reports of 'colonized patients' recovering without antifungal therapy, ignoring these cultures can be dangerous, especially in the setting of critical illness or when *Candida* is repeatedly isolated. In the recent years, there has been a lowering in the threshold for treating such patients. Hematogenous dissemination from the peritoneum can occur(8,9). Management of this form of candidiasis usually entails both surgical intervention and antifungal therapy. Patients with perforated peptic ulcers who have *Candida* isolated from peritoneal culture have been noted to have a poor prognosis. Therefore treatment of such patients with systemic antifungal agents has been considered(11,12).

The aim of study was description the clinical characteristics, microbiology, treatment and outcomes of *Candida albicans* infection in surgery patients.

Material and Methods:-

The medical records of the 4 patients who underwent surgery at TSMU the first university clinic #1Department of Surgery from 2016 – until april 2017 were studied retrospectively. The predisposing factors were identified in 2 patients - they have liver cancer. Two others were immunocompetent patients. All of them were hospitalized in our clinic for ulcer perforation (3-stomach ulcer, 1- duodenal ulcer). The aspirates taken during surgery from the abdominal cavity accordant to standard guidelines were sent for microbiological evaluation .

Bacteriological investigations were including isolation of poor culture, identifying microbes with rapid identification system (API20E, API Staph, API Strep, API Ana, APIC aux, bioMerieux). Intra abdominal effusions were cultured in aerobic and anaerobic atmosphere (Gen-Bag biomerieux) on the enrichment and differential-diagnostic medium: bloody agar (TSA 5% with sheep blood), Endo agar (for Enterobacteriaceae family) and Sabouraud dextrose agar (for fungi) . The peritoneal fluid culture revealed colonies of *Candida albicans*. Monomicrobial growth was detecting in 2 cases and isolate was *Candida albicans* 10^8 CFU/ml. Polymicrobial growth were observed in cancer patients with following microbial association: *Escherichia coli* 10^5 CFU/ml and *Candida albicans* 10^8 /ml, *Enterococcus* spp 10^6 CFU/ml and *Candida albicans* 10^8 CFU/ml.

Sensitivity of microorganisms to antibiotics was defined with disc-diffusion method using standard discs (EUCAST guidelines 2015). Since peritoneal fluid culture revealed *C. albicans* , fluconazole was added to the therapy. Among 4 patients three of them were discharged with the improve health condition and proper recommendation. One cancer patient was dead.

Conclusion:-

The *Candida* infection is a serious medical condition that requires an immediate medical attention. The invasive *Candida* infections are characterized by fever and shock along with low blood pressure, an elevated heart rate, respiratory distress and multiorgan failure. However, an early diagnosis can prevent these complications. A high index of suspicion with clinical- microbiological correlation is necessary for the timely diagnosis and treatment of fungal surgical infections to avoid fatal outcomes.

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