

# Diverticulitis Resulting in Brain Abscess: A Case Report (Poster).

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## Published In/Presented At

Wallace, S. Deisher, D. Harrison, T. (2017, November 10). *Diverticulitis Resulting in Brain Abscess: A Case Report*. Poster Presented at: AMA Research Symposium, Honolulu, Hawaii.

Wallace, S. Deisher, D. Harrison, T. (2017, November 03). *Diverticulitis Resulting in Brain Abscess: A Case Report*. Poster Presented at: Annual Scientific Meeting of Keystone Chapter of the American College of Surgeons, Allentown, PA.

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# Diverticulitis Resulting in Brain Abscess: A Case Report

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## ABSTRACT

- Diverticular disease is common in the western hemisphere with approximately half of the United States population aged 50 and over being affected. The spectrum of diverticulitis ranges from microperforation to large-scale macoperforation resulting in feculent peritonitis. Treatment modalities are governed based on Hinchey classification. Extra-abdominal manifestation of diverticulitis, such as brain abscesses, remain exceedingly rare with only five previously reported cases in the literature
- In this report, we describe a case of a 64 year-old female with acute diverticulitis that resulted in brain abscess formation. We present the clinical and radiologic features, as well as discuss treatment algorithm
- With extra-abdominal manifestations of diverticulitis seldom reported in the literature, it is our hope that reporting these unusual instances will raise awareness of such disease manifestations and allow for earlier diagnosis and treatment

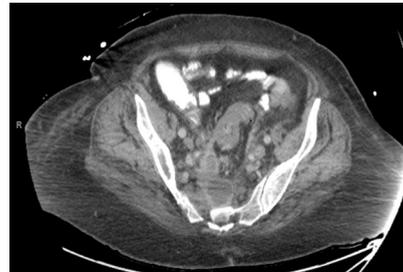
## INTRODUCTION

- Diverticular disease collectively refers to diverticulosis and diverticulitis, which differ based on the presence of an inflammatory process
- Pathophysiology and etiology stems from:
  - Low dietary fiber
  - Small stool calibers
  - Higher colonic intraluminal pressures
- Teniae are locations of colonic wall weakness
- With persistently higher intraluminal pressures, diverticula may develop with the sigmoid colon being particularly susceptible [1]
- Very common in western countries, particularly USA
- Estimated more than half of Americans aged 50 or greater to be affected [1]
- Most diverticula are asymptomatic and are classified as diverticulosis, but become problematic when inflamed
- Inflammation of diverticula leads to diverticulitis, which can lead to bowel perforation
- Treatment depends on Hinchey Classification, which outlines the disease severity [1]
- Incidence of brain abscess of any etiology is low (0.3 – 1.3 per 100,000 persons per year [2,3])
- Extra-abdominal manifestations of diverticulitis are exceedingly rare with only 5 previously reported instances in the literature [4,5,6,7,8]

## CASE REPORT

- 64 y/o female accepted in transfer to the Neurology Critical Care Service at a Level 1 Trauma Center
  - Presented with altered mental status, fever, headache, confusion, nausea, vomiting, and diarrhea
  - CT imaging of the head was concerning for intracranial hemorrhage and hydrocephalus
  - Intubated and sedated for GCS < 8 on admission
  - Abdomen obese and distended
  - Pertinent laboratory studies: WBC 18.7, INR 1.2
- Additional imaging was performed:
  - CT chest/abdomen/pelvis significant for: (Figure 1)
    - Presence of numerous scattered sigmoid diverticulosis with mural thickening
    - Pre-sacral fluid collection with peripheral enhancement and internal gas
  - MRI/MRA brain significant for: (Figure 2)
    - Frontal periventricular intra-axial abscess
    - Surrounding edema and mass effect
    - Meningitis and ventriculitis

Figure 1. A representative image of the CT abdomen and pelvis illustrating a presacral fluid collection with peripheral enhancement and internal gas compatible with an abscess. Also notable is sigmoid diverticulitis with abnormal mural bowel wall thickening

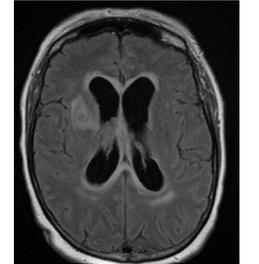


- Bilateral externalized ventricular drains by Neurosurgery
  - Thick purulent drainage
  - Cultures positive for *Streptococcus intermedius*
  - Antibiotic therapy with Ceftriaxone & Metronidazole
- General surgery evaluation revealed concerns for perforated diverticulitis versus perforated malignancy
  - Exploratory laparotomy and Hartmann procedure
  - Cultures positive for *Enterococcus faecium*
  - Final pathology: perforated diverticula and pericolic abscess without evidence of dysplasia or malignancy

## CASE REPORT

- Prolonged ICU hospitalization requiring tracheostomy, feeding tube (PEG) placement, and ventriculoperitoneal shunt
- Discharged to rehabilitation hospital on day 40
- At rehab, decannulated from tracheostomy, PEG removed, and return to baseline mental status
- Plans for colostomy reversal

Figure 2. A representative image of the MRI/MRA illustrating a right frontal periventricular intra-axial abscess, surrounding edema, and dissection in ventricular system



## DISCUSSION

- Approximately 25% of patient with diverticulitis develop complicated disease [9]
- Most common sites for extra-colonic abscess secondary to diverticulitis are pelvis and liver
- Review of literature reveals only 5 previously documented cases of diverticulitis leading to abscess formation in the brain [4,5,6,7,8]
  - Bacteria involved in this phenomenon are commonly flora of the *Streptococcus milleri* (SMG) and *Enterococcus faecium* species, both of which were isolated in this patient
- When disseminated infection is present, prompt direct source control is required with both medical and surgical interventions
  - Nervous system lesions can be treated with modalities ranging from antibiotics through open debridements
- With brain abscess resulting from diverticulitis seldom reported in the literature, it is our hope that reporting our experience will raise awareness and allow for earlier diagnosis and treatment

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