

## ABSTRACT

**Background:** Bowel gangrene is one of the life threatening and progressive surgical condition due to mesenteric arterial occlusion that can manifest as acute abdomen. Bowel gangrene can lead to devastating complications such as septic shock and death. Prompt surgical intervention is key to ensuring good outcome in these patients. However, establishing preoperative diagnosis of bowel gangrene poses great clinical challenge and may delay the decision to initiate operative treatment. This study aimed to document the prevalence, aetiology and factors associated with bowel gangrene among patients with acute abdomen at Mbarara RRH. These associated factors can aid clinicians in identifying bowel gangrene cases early and initiate operative treatment without delay.

**Methods:** A retrospective cross-sectional study was conducted in surgery department of Mbarara Regional Referral Hospital where 115 patients operated for acute abdomen were enrolled consecutively. An interviewer guided questionnaire was administered to obtain data on sociodemographic, clinical and imaging factors. Intraoperative findings at laparotomy were documented as presence or absence of bowel gangrene. Bivariate and multivariate analysis was used to determine the factors that were independently associated with bowel gangrene. Statistical level of significance was considered as p-value <0.05, and 95% confidence interval was set.

**Results:** Out of the 115 patients enrolled in this study, 32 (27.8%) had bowel gangrene. The mean age of participants was 44.56 ( $\pm$ 21.50) years. Children <18years comprised 13 (11.3%) of the participants. Most cases of bowel gangrene resulted from adhesive bands 10 (31.3%), bowel volvulus 9 (28.1%), strangulated hernia 6 (18.8%). In children, intussusception and bowel volvulus were the major causes of bowel gangrene. The clinical characteristics and factors that were significantly associated with bowel gangrene were tachycardia (aPR 5.06, 95% CI: 2.16-11.83), diastolic hypotension (aPR 2.01, 95% CI: 1.13-3.59), abdominal rigidity (aPR 2.23, 95% CI: 1.27-3.91) and multiple air-fluid levels on plain erect abdominal radiographs (aPR 7.79, 95% CI: 1.81-33.57).

**Conclusion:** At Mbarara RRH, the proportion of bowel gangrene among patients with acute abdomen is 27.8%. Adhesive bands, bowel volvulus and strangulated hernia account for most cases of bowel gangrene among patients with acute abdomen. Patients with tachycardia, diastolic hypotension, abdominal rigidity and X-ray finding of multiple air-fluid levels are more likely to have bowel gangrene. These patients should be prioritized for operative treatment.