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Ileosigmoid Knotting: Experience from Resource Limited Setup a Retrospective Review of Cases at Leku General Hospital, Sidama, Ethiopia

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Abstract

Introduction: *Ileosigmoid knotting is an uncommon cause of acute intestinal obstruction where the ileum wraps around the base of the sigmoid colon. The condition rapidly progresses to gangrene of the ileum and sigmoid colon. Due to the unfamiliarity of this entity and confusing and contradictory features of the disease preoperative exact diagnosis is not easy.*

Methodology: *This is a retrospective cross sectional 3years case management review of ileosigmoid knotting in Leku general hospital which is resource limited and district hospital and the aim is to share little experience in managing these cases, as well to add the existing data to the research community.*

Result: *A total of only 5 ileosigmoid knotting cases were encountered in the last 3 years at Leku general hospital emergency surgery department.4 of the patients were male and the remaining 1case was female. The mean age was 43.8yrs. All the cases were presented with gangrenous bowel segment, both small bowel and sigmoid colon except, 1 viable sigmoid colon among. Resection and primary anastomosis were done for all patients (both small bowel and sigmoid colon).No stoma was done. All patients were discharged alive. Only 1 patient developed surgical site infection.*

Conclusion: *Ileosigmoid knotting is very rare surgical emergency surgeons may encounter in their practice and should be considered as a cause of acute intestinal obstruction with strangulation. Adequate resuscitation and surgery improve prognosis. Based on the patients and bowel condition small bowel as well as colonic primary anastomosis has favorable outcome*

Keywords: Ileosigmoid Knot, Obstruction, Sigmoid Volvulus, Resection Anastomosis

Abbreviations

CT-Computerized Tomography
IESO-integrated emergency surgical officer
ISK-Ileosigmoid knot
SV-sigmoid volvulus
SBV-small bowel volvulus

Introduction

Ileosigmoid knotting is still a rare cause of intestinal obstruction that can rapidly progress to gangrene of both ileum and the sigmoid colon. It usually occurs when loop of ileum wraps around the base of a redundant sigmoid colon [1, 2].

Due to its non-specific presentation, clinical features, laboratory and imaging ileosigmoid knotting is diagnosed intraoperativelly. Abdomenal pain, failure to pass feces and flatus, vomiting, distension are the major complaints patients presented with most of the time. Because of the double closed loop nature of the obstruction sign of strangulation occur early.

The common x-ray findings include distended small and large bowel loops with multiple air fluid levels. On abdominal computed Tomography (CT) “whirle sign” created by twisted intestine and sigmoid mesocolon increases the diagnostic accuracy in 90% of cases. But like in our cases CT is not easily available especially in setups far from the main cities and from the capital [2, 3, 4, 7].

Emergency laparotomy is the mainstay of management in the cases of ISK.Vigorous resuscitation preoperatively is ideal in the management of the cases. Intraoperative choice of procedure type depends on the viability of the bowels and patient’s condition [5, 6, 7].

Because the ISK is uncommon there are few studies in Ethiopia and all studies are from the tertiary teaching hospitals. Our study aims to share our little experience from resource limited district general hospital. So, it will be an additive to the existing studies and hope to contribute to the next extended review.

Materials and Methods

This is retrospective institution-based record review of ISK cases operated in leku general hospital from January 2021 to January 2024.Leku general hospital is found in Sidama,Southern Ethiopia. It started service as a primary hospital in 2012 with the support of Horizon for children. Since then, giving service for the community and became general hospital since 2023.

Currently the surgical side has 1specialist general Surgeon(non-contract) and 2 integrated emergency surgical officers(IESO)-post graduate masters level non physician clinician Surgeons who trained by task shifting and licensed by Ministry of health of Ethiopia to practice emergency obstetrics, gynecology and general emergency surgeries(general emergency surgeries like appendectomy, small bowel resection anastomosis and large bowel stomas, emergency hernia operations, emergency trauma operations and the like.)The hospital has 2 operation tables functional for emergency and elective operations.

The hospital operation room registry logbook was the source of the data then each patient data retrieved from card room.

Result

A total of 5 patients were operated for ISK in the study period. Of this 4(80%) were males and 1(20%) was female patient. The mean age of the patients was 43.8years (SD+_17.18) and ranges from 22yrs to 70yrs.The average duration of illness was 15.2hrs (SD +_6.09).Out of the 5 patients 4 patients come from rural area and only 1 patient comes from urban area. All of the 5 patients presented with complaints of abdominal pain and 1 or more episodes of vomiting.4 of the patients had peritonitis features with guarding and rigidity.

Three patients had significant abdominal distension. Four patients presented with different level of shock (BP<90/60) before initial fluid resuscitation. All the patients had leucocytosis. All patients were diagnosed with ISK intraoperatively. Four out of the five patients had gangrenous ileal loops and sigmoid colon. Only 1 patient had viable ileum but gangrenous sigmoid colon.

All the patients undergone resection and end to end anastomosis for the gangrenous bowel segment(both ileum and sigmoid).No patient managed by stoma. Post operatively only 1 patient developed surgical site infection and later improved. All patients preoperatively resuscitated by crystalloids and their urine output were adequate before the laparotomy undergone. All patients were on potent antibiotics preoperatively and postoperatively. All patients were discharged improved and no recorded death in the ward and all patients came after discharge for appointment at the SRC(surgical referral clinic) as outpatients.

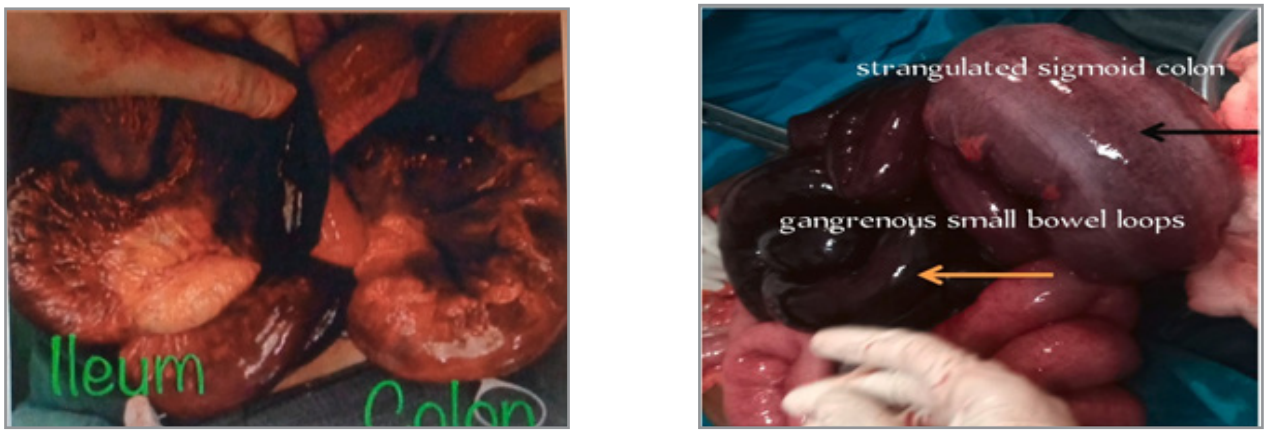

Figure 1a&b: intraoperative finding of Strangulated ISK

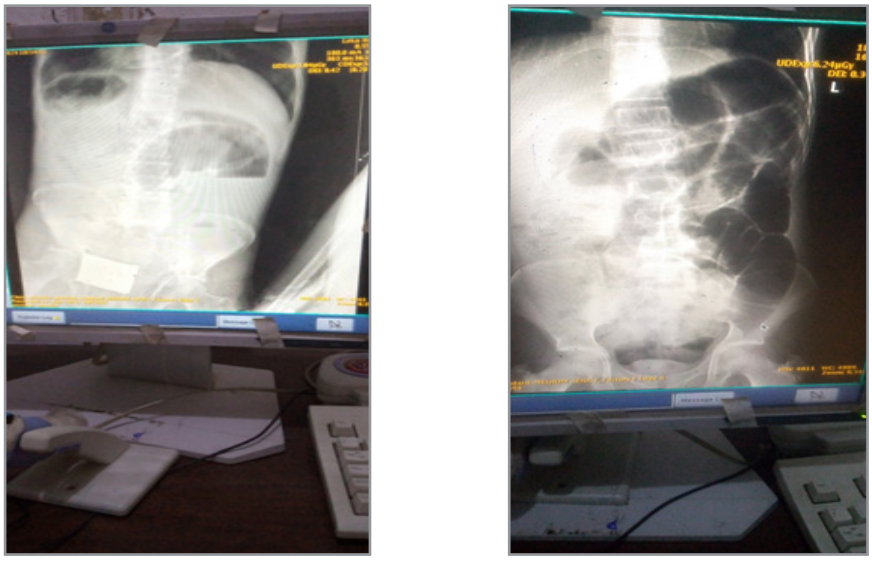

Figure 2c&d: preoperative x-rays of nonspecific features of bowel distension later intraoperative found to be ISK

Discussion

The ileosigmoid knotting is rare but life-threatening type of closed loop intestinal obstruction. The exact mechanism of ISK is still speculative. A long, small bowel mesentery, long sigmoid mesocolon on a narrow pedicle and ingestion of high bulk diet after fasting are predisposing factors [7].

The diagnosis of ileosigmoid knotting is difficult to establish due to its infrequent and rare presentation. Most of the time ISK can be mistaken as simple small bowel volvulus (SBV) Sor sigmoid volvulus (SV),which may lead to attempts to perform rectal tube deflation in low resource set up, like us or endoscopic decompression by sigmoidoscope which may lead to perforation iatrogenic injury.

The overall mortality rate of ileosigmoid Kotting in general may reach 48% due to patients preoperative in short time deterioration because of the double loop nature of the obstruction which facilitates early strangulation of the bowel loops. This easily translocate bacterial pathogens and end in sepsis and septic shock. So exploratory laparotomy is the definite key to diagnose majority of these cases of diagnostic dialema [7, 8, 9, 10].

After patients are present, vigorous fluid resuscitation, correction of electrolyte imbalance, nasogastric decompression should be started .Empiric broad spectrum antibiotics should also start soon. There are deferent recommendations of surgical procedures intra-operatively based on the bowel and patient's condition.

Small bowel primary anastomosis is preferred whether end to end or end to side based on the extent of the gangrenous segment from ileocecal junction. End to end anastomosis should be abandoned if the terminal ileum is gangrenous within 10cm of ileocecal valve. Even when viable, sigmoid colon resection is frequently recommended.

Many authors advocate either a Hartman's diversion colostomy because of the risk of a fecal leak from colonic anastomosis. However, recent data suggest that primary colonic anastomosis may be undertaken safely when the patient's condition is good, remaining bowel is clean, well vascularized non oedematose. All of our cases were managed by primary anastomosis without stoma, and it was favorable [8, 9, 10].

Conclusion

Ileosigmoid knotting is very rare surgical emergency surgeons may encounter in their practice and should be considered as a cause of acute intestinal obstruction with strangulation. If not identified and treated timely, it is associated with high morbidity and mortality. Adequate resuscitation and surgery improve prognosis. Based on the patients and bowel condition, small bowel as well as colonic primary anastomosis has favorable outcome.

Funding and Conflict of Interest

None

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