

Ileoileal Knotting a Rare Cause of Double Loop Small Bowel Obstruction, Diagnostic and Intraoperative Challenge at Ethiopian Leku District Hospital

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Abstract

Background A skin graft is a surgical procedure that involves removing healthy skin from one area of the body to another. Split-thickness skin grafting (STSG) is one of the basic modalities for wound cover [1]. Sometimes the donor site becomes painful and leaves a second wound or scar, which may take longer to cure than the primary graft site itself. Blister graft or suction graft (Epidermal grafting) is an alternative method of skin grafting in which we apply continuous negative pressure to the skin to harvest the epidermal layer of the skin. This procedure leaves minimal donor site morbidity or scars and is relatively less painful. It can be done on an outpatient basis. In our study, we try to compare the Blister graft (epidermal graft) with split-thickness skin grafting (STSG) and the mechanisms by which each technique achieves wound healing.

Keywords: Closed Loop Obstruction • Gangrenous Bowel • Emergency Surgical Officers • Ileoileal Knotting

Introduction

Intestinal obstruction is a common cause of acute abdomen which needs emergency surgery among which small bowel obstruction is the commonest. There are different causes of SBO which includes primary volvulus, hernias, adhesions, intussusceptions, and intestinal knotting. Intestinal knotting is a rare cause of bowel obstructions. Ileosigmoid knotting is the commonest and ileoileal knotting is unusual and only reported in a few cases [1-3]. District hospitals in Ethiopia are primary-level hospitals and usually the surgical unit is led by Integrated Emergency Surgical Officers (IESO) who are dully known in Ethiopia as the IESO's postgraduate professionals trained for 3yrs and authorized to do emergency obstetrics, gynecologic, and emergency general surgeries. It was a task shifting professional license allowing me to do emergency surgeries in district Ethiopian hospitals where there are scarce physician specialists [2-5]. According to reports showing the clinical performance of IESOs, numerous emergency surgeries have been done each day in district hospitals in Ethiopia. Emergency laparotomies are the common procedures done and SBO is the most common one during emergency bowel surgeries. Abdomen is a " Pandora's box" till it is opened which later comes with intraoperative surprises, especially in developing countries like Ethiopia where there is no essential diagnostic imaging in district hospitals. In this article, we present a 78-year-old male patient who presented with signs and symptoms of small bowel obstruction

and was diagnosed intraoperatively to have double loop obstruction secondary to ileoileal knotting. We will present the diagnostic and intraoperative challenges of the case [2,5].

Case Presentation

This is a 78-year-old male farmer who presented to the Leku district hospital emergency department with a history of abdominal pain of 28 hours duration. The pain was central and intermittent colicky type initially. He had also an associated history of repeated bilious-type vomiting. He had a history of failure to pass faeces and flatus since the last day before his presentation to the hospital, later he developed abdominal distention and the pain became persistent and generalized. He had no history of previous abdominal surgery and no history of abdominal trauma. He has no history of diagnosed hypertensive, cardiac, or diabetes mellitus diseases. Upon presentation on his physical examinations, he was acutely sick-looking with vital signs of BP=90/50mmgh, PR=129bpm, RR=23br/min, T=36.9, Pso2=96% at atmospheric air. He had a dry tongue and dry buccal mucosa, with little eye sickness. On abdominal examination, he had a distended abdomen, hyper tympanic on percussion, and there was direct tenderness over his abdomen upon palpation, on Digital rectal examination the rectum was empty. CBC and blood group were determined with the result of WBC=12.4, HCT=28.3, PLT=258, BG=BgRh=O+, erect abdominal X-ray was sent and showed dilated small bowel loops with multiple air fluid levels (Figure.1).

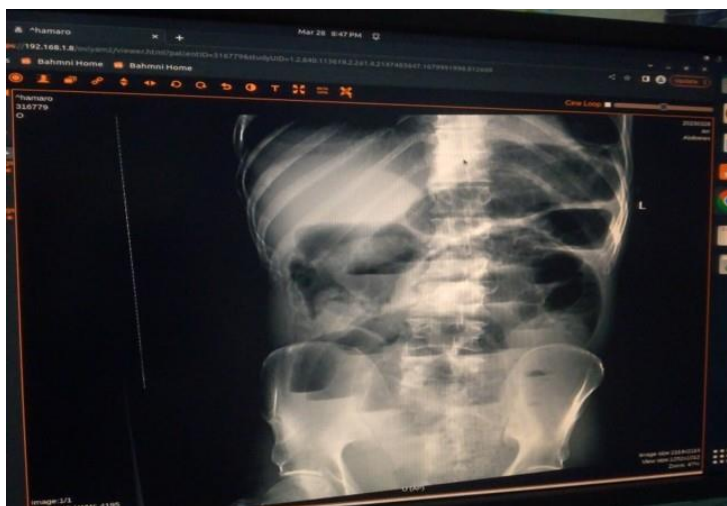


Figure 1. Erect abdominal x-ray with dilated small bowel loops and multiple air-fluid levels.

Based on the above findings with a presumed diagnosis of generalized peritonitis secondary to Strangulated SBO secondary to small bowel volvulus, exploratory laparotomy was decided and the patient was resuscitated by 3 bags of normal saline. NG tube was inserted, and broad-spectrum parenteral antibiotics were started. Lastly with preoperative vital signs of BP=110/60, PR=102bpm, RR=23br/min, Pso2=96%, UOP =200ml/1hr, an anaesthesia team was consulted for preoperative anaesthesia evaluation and evaluated, then taken to the OR. Under general anaesthesia, the patient's abdomen has been opened via the midline incision. Upon entry to the general peritoneal cavity, there was offensive dark haemorrhagic fluid estimated to be 800ml. There were dilated small bowel loops and a gangrenous segment was at the distal ileum near to ileocecal junction (ICJ) with ileoileal knotting causing closed loop strangulated obstruction (Figure. 2).

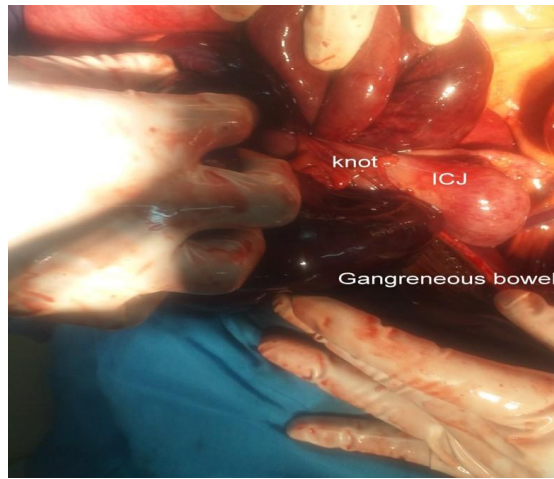


Figure 2. The intraoperative finding shows the knot, the non-viable segment, and dilated small bowel loops.

Discussion

Then the knotted bowel was tried to be unravelled but it was difficult. Later it was found that ligating and resecting the gangrenous bowel mesenteric vessels was accessible for proximal resection of the gangrenous part of the bowel loops and controlled decompression was done. Then after decompression, the bowel ends tied and this enables it to unravel and expose the distal end of the gangrenous segment which also has been resected. The distal aspect of the bowel was near the ICJ which made end-to-end ileoileal anastomosis difficult. Then ileo ascending colon side-to-side anastomosis was done in two layers using 2-0 Vicryl. Intraoperatively the patient was hypotensive and managed. Finally, the general peritoneal cavity was lavaged by warm saline and the abdomen was closed layer by layer. The patient was transferred to recovery stable, and the post-operative course was uneventful, sips were started on the 3rd post-operative date and a soft regular diet on the next day, discharged stable on the 7th post-operation date. Intestinal obstruction is a common cause of emergency surgery and small bowel obstruction is the leading cause for it. There are many causes for SBO. The common causes of SBO in the world and our country are small bowel volvulus, adhesions, hernia, and intussusceptions. Bowel knots are the unusual causes of bowel obstruction among others ileo-ileal knotting is the rarest reported cause of SBO. In my knowledge and review only 14 such cases were reported worldwide and only 3 cases in Ethiopia all of which were managed in specialized hospitals and managed by specialist physicians [1,2,3]. But in our case, it was managed in one of our district hospitals in Ethiopia and the leading surgeon was IESO who is a holder of an MSc in integrated emergency surgery, dully known in Ethiopia, and licensed to do obstetrics, gynaecology, and general surgical emergencies. For the last 10 years, IESOs in Ethiopia have been performing tremendous emergency surgical activities in primary health institutions in the country where still physician specialists are scarce [2]. Surgical scholars well describe the abdomen as a "Pandora's box" which is most time difficult to speculate what is in unless it is opened especially in developing setups where there is no sophisticated diagnostic imaging like standard ultrasounds and CT scans. Most of the time intestinal knotting is diagnosed intraoperatively. Preoperative diagnosis is very difficult and almost impossible. Ileoileal knotting presents like most other small bowel obstruction cases and has no typical or classic signs and symptoms except rapid progression to bowel strangulation due to its closed-loop obstruction nature. Early operative intervention is mandatory after vigorous resuscitation, nasogastric decompression, and broad-spectrum parental antibiotics. Emergency laparotomy should be performed through the midline incision and meticulous exploration of the bowel should be performed. Specific intervention depends on the site of the obstructed knot, the viability of the bowel loops, and the length of the distal bowel segment away from the Ileocecal junction. The choice of operative technique includes carefully unravelling the knot if both loops are viable, and performing enblock resection if it is found gangrenous and easily accessible to the distal and proximal segments. In articles-controlled decompression and untying the knot is also suggested. But this may have the risk of spillage

peritoneal contamination. However, in our case, the knot was at the distal ileum near ICJ difficult to enblock resection at the distal segment initially the mesentery is ligated and resected, and the proximal segment is crushed and resected after control decompression, the decompressed bowel end is tied by sure and easily the knot released and unraveled, the distal part accessed near to ICJ, then ileo ascending anastomosis was done [4-8].

Ethical approval: Written consent was taken for the procedure per the institution's guidelines and informed consent was taken from the patient and his relative attendants to publish the findings and also to use his X-ray result and intraoperatively findings (taken by camera) in the manuscript.

Competing interest: No competing interest.

Authors contribution: I as the corresponding author and ESO did the operation, and prepared the manuscript.

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Availability of data and materials: The patient data and materials are available in the institution (the hospital) data room.

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