Enemata: The Enigma of Rent Rectums in Children Presenting to the Korle-Bu Teaching Hospital, Ghana: A Case Series

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Abstract

Enemata are used in children in Ghana for various reasons, including for deworming, abdominal pain and constipation. A few isolated case reports have been on enema injuries in children worldwide. We report five cases of enema injuries in children aged 3–5 years, all presenting within 2023 at a tertiary institution in Accra, Ghana. The children presented late after their injuries and some of the guardians did not readily disclose the cause of the injury. The injuries were to the anus and rectum extraperitoneally, and in two cases, extended to the proximal rectum with intraperitoneal manifestations. Children who had anal injuries had their injuries located between the 6 o'clock and 7 o'clock positions. The injuries were managed with temporary colostomies and debridement, drainage of abscesses with or without primary repair, sitz baths and antibiotics. All five patients have had reversals of their colostomies with excellent outcomes.

Keywords: Children, colostomy, enemata, rectal injuries

Introduction

An enema (plural enemata or enemas) is a liquid preparation inserted into the rectum.[1] Enemata have been used since the earliest civilisations in Egypt, where it was thought that the Ibis bird collected water in its long beak and injected it into its bowel when the bird was actually preening its feathers.[2,3] In Ghana and Gabon, at least 213 plant species have been used to make hundreds of home enemata recipes given with bulb syringes.[4,5]

There are few reports of injuries associated with enema use in both adults and children.

Case Reports

Case 1

A 5-year-old girl presented with a 1-week history of a perianal wound following a herbal enema, which was administered for abdominal pain with an enema bulb syringe with a hard nozzle [similar to what is shown in Figure 1], a 4-day history of bleeding from the wound and a day's history of fever. She was febrile (37.9°C). Her abdomen was not distended, soft and non-tender. Her haemoglobin (Hb) level was 8.7 g/dL, and her white blood cell (WBC) count and renal function were normal. She was haemotransfused 450 ml of red cell concentrate, started on intravenous (IV) antibiotics and analgesia and prepared for examination under anaesthesia. Intraoperative findings were a 2 cm linear tear in the external anal sphincter at the 6 o'clock position and a 180° tear of the rectal mucosa from 3 o'clock to 9 o'clock, about 4 cm from the dentate line with minimal purulent discharge. Her vagina was intact. A double-barrelled sigmoid colostomy was fashioned out for her. She had debridement of the rectal wound and repair of the linear tear in the external anal sphincter and rectal mucosa. Recovery was uneventful, and she was discharged home on post-operative day (POD) 4 on oral antibiotics and sitz baths at home. Six months post-surgery, she had a reversal of the colostomy. She is doing well and is continent of liquid and solid stools.

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Case 2

The second patient was a 4-year-old boy who presented with abdominal pain of 12 days duration, diarrhoea of 10 days and bloody stool of a day's duration. The abdominal pain, which was associated with a fever, started after he was given an herbal enema with an enema bulb syringe with a hard nozzle [similar to what is shown in Figure 1] for constipation. Two days after the enema, he was noticed to have foul-smelling scanty diarrhoea.

He looked ill, febrile (38.3°C), pale, anicteric and moderately dehydrated. He had a distended abdomen with generalised tenderness, rebound tenderness and guarding. A digital rectal examination showed altered blood on the examining finger. No abnormality of the rectum was noted. His Hb was 8.5 g/dl and WBC was 19.58 × 10^9/L with neutrophilia of 86.3%. He had normal platelets and renal function.

The patient was haemotransfused 230 ml red cell concentrate, given IV antibiotics, tranexamic acid and a proton-pump inhibitor and prepared for surgery based on the diagnosis of peritonitis likely due to rectal perforation from an enema. Under general anaesthesia, a rectal examination showed a normal anal sphincter tone and normal mucosa of the distal third of the rectum. A laparotomy done through a left sub umbilical transverse incision showed a 5 cm longitudinal by a 1 cm transverse perforation in the anterior wall of the rectum just above the peritoneal reflection, 700 ml of offensive altered bloody fluid in the peritoneum and an area of necrosis of fascia and subcutaneous tissues on the anterior abdominal wall. There were multiple fibrinous adhesions between bowel loops and between the bowel and anterior abdominal wall. The patient had debridement and primary closure of the rectal laceration, abdominal irrigation and a temporary divided sigmoid colostomy. He developed post-operative ileus which resolved, and he was discharged home on POD 8. He had a reversal of the colostomy after 4 months. Recovery was uneventful and he is doing well.

Case 3

The third patient was a 5-year-old girl who presented with a 6-day history of abdominal pain, a 3-day history of diarrhoea and a day's history of vomiting which started after she was given an enema of garlic and ginger with an enema bulb syringe with a hard nozzle [similar to what is shown in Figure 1] for constipation. On presentation, she looked acutely ill, febrile (37.8°C) and was neither pale nor dehydrated. She had abdominal tenderness in the left iliac fossa and suprapubic region with guarding, though it was not distended. She was started on IV antibiotics and analgesia and prepared for surgery based on the suspicion of rectal perforation from an enema. Under general anaesthesia, a rectal examination showed a rectal ulcer at the 6 o'clock position and extraperitoneal perirectal pus of about 200 ml. Her vagina was intact. She proceeded to have a laparotomy (on account of tenderness and guarding in the suprapubic and left iliac regions) through an oblique left lower quadrant incision, at which it was found that the intraperitoneal bowel was normal. Drainage of the abscess per rectum with debridement of the rectal ulcer was done and a temporary, divided sigmoid colostomy was fashioned out.

Six days post-operatively, she had a recollection of the perirectal abscess in the posterior rectal region which was drained surgically per rectum. She was discharged home on POD 8 to continue sitz baths and antibiotics at home. She had a reversal of the colostomy 3 months after the initial surgery, and recovery was uneventful. Post-operative review shows normal passage of stools, and she is fully continent.

Case 4

The fourth patient, a 5-year-old girl, presented to a private health facility 10 days before presentation to the tertiary hospital with a 2-day history of lower abdominal pain associated with anorexia, the passage of watery mucoid stools (more than ×20) and fever. On evaluation at the primary health facility, she looked ill, febrile (38.3°C), with marked lower abdominal distension with tenderness, rebound tenderness and guarding. A rectal examination was not done. A diagnosis of acute appendicitis was made, and an appendicectomy was done. Three days post-appendicectomy, she complained of lower abdominal pain. Her mother noticed a foul smell from her perineal region and a tear in her anus. Examination under anaesthesia revealed a tear at the 7 o'clock position of the anus [Figure 2], fluctuating mass within the rectal wall which was diagnosed as an abscess, and 500 ml of pus was drained per the rectum. Her vagina was intact.

It was at this point that the child's nanny mentioned that she had given the child an enema when she complained of abdominal pain. The content of the enema and the instrument used were unknown. The child had a laparotomy for a descending loop colostomy. The loop colostomy after 2 days, stopped functioning and she was then referred to the tertiary hospital.

At the tertiary facility, she presented with a day's history of bilious vomiting, abdominal distension and abdominal pain and examination showed intestinal obstruction from a tight stomal opening. She was resuscitated for surgery where the fascia around the stoma was widened. She was continued with IV antibiotics based on the culture and sensitivity results of the rectal abscess, and she had sitz baths for the anal tear. She recovered with no additional events. Histopathology of the appendix confirmed appendicitis. She had a reversal of the loop colostomy 2 months later and she is doing well. She is fully continent of stools.

Case 5

The fifth and last patient was a 3-year-old girl who presented with a perianal wound of 6-day duration and passage of faecal matter through the perianal wound of 12-h duration. The mother claimed the child fell and hit her buttocks on a stone 6 days before presentation, causing a perianal wound. She had been reviewed by a paediatrician 5 days prior, started on oral antibiotics and sent home to do sitz baths. After 4 days of antibiotics and sitz baths, her mother observed that the child had not passed urine for a day and complained of lower

abdominal pain; she had constipation and an associated fever and reported again at the hospital. She, at this point, denied the use of an enema on the child.

The child was pale and febrile (39.4°C), though well hydrated. Her abdomen was soft, not distended and non-tender. She had a wound in the perianal region discharging faeces. The child spontaneously passed urine (not quantified), and a urethral catheter was passed to monitor her urine output subsequently. She was started on IV antibiotics and prepared for examination under anaesthesia. Peri-anal examination found a linear anal tear at the 6 o'clock position, extending proximally into the rectum to about 6 cm from the anal verge and deep into the sphincter muscle. There was an anorectal mucosal tear spanning the 3–9 o'clock region with fibrinous exudate covering the tissues [Figure 3]. A laparotomy was performed through an oblique left lower quadrant incision to assess the intraperitoneal rectum. The intraperitoneal rectal wall had a 2 cm × 3 cm patch of gangrenous serosa about 7 cm proximal to the peritoneal reflection with about 50 ml of pus accumulation beneath the serosa [Figure 4]. The gangrenous serosa and underlying pus tracked inferiorly to communicate with extraperitoneal rectal injury. Her vagina was intact. The subserosal abscess was drained, the serosal gangrene was debrided, the extraperitoneal rectal injury was debrided and the wounds were irrigated. There was primary closure of the extraperitoneal rectal injury and a temporary divided sigmoid colostomy per abdomen.

Based on the intra-operative findings, the child's mother was asked again if the child had been given an enema, and this time, she detailed giving the child a warm water enema with an enema bulb syringe with a hard nozzle [similar to what is shown in Figure 1] for constipation before the onset of symptoms.

On POD 3, she was noticed to discharge pus from the closed extraperitoneal rectal wound with subsequent breakdown of the rectal wound closure. This was managed with daily wound irrigation, daily sitz baths and antibiotics. There were no complications from the colostomy. She was discharged home on POD 10. She had a reversal of the colostomy done after 3 months. A fissure resulting from the breakdown of the anal wound was seen intraoperatively during the reversal and repaired using Vicryl sutures. The post-operative period was uneventful. She was discharged home on POD 4 and she is doing well. The fissure is healed, and she is fully continent of stools.

Results

All the children in the series were 3–5 years old: 4 females and 1 male. The enemata were given to treat constipation and abdominal pain. They were made of herbs, ginger and garlic and warm water. The patients all presented to the paediatric surgery unit 6–12 days after the injury had occurred. All of them were febrile at the time of presentation. In three of the children, the rectal injuries were limited to the perineal/extraperitoneal rectum, and in two, there were intraperitoneal extension and complications. All the anorectal injuries were



Figure 1: An enema bulb syringe with a hard nozzle



Figure 2: A picture of the perineum of the child in Case 4 showing a tear in the 7 o'clock position of the anus (arrowed)

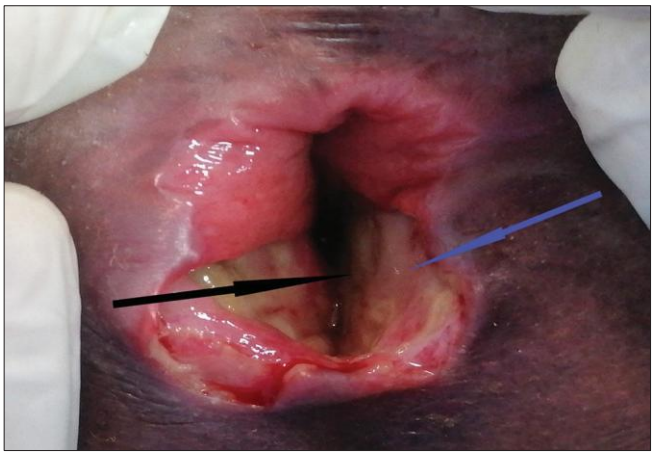


Figure 3: A picture showing the perineum of the child in Case 5. The black arrow indicates an anal tear at the 6 o'clock position extending vertically into the sphincter muscle and the blue arrow indicates a rectal mucosal tear spanning the 3–9 o'clock region

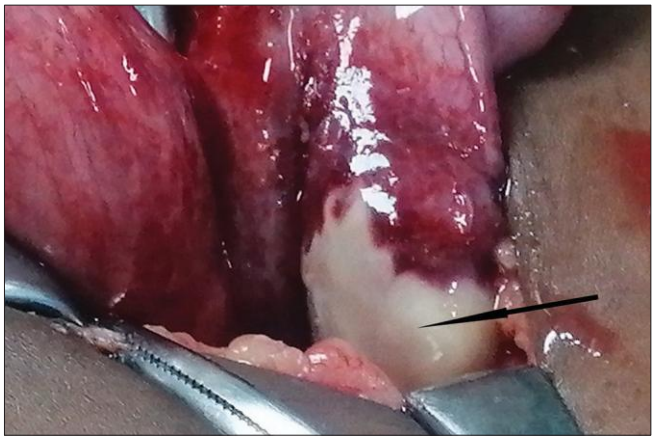


Figure 4: A picture of the anterior abdominal wall of the child in Case 5 at laparotomy with exteriorised intraperitoneal/upper rectum, showing a gangrenous patch of serosa on the rectum (arrowed)

posteriorly located. The anal injuries were between 6 o'clock and 7 o'clock, and the rectal mucosal injuries spanned the 3 o'clock to 9 o'clock regions. The anal and extraperitoneal rectal injuries were managed with debridement with or without primary repair and sitz bath. Those with intraperitoneal extension had laparotomy with debridement of injury and closure and drainage of pus. All the patients additionally had defunctioning colostomies. All the injuries healed and recoveries after the reversal of colostomies were uneventful. All the children have a normal anal function and are continent of liquid and solid stools.

Discussion

The children in the series were of the ages 3–5 years. This is close to Mshumpela *et al*.,[5] who reported on children <3 years. It is also similar to Ekanem *et al*.[6] who reported on the prevalence and determinants of enema use in children under 5 in the Akwa Ibom state, in which 62.7% of the children were aged 12 months–5 years.

The patterns of the injuries in this report suggested the children resisted the forceful administration of the rectal enema, leading to anorectal injuries. The enema bulb syringe with a hard and pointy nozzle as shown in Figure 1 can cause tears in the anus and rectum and the pointy tip can perforate the intraperitoneal bowel with sudden movements in a child fighting back or with forceful administration of the enema. Children in this age range can fight against the use of enemata. The mechanism of these injuries contrasts with the cases reported by Mshumpela *et al*.,[5] in which injuries were mainly due to the content of the enemata which were 'traditional' and hot water. The content of the enemata in this report included herbs, warm water, ginger and garlic, substances commonly used for enemata.[6-10] Even though herbal preparations and hot water can cause corrosive injuries and burns, respectively, there has been no record of ginger and garlic enema causing corrosive injuries.[2,3] The patterns of the injuries in this series are suggestive of mechanical, rather than corrosive or thermal injuries.

The presentation and pattern of injury did not suggest sexual harassment. In all of the cases, enemata were given just before the onset of the symptoms. Anal injuries from sexual abuse in children may present as fissure-in-ano, single or multiple anal scars (which may extend into the perianal region) and tags, reflex anal dilatation and venous congestion, which were absent in all five cases above.[11,12]

In this series, the reasons for which the enemata were given, abdominal pain and constipation, were consistent with reasons documented in other reports.[4,6] All the children presented with a fever in addition to the other symptoms, and this could be explained by the onset of sepsis in their seeming late presentation.

Pain at the site of the injury may make the children resistant to examination. This can limit the extent of examination done; thus, there may be a need for examination under anaesthesia whenever an enema injury is suspected.

The injuries were noted between 6 o'clock and 7 o'clock position for the anal/lower rectal injuries and 3 o'clock to 9 o'clock regions for the rectal mucosal injuries. We cannot explain why most injuries are in the 6–7 o'clock position and studies to find the risks may be required to answer this phenomenon.

In managing these injuries, one must remember that primary closures of rectal injuries may break down due to the infection at the site. Diverting colostomies are essential to allow for proper healing after debridement. Antibiotics and sitz baths are good adjuncts for the healing of rectal injuries.

Limitation

Images were not available for all the cases.

Conclusion

Even though there is a paucity of data on rectal injuries from enemata in children, the condition is not rare and delayed presentation is common. The non-disclosure of the cause of injury from guardians can further delay appropriate management. Injuries can be limited to the lower rectum but may extend to the upper rectum with intra-abdominal manifestations. The anal and lower rectal injuries are usually between the 6 and 7 o'clock positions and the lower rectal mucosal injuries span the 3 o'clock to 9 o'clock regions, and this may be a clue to the cause of the injury during examinations. Suspected rectal injuries from enemata should be examined under anaesthesia to assess the full extent of injuries. Debridement of these wounds, with diverting colostomies, antibiotics, and sitz baths, can result in excellent outcomes. There is the need to educate parents and guardians about the downside of giving enemata to children, especially when it was not prescribed by a physician.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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