Case Report:
The Prolapsed Intussusceptum in a 4-month-old Male: A Case Report

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ABSTRACT

A case of intussusception may be missed on initial presentation, if the physician is not vigilant or if non-specific symptoms are present. It may progress to prolapse per anus, if not attended to. We reported a case of intussusception, i.e. missed on the initial presentation by a local practitioner and progressed to prolapse per anus and perforation peritonitis. The patient was managed well and experienced an uneventful course.

1. Context

The intussusception is a surgical emergency resulting from the invagination of a bowel segment (intussusceptum) into the distal segment (intussuscipiens); if untreated, this condition leads to the catastrophic event of bowel ischemia resulting in necrosis and perforation.

2. Case Report

A 4-month-old boy presented to the emergency department with the complaint of a mass protruding out of the anus for one day. On further questioning, it was revealed that the patient had complaints of a painful abdomen, intermittent crying, and diarrhea for 7 days; for which, he was referred to a local practitioner 3 days back. Accordingly, symptomatic medications, oral rehy-

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Table 1. Tabular representation of various reported cases of prolapsed intussusceptions

Authors/Year	No. of Patients/ Age/Sex	Findings	Complications	Surgery	Outcome
Mutua et al. 2018 [5]	N=1 18 months Male	Prolapsed ileo-colic intussusception	Non-viable terminal ileum upto transverse colon	proximal ileostomy and distal mucus stoma	uneventful
Basu S. 2018 [6]	N=1 18 months Female	Ileo-colo-colic prolapsed intussusception		Laparotomy and reduction	uneventful
Tianyi et al. 2017 [4]	N= 1 10 months Female	Prolapsed ileo-colic intussusception	Gangrenous terminal ileum upto transverse colon	Right hemi-colectomy with end-to-end ileo-transverse anastomosis	expired
Obiora et al. 2014 [3]	N=10 4 to 96 months 4 Males 6 Females	7 ileocolic; 2 colocolic intussusception 1 expired pre-operatively	Bowel gangrene in 6	5 had right hemicolectomy ; operative manual reduction (3); left hemicolectomy (1)	2 expired
Ngom et al. 2013 [1]	N=9 2 to 9 months 7 Males 2 Females	8 had ileo-colic intussusception; 1 had sigmoido-rectal intussusception	4 had intestinal necrosis	4 had bowel resection; Reduction with appendectomy in 5	3 expired
Ray et al. 2012 [7]	N=1 9 months Male	Prolapsed ileocolic intussusception	Large bowel gangrene	Bowel resection with ileostomy	uneventful
Ibrahim 2011 [8]	N= 9 5 to 10 months 3 Males 6 Females	Prolapsed ileocolic intussusception	Gangrenous bowel in 4 cases	Resection and anastomosis in 6; sigmoid colostomy in 1; reduction in 3	uneventful
Coghill et al. 2009 [9]	N=1 8 months Female	Prolapsed ileo-colic intussusception	Gangrenous intussusceptum upto descending colon	Resection of gangrenous bowel and ileo-sigmoid ansastomosis	uneventful
Ameh et al. 2008 [10]	N=5 4 to 18 months	Prolapsed ileocolic intussusception	Perforation and gangrene in 2	Bowel resection in 2 Transverse colostomy in 1	3 expired

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dration solution, and zinc were prescribed for him. There was also a history of 2 episodes of bilious vomiting before presentation to us. On presentation, the infant was sick-looking, pale, and lethargic. He had tachypnea (respiratory rate: 37 min), tachycardia (heart rate: 136 min), deranged Capillary Filling Time (CFT) of >3 sec, and the signs of shock and dehydration. The abdomen was distended with sluggish bowel sounds and obliterated liver dullness. Perineal examination revealed necrotic bowel prolapsing out of the anus (Figure 1).

Two wide bore peripheral intravenous lines were secured and 2 fluid boluses of 20 mL/kg normal saline were given to the patient. His laboratory investigations revealed leukocytosis, Total Leucocyte Counts (TLC) of 21000 cmm with neutrophilia, hemoglobin: 7.9 g%, blood urea: 32 mg/dL, serum creatinine: 1mg/dL, and normal platelets. The venous blood gas demonstrated acidosis with a pH of 7.1 and bicarbonate levels of 8 meq/L. Serum Na^+ was equal to 121 meq/L and K^+ equaled 2.5 meq/L. The X-ray of the abdomen confirmed free gas under the diaphragm. The administration of triple antibiotics ceftriaxone, amikacin, and metronidazole were initiated for the patient for the coverage of Gram-positive, negative, and anaerobic organisms. After aggressive resuscitation and starting on maintenance fluid DNS 100 ml/kg/day with 2:100 KCl, the acidosis component got corrected and CFT was measured as 3 seconds. The infant underwent exploratory laparotomy, which revealed terminal ileum prolapsed through large bowel and coming out of the rectum, with perforated ascending, transverse, and descending colon (Figure 2). The intussusceptum had partially necrosed and shriveled. The unhealthy small bowel and perforated large bowel were resected and ileostomy and distal mucus fistula at sigmoid were created. The patient had an uneventful postoperative course and discharged satisfactorily on POD-7 after sepsis was controlled. He is awaiting ileocolic anastomosis at a later date.

3. Discussion

The intussusception predominantly affects children aged 6 months to 3 years, with >90% of the cases in the first 2 years of life. Literature refutes the seasonal variations; however, geographic and demographic differences exist. The diagnosis of intussusception may be challenging in non-specific presentations and mimick-

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Figure 1. Perineum picture showing prolapsed necrotic bowel per anus

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Figure 2. Intra-operative picture showing mostly perforated large colon after the reduction of intussusception

ing common conditions, like gastroenteritis, which may cause delayed or missed diagnosis. The clinical triad of abdominal pain, red currant jelly stool, and palpable mass may be present in less than half of the cases.

Ileo-colic intussusception is the most prevalent type of intussusception. The long mesentery allows for migration up to the distal large bowel and even transanal protrusion (1). Radiological assessment using X-rays help with ruling out perforation as in our case; however, target or meniscus signs may also be appreciated in a few. Ultrasonography has a sensitivity of 98%-100%, a specificity of about 88%, and a negative predictive value of 100%. The hydrostatic or pneumatic reduction may be tried at the initial presentation of ileocolic intussusception. A 2017 Cochrane meta-analysis indicated air enema may be more successful than a hydrostatic enema (2). The indications of surgical intervention include unsuccessful non-surgical reduction, hemodynamic instability, and perforation. Laparotomy is the only option left is delayed cases.

The prolapsed intussusception is a missed event and late complication. It is a rare scenario and the relevant incidence quoted in the literature is up to 16 % (3). Trans-Anal intussusception prolapse may be confused with simple rectal prolapse; however, it may be very well differentiated on Per-Rectal (PR) examination. In intussusception, the finger can be easily insinuated between the prolapse part and rectum. In the presented case, it was a long gangrenous prolapsed segment of the bowel obviating the need for PR examination. Obiora et al. also stated that the average age at presentation for the transanal protrusion of intussusception is >1 year for 40% of children (3). Additionally, it has a female predisposition, contrary to other intussusceptions (3). It requires prompt diagnosis and management to prevent morbidity and mortality (4). A tabular presentation of various reports in the literature is listed in Table 1. Ugwu BT et al. explored high bowel resection rates in trans-anal protrusion cases (67%), compared to other forms (30%) (11). Our patient also underwent the resection of unhealthy and perforated bowel due to late presentation.

The mortality rate varies from 1 % in developed countries to 9.4 % in resource-challenged nations (12). Chalya PL et al. inferred that high mortality rates are associated with less than one year of age, delayed presentation greater than 24 hours, associated peritonitis, bowel resection, and surgical site infection (13). Our patient presented most of these factors but could be salvaged due to aggressive management.

4. Conclusion

A high index of suspicion and focused imaging allows the early identification and subsequent management. Young age, male gender, prolapsed necrosed intussusceptum, the perforation of the most of large bowel, and good final outcome merits the publication of index case.

Ethical Considerations

Compliance with ethical guidelines

The participants were informed of the purpose of the research and its implementation stages. A written consent has been obtained from the subjects. They were also assured about the confidentiality of their information and were free to leave the study whenever they wished,

and if desired, the research results would be available to them. The Helsinki Convention was also observed.

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Authors' contributions

All authors equally contributed to preparing this article.

Conflicts of interest

The authors declared no conflicts of interest.

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