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A Rare Case of Appendicecal Intussusception with Secondary Ileocecal Intussusception

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ABSTRACT

Background: Appendiceal intussusception is an uncommon clinical entity that can mimic acute appendicitis or ileocolic intussusception, particularly in pediatric patients. Preoperative diagnosis is challenging due to nonspecific symptoms and overlapping imaging features. Early recognition and timely surgical intervention are essential to prevent complications.

Case Presentation: We report the case of a 12-year-old male who presented with acute right lower abdominal pain, non-bilious vomiting, and decreased appetite for one day. Physical examination revealed localized tenderness and guarding in the right iliac fossa. Ultrasonography showed a mildly thickened inflamed appendix measuring 9 mm with telescoping of the appendix and ileocecal junction into the cecum, suggestive of early appendiculo-ileocecal intussusception. Emergency open appendectomy was performed through a Lanz incision. Intraoperatively, the appendix along with the ileocecal junction was found intussuscepting into the cecum, with the inflamed appendiceal base serving as the lead point. Gentle manual reduction followed by standard appendectomy was carried out. The patient recovered uneventfully and was discharged on postoperative day 5. Histopathological examination confirmed acute appendicitis. At 2-week follow-up, the patient remained asymptomatic.This case highlights the diagnostic difficulty of appendiceal intussusception, which may closely resemble more common causes of pediatric abdominal pain. Imaging may raise suspicion, but definitive diagnosis often occurs intraoperatively. Prompt manual reduction and appendectomy provide excellent outcomes in children when benign pathology is evident.

Conclusion:Early surgical exploration should be considered in suspected atypical appendiceal pathology to ensure accurate diagnosis and prevent complications.

Keywords: *Acute appendicitis,Appendiceal intussusception, Case report, Ileocecal intussusception, Pediatric surgery.*

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1. INTRODUCTION

Intussusception is a condition in which a proximal segment of the gastrointestinal tract telescopes into the distal segment, resulting in bowel obstruction, impaired vascular supply, and if untreated, potential ischemia or perforation. While intussusception is relatively common in the pediatric population, particularly between 6 months and 3 years of age, its occurrence in older children and adolescents is considerably rare, accounting for only a small percentage of cases presenting with abdominal pain in emergency settings [1]. Among the various types of intussusception, appendiceal intussusception represents one of the rarest clinical entities, first described by McKidd in 1858 and estimated to occur in approximately 0.01% of appendiceal specimens, making it a highly uncommon pathological finding [2]. This rarity often leads to diagnostic challenges, as its clinical presentation mimics more common conditions such as acute appendicitis, mesenteric adenitis, or nonspecific abdominal pain. Additionally, the condition may remain clinically silent until complications arise. Appendiceal intussusception occurs when the appendix becomes invaginated into the cecum due to abnormal peristalsis or localized pathology. Several etiological factors have been suggested, including lymphoid hyperplasia, mucocele, endometriosis, carcinoid tumors, polyps, or chronic inflammation of the appendix, all of which may serve as lead points that facilitate its invagination [3]. Based on the extent and direction of invagination, appendiceal intussusception has been classified into various types by McSwain, with type V—complete invagination of the appendix into the cecum—being one

of the rarest presentations [4]. Although appendiceal intussusception alone is uncommon, its progression into secondary ileocecal intussusception is exceedingly rare and poses significant diagnostic difficulty due to the overlapping symptomatology with common abdominal emergencies. Secondary intussusception occurs when the appendix, having already telescoped into the cecum, acts as a pathological lead point for further invagination of the ileocecal segment, ultimately resulting in a more complex and clinically significant obstruction [5].

The clinical presentation of appendiceal intussusception with secondary ileocecal intussusception varies widely, ranging from intermittent, colicky abdominal pain and vomiting to acute intestinal obstruction. A palpable abdominal mass, rectal bleeding, or signs of peritonitis may be present but are not specific. Such nonspecific findings often contribute to delayed or missed diagnosis, especially in adolescents, where intussusception is not routinely suspected. Radiological imaging plays a crucial role in diagnosis, with ultrasound being the initial modality of choice due to its accessibility and ability to demonstrate characteristic findings such as the "target" or "doughnut" sign. However, identifying the appendix as the lead point often requires further evaluation with contrast-enhanced computed tomography (CECT), which provides superior anatomical detail and aids in preoperative planning [6].

Surgical intervention remains the definitive treatment, particularly in cases of secondary intussusception or when a pathological lead point is suspected. Early recognition and timely operative management are essential to prevent complications such as bowel necrosis, perforation, or sepsis, especially in pediatric patients who may deteriorate rapidly. Although laparoscopic approaches are increasingly preferred for their diagnostic and therapeutic advantages, open surgery may be warranted depending on the intraoperative findings and surgeon expertise [7]. Given its extreme rarity and potential for severe complications, appendiceal intussusception with secondary ileocecal intussusception warrants heightened clinical awareness, especially when evaluating pediatric and adolescent patients with atypical right lower quadrant pain. Reporting such rare cases contributes significantly to the medical literature by enhancing clinicians' understanding of its presentation, diagnostic features, and optimal management strategies.

2. CASE REPORT

A 12-year-old male presented to the Emergency Department with a one-day history of right lower abdominal pain. The pain was sudden in onset, progressively increasing in intensity, non-radiating, continuous, and colicky in nature. The patient also reported four episodes of non-bilious vomiting within the preceding 24 hours, accompanied by noticeable loss of appetite. There was no history of fever, altered bowel habits, or urinary complaints. On physical examination, the abdomen was soft, but there was localized tenderness with mild guarding in the right iliac fossa, suggestive of underlying inflammatory pathology. Bowel sounds were normally audible, and no palpable mass or abdominal distension was detected. These findings initially supported a clinical suspicion of acute appendicitis; however, the presence of disproportionate symptoms and localized guarding prompted further evaluation with imaging.

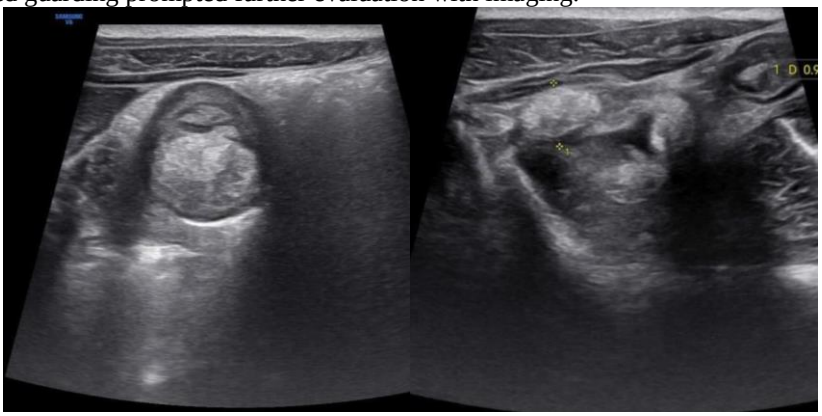

Figure 1. Ultrasound imaging demonstrated a mildly thickened and inflamed appendix , measuring approximately 9 mm in diameter . The appendix and ileocecal junction appeared telescoping into the cecum, suggestive of an early ileocecopendicial intussusception.

An immediate decision for open appendectomy was taken . Under general anesthesia , Lanz skin incision was made , centered over McBurney's point. Skin, subcutaneous tissue External oblique aponeurosis, followed by blunt splitting of the internal oblique and transverse abdominis muscles in the direction of fibers and peritoneum was carefully opened. Upon a thorough exploration cecum and terminal ileum were delivered into the wound. We found that both Appendix and ileocecal junction were intussuscepting into cecum with leading point as base of the inflamed appendix , consistent with early forming Appendiculoileocecal intussusception. The base of the appendix was indurated with the tip in a retrocecal position.

Gentle manual reduction was performed by applying steady pressure from distal cecum and the intussuscepted segment was milked out. Ileum and cecum were checked for viability. The mesoappendix was divided using ties, crush clamp applied at the base and ligated. The appendix was cut between ligature and clamp. The peritoneal cavity was irrigated with warm saline . Peritoneum and muscle layers were closed with absorbable sutures. External oblique muscle was approximated and skin was closed .

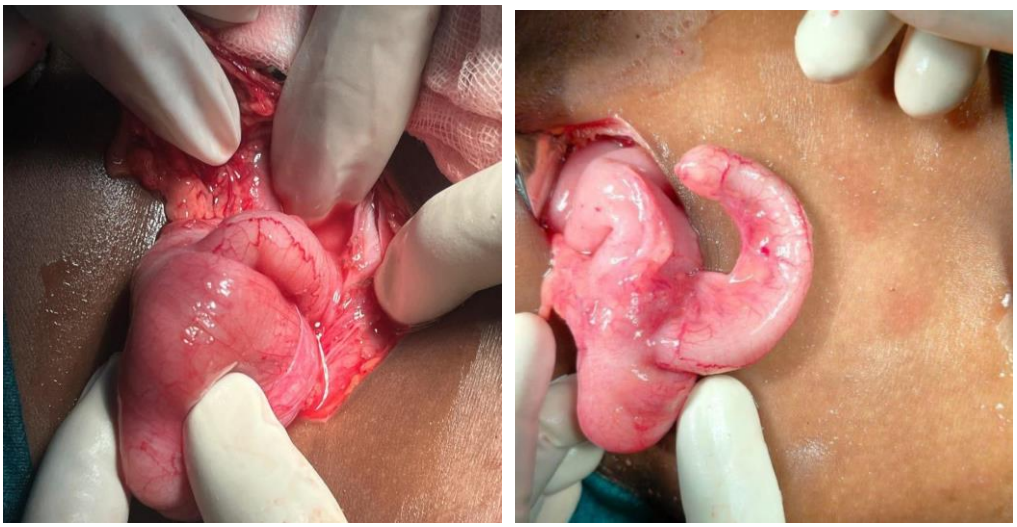

Figure 2. The patient had an uneventful postoperative recovery. Pt was discharged on postoperative day 5 in a stable condition. Histopathology report was conclusive of Acute appendicitis. At 2 weeks follow up the patient was asymptomatic and resumed normal daily activities.

3. DISCUSSION

Appendiceal intussusception is an uncommon clinical entity that often mimics more common causes of right-lower-quadrant pain, making preoperative diagnosis challenging. Similar to our case, Samuk et al. [8] reported that children with appendiceal intussusception frequently present with acute abdominal pain and vomiting, and the diagnosis is often made intraoperatively due to nonspecific clinical findings. Ultrasound may show a “target” or telescoping appearance, but definitive diagnosis remains difficult, as noted by Adhikari et al., [9] described that even when imaging suggests intussusception, confirmation is typically surgical. Iqbal et al. [10] similarly highlighted that appendiceal intussusception can masquerade as ileocolic intussusception, reinforcing the diagnostic dilemma encountered in pediatric patients. In most cases, an inflamed appendix serves as the lead point, consistent with the observations of Chaar et al., [11] emphasized that inflammatory, obstructive, or even neoplastic processes within the appendix may trigger intussusception. Our intraoperative finding of an indurated, retrocecal appendix acting as the leading point aligns well with these descriptions. Management strategies vary from simple appendectomy to more extensive resections. Pediatric cases, including those reported by Samuk et al.[8] and Adhikari et al.,[9] generally resolve with reduction followed by appendectomy, with excellent outcomes and minimal recurrence risk, mirroring the postoperative course of our patient. However, Park et al. [12] noted that in adults, suspicion of malignancy or compromised cecal viability may necessitate ileocecectomy or right hemicolectomy, underscoring the need for individualized surgical judgment. Overall, this case reinforces the importance of maintaining a high index of suspicion, interpreting imaging cautiously, and thoroughly evaluating the ileocecal region intraoperatively. Early surgical intervention and definitive appendectomy remain the cornerstone of successful management in pediatric appendiceal intussusception with secondary involvement of the ileocecal junction.

4. CONCLUSION

Appendiceal intussusception with secondary ileocecal involvement is an exceptionally rare condition that often mimics routine acute appendicitis, making preoperative diagnosis challenging. This case underscores the importance of maintaining a high index of suspicion when imaging demonstrates atypical telescoping patterns at the ileocecal region. Intraoperative findings remain crucial for definitive diagnosis, and timely manual reduction followed by appendectomy offers excellent outcomes in pediatric patients when the pathology is benign. Early surgical intervention not only confirms the diagnosis but also prevents potential complications, supporting appendectomy as the treatment of choice in children presenting with this unusual variant of appendiceal pathology.

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