Original Article

Chronic Pain Abdomen in Children: A Prospective Clinical Study on the Role of Chronic Constipation and Internal Anal Sphincterotomy

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Abstract

Background: Chronic abdominal pain (CAP) in childhood is a frequent and ambiguous problem that poses significant challenges for medical professionals. chronic constipation has been proposed as a significant yet under-recognized etiological factor for CAP. study aims to confirm this by evaluating the relief of CAP following a left lateral internal anal sphincterotomy (LLIAS). **Material and Methods:** This prospective clinical study was conducted in the Upgraded Department of General Surgery at Osmania Medical College. 23 children aged 0 to 20 years were included in our study. **Results:** 78.3% of children (18/23) provided a history of constipation, all 23 children achieved 100% relief from abdominal pain by the fourth post-operative day (POD-4). Specifically, 30.4% were pain-free on POD-0 and 21.8% on POD-1. Relief was consistently associated with the passage of large volumes of stools following the surgery. **Conclusion:** Left lateral internal anal sphincterotomy is an effective and safe procedure for relieving CAP in these children by addressing the underlying anorectal pathology.

Keywords: Chronic abdominal pain, Children, Pediatric constipation, Chronic constipation, Internal anal sphincterotomy, Functional gastrointestinal disorders, Recurrent abdominal pain.

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Introduction

Chronic abdominal pain (CAP) in childhood is a frequent and ambiguous problem that poses significant challenges for medical professionals. It is variously defined, with common criteria including pain of more than two weeks' duration, or the classic "Recurrent Abdominal Pain" (RAP) definition of at least three episodes over three months severe enough to affect daily activities. Despite its high prevalence—estimated between 0.5% and 78.7% in various studies—CAP is frequently attributed to functional disorders rather than organic disease.

Experts often find no anatomic, metabolic, or neoplastic disorder in the majority of these children.[1]

However, chronic constipation has been proposed as a significant yet under-recognized etiological factor for CAP. Some authors have reported symptom relief after achieving regular colonic evacuation through diet and laxatives.[2,3] The pathophysiology of functional pain may involve abnormalities in the enteric nervous system (ENS) or visceral hyperalgesia, where children have a decreased threshold for pain in response to intraluminal pressure.

Furthermore, anal problems, specifically anal fissures, can trigger a cycle of painful defecation, stool negativism, and chronic constipation, leading to crampy abdominal pain.[4]

This study explores the hypothesis that chronic constipation secondary to elevated anal tone or fissures is a primary cause of CAP in children. The study aims to confirm this by evaluating the relief of CAP following a left lateral internal anal sphincterotomy (LLIAS), a procedure intended to break the cycle of constipation by relaxing the internal anal sphincter.

Materials and Methods

This prospective clinical study was conducted in the Upgraded Department of General Surgery at Osmania Medical College/Osmania General Hospital, Hyderabad, over a period of 24 months from 2014-2016.

Inclusion and Exclusion Criteria: The study included 23 children aged 0 to 20 years presenting with a non-organic cause of abdominal pain lasting six weeks or longer. Patients were excluded if they were over 20 years old, had a known organic cause for their pain (e.g., confirmed malignancy or specific anatomical obstruction), or had symptoms lasting less than six weeks.

Clinical Assessment: A detailed history was taken for each child, focusing on the duration of pain, bowel habits (frequency and consistency), and history of straining or painful defecation. Physical examination emphasized abdominal palpation and a

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digital rectal examination (DRE). The DRE was used to assess perianal skin (for fissures), anal tone, and the presence of stools in the rectum.

Diagnostic Workup: While the literature suggests extensive testing is often unnecessary, this study utilized essential investigations including hemoglobin levels, X-ray erect abdomen (to check for loaded colon), and ultrasonography (USG) of the abdomen and pelvis.

Intervention and Follow-up: All 23 children underwent Left Lateral Internal Anal Sphincterotomy (LLIAS). Post-operatively, patients were prescribed a two-month course of laxatives. The primary outcome measured was the relief of CAP, with follow-up periods ranging from two months to two years.

Results

Demographics and Presentation: The study cohort consisted of 13 males (56.5%) and 10 females (43.5%). The most common age group was 12-18 years (74%). The duration of CAP varied widely, from two months to as long as 18 years, with 87% of children suffering for at least five years.

Clinical and Radiological Findings:

- Constipation History: 78.3% of children (18/23) provided a history of constipation, though this was often difficult to elicit from parents.
- Abdominal Tenderness: 52.2% of patients (12/23) exhibited tenderness, most commonly in the right iliac fossa (RIF) (41.6%).
- DRE Findings: A staggering 95.7% (22/23) had elevated anal tone, and 91.3% (21/23) had a tender anal canal. Fissures were present in 78.2% of the children; notably, 100% of the female participants had fissures.
- Imaging: X-rays revealed a loaded colon in 68.75% of those tested. USG findings were varied, often suggesting "acute appendicitis" (16.6%) or "mesenteric lymphadenitis" (22.3%), which did not always correlate with the eventual relief provided by LLIAS.

Surgical Outcomes: All 23 children achieved 100% relief from abdominal pain by the fourth post-operative day (POD-4). Specifically, 30.4% were pain-free on POD-0 and 21.8% on POD- 1. Relief was consistently associated with the passage of large volumes of stools following the surgery.

Referral Accuracy: Ten children (43.5%) had been referred with organic diagnoses such as Hirschsprung's disease, acute appendicitis, or cholelithiasis. Three children had even previously undergone appendectomies without relief of their CAP, only to find success following LLIAS in this study.

Follow-up: Out of 19 children who remained in follow-up, 16 (70%) maintained complete relief. Three children reported a recurrence of pain, which was attributed to non-compliance with the post-operative laxative regimen.

Discussion

The results of this study underscore that CAP in children is frequently a manifestation of chronic constipation linked to anorectal pathology, such as elevated anal tone and fissures.[4-6]

While literature often peaks CAP prevalence at younger ages (4-12 years) 5-10, the teen dominance (12-18 years) in this study may reflect the tertiary hospital setting.[7]

The Challenge of History and Examination: A critical finding is that history alone is insufficient to rule out constipation. While only 78.3% gave a history of constipation, 100% of the children had positive DRE findings (elevated tone, tenderness, or loaded rectum).[8]

Parents often fail to recognize abnormal bowel patterns, making DRE an essential diagnostic tool that is frequently overlooked by primary care and pediatric specialists.

The Fallacy of Organic Mimicry: This study highlights the danger of "over-investigating" or misdiagnosing CAP. The fact that several children underwent unnecessary appendectomies for what was actually constipation-related pain is a significant concern. Common sonological findings like mesenteric lymphadenopathy or minimal free fluid often led to incorrect organic labels, whereas the immediate post-operative relief after LLIAS proved these radiological findings were likely incidental or secondary.[9]

LLIAS as a Definitive Treatment: While medical management (fiber, laxatives) is standard, this study demonstrates that LLIAS is a highly effective intervention for refractory cases. By relaxing the internal anal sphincter, the procedure breaks the cycle of painful defecation and allows for the evacuation of the "loaded colon" that causes chronic abdominal distress. This mirrors the success seen with medical "chemical sphincterotomies" using botulinum toxin, but provides a surgical alternative with low recurrence rates.[10]

Limitations

Study Setting: The research was conducted in a General Surgery unit rather than a dedicated pediatric hospital, which may have limited the number of referrals and influenced the age distribution.

Sample Size: A cohort of 23 children is relatively small, making it difficult to generalize gender prevalence or long-term outcomes.

Follow-up Compliance: The follow-up was limited to two years, and several patients were lost to follow-up or were non-compliant with the post-operative laxative regimen, which is necessary for long-term success.

Radiological Interpretation: Some USG findings may have been influenced by the varied experience levels of the attending radiologists.

Conclusion

Chronic abdominal pain is a significant burden on children, families, and the healthcare system. This study concludes that constipation secondary to painful anal problems is a primary cause of CAP that is frequently misdiagnosed as functional or as other organic conditions like appendicitis.

Left lateral internal anal sphincterotomy is an effective and safe procedure for relieving CAP in these children by addressing the underlying anorectal pathology. Clinicians must maintain a high index of suspicion for constipation and perform a thorough digital rectal examination on every child presenting with chronic abdominal pain to avoid unnecessary invasive testing and

surgeries.

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Conflicts of interest

There are no conflicts of interest.

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