ORIGINAL ARTICLE

Evaluation of critical diagnostic landmarks obtained from comparison of symptomatic small bowel intussusception relevant to surgically proven 16 pediatric cases

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ABSTRACT

BACKGROUND: This study aims to evaluate the clinical presentation, diagnostic modalities, treatment strategies, and outcomes of pediatric small bowel intussusception (SBI), with a particular focus on surgically treated cases.

METHODS: Records of children diagnosed with SBI between January 2018 and December 2023 were retrospectively reviewed. Demographics, clinical presentation, imaging findings, treatment approaches, and surgical outcomes were analyzed. Statistical comparisons were performed between operative and non-operative groups, and receiver operating characteristic (ROC) curve analysis was used to determine the optimal ultrasound threshold for predicting the need for surgery.

RESULTS: Among 618 patients diagnosed with intussusception, 72 (11.6%) had SBI, of which 16 (2.6%) required surgery. Operative patients were significantly older (median: 75 months) than those managed non-operatively (median: 32 months) ($p<0.05$). Vomiting was significantly more common in the operative group (100% vs. 44.6%, $p<0.001$). The mean ultrasonographic length of the intussuscepted segment was significantly greater in the operative group (5.7±1.33 cm) than in the non-operative group (3.27±1.18 cm) ($p<0.001$). A cut-off value of 4.0 cm was identified as predictive for surgical intervention, with 100% sensitivity and 73.1% specificity. Pathologic lead points were found in 87.5% of surgical cases, although none were identified preoperatively. Hydrostatic reduction was successful in 62.5% of non-operative patients.

CONCLUSION: This study emphasizes that older age, longer intussuscepted segment on ultrasound, and severe symptoms are predictive of surgical need in pediatric SBI. A 4.0 cm cutoff aids decision-making, while the limited detection of pathologic lead points (PLP) underscores the importance of clinical evaluation.

Keywords: Small bowel intussusception; children; surgery.

INTRODUCTION

Intussusception is the leading cause of intestinal obstruction in infants under two years of age and represents the second most common cause of acute abdomen in children, following acute appendicitis.[1] Approximately 90% of childhood intussusceptions are ileocolic in nature. Most cases are idiopathic; however, in a smaller proportion, an underlying pathologic lead point (PLP) is responsible.[2,3] Intussusceptions involving the small bowel are considered uncommon in the pediatric population, with an estimated prevalence of 8-16% among all childhood cases.[4] With the increasing use of ultrasound in recent years, small bowel intussusceptions (SBIs) are being identified more frequently than in the past. Although there are publications in the literature supporting that SBIs are transient and can be managed with conservative follow-up, a consid-

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erable number of publications also report symptomatic SBIs requiring surgery.[5-8] PLPs are more frequently observed in symptomatic SBIs than in ileocolic intussusceptions, and they are often not detected preoperatively. The reported incidence of PLPs ranges from 10% to 25% in ileocolic cases, whereas in symptomatic SBIs it may be as high as 50%.[8-10] Prompt diagnosis and treatment are therefore essential, as delays in managing symptomatic SBIs may lead to bowel necrosis requiring resection and result in significant morbidity.

Since cases of SBI in pediatric patients are rare, the clinical features and characteristics of the condition are not well described in the available literature. This study aims to present our experience with 16 pediatric patients with surgically confirmed SBI and to evaluate the incidence, clinical presentation, management strategies, and outcomes of SBI in the pediatric population.

MATERIALS AND METHODS

A retrospective review was conducted of all pediatric patients diagnosed with SBI between October 1, 2018 and December 31, 2023. The patients were categorized into two groups: those who underwent surgical intervention and those who did not. The collected data included age at diagnosis, sex, clinical presentation, diagnostic methods, intraoperative findings, surgical technique, histopathological results, surgical complications, morbidity, and mortality.

The decision to proceed with surgery was based on an integrated assessment of clinical presentation, physical examination, and radiologic findings. Patients in whom ultrasonography demonstrated transient intussusception—that is, segments that telescoped and then spontaneously reduced during the scan—or partial intussusception permitting luminal transit and managed with outpatient observation were excluded from the study.

All procedures adhered to the ethical standards of the relevant institutional and national committees on human experimentation, in line with the 1964 Declaration of Helsinki and its subsequent amendments. The study was approved by the Institutional Review Board (approval number 2024/03), and written informed consent for surgery was obtained from all patients.

Statistical Analysis

The dataset was constructed, and all statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) software, version 21.0 (SPSS Inc., Chicago, IL, USA). Quantitative variables are presented as mean ± standard deviation (SD), while categorical variables are reported as frequencies (n) and percentages (%). The distribution of data was assessed for normality. For comparisons involving non-normally distributed continuous variables, the Mann-Whitney U test and the Kruskal-Wallis test was used, as appropriate. Categorical variables were analyzed using nonparametric methods. The Wilcoxon signed-rank test was employed for the analysis of paired non-normally distributed variables. Pearson correlation analysis was performed to assess linear relationship between continuous variables. In addition, Receiver Operating Characteristic (ROC) curve analysis was conducted to determine diagnostic performance and optimal cutoff values of relevant variables. A two-tailed p-value of less than 0.05 was considered statistically significant.

RESULTS

Over a five-year period, a total of 618 patients were diagnosed with intussusception based on clinical evaluation and radiologic imaging. Of these, 72 children (11.6%) had SBI, and 16 (2.6% of the total, 22.2% of the SBI group) required surgical intervention. Overall, 70.8% were male. The median age at presentation was 32 months in the non-operative group and 75 months in the operative group, with the latter being significantly older ($p<0.05$) (Fig. 1). In the operative group, four patients were younger than two years, while the remaining patients were older than four years. The demographic characteristics of the patients are summarized in Table 1.

All 56 patients in the non-operative group presented with abdominal pain, of whom 25 (44.6%) also experienced vomiting and seven (12.5%) had rectal bleeding. In the operative group, all patients presented with vomiting and colicky abdominal pain as their primary symptoms, while one patient reported chronic intermittent abdominal pain. None of the operated patients had rectal bleeding. Vomiting was significantly more common in the operative group compared to the non-operative group ($p<0.001$), whereas no statistically significant difference was found between the groups regarding rectal bleeding ($p=0.336$).

On physical examination, abdominal tenderness was present in 45 patients (80.3%) in the non-operative group and in all patients in the operative group. However, this difference was

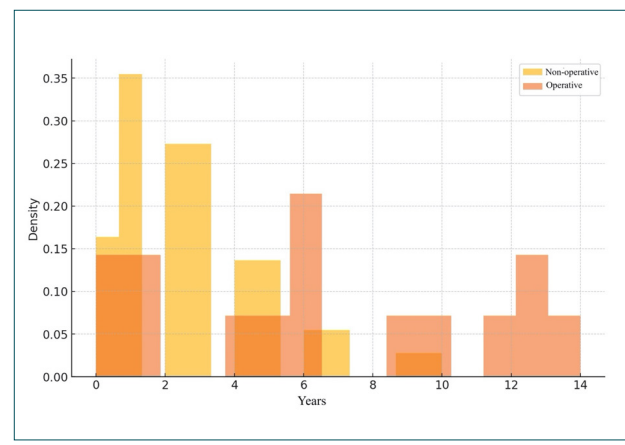

Figure 1. Age distribution histogram of operatively and non-operatively managed patients diagnosed with small bowel intussusception.

Table 1. Demographic and clinical characteristics of patients with small bowel intussusception

Variable	Operative Group (n=16)	Non-Operative Group (n=56)	Total (n=72)	p-value
Age, median (range), months	75 (3-170)	32 (1-128)	39 (1-170)	<0.05*
Male sex, n (%)	12 (75%)	39 (69.6%)	51 (70.8%)	0.673
Female sex, n (%)	4 (25%)	17 (30.4%)	21 (29.2%)	0.673
Complaints and physical examination				
Vomiting, n (%)	16 (100%)	25 (44.6%)	41 (56.9%)	<0.001*
Rectal bleeding, n (%)	0 (0%)	7 (12.5%)	7 (9.7%)	0.336
Abdominal tenderness, n (%)	16 (100%)	45 (80.3%)	61 (84.7%)	0.108
Abdominal distension/peritonitis, n (%)	3 (18.8%)	0 (0%)	3 (1.4%)	N/A
Radiological imaging				
Length of intussuscepted segment on USG, mean ± SD (cm)	5.7±1.33	3.27±1.18	3.6±1.5	<0.001*
Successful hydrostatic reduction, n (%)	0/7 (0%)	35/35 (100%)	35/42 (83.3%)	N/A
Spontaneous reduction on USG, n (%)	0 (0%)	21 (37.5%)	21 (29.2%)	N/A

PLP: Pathologic lead point; USG: Ultrasonography; SD: Standard deviation. *p<0.05 considered statistically significant.

not statistically significant (p=0.108). In addition, abdominal distension and signs of peritonitis were noted in three patients from the operative group.

Abdominal ultrasonography (USG) was performed for all patients at the time of admission. In the non-operative group, the mean length of the intussuscepted segment on USG was 3.27±1.18 cm (range: 1.9-6 cm), whereas in the operative group it was 5.7±1.33 cm (range: 4-8 cm). This difference was statistically significant (p<0.001) (Fig. 2).

In the operative group, USG revealed findings consistent with intussusception in 14 patients. In the remaining two patients, USG was inconclusive, showing only nonspecific features suggestive of ileus. In these cases, follow-up abdominal computed tomography (CT) also demonstrated similar nonspecific ileus findings, without a definitive diagnosis of intussusception.

Receiver Operating Characteristic curve analysis was conducted to identify the optimal cut-off value of the intussuscepted segment length for predicting the need for surgery. Based on the Youden Index, the threshold that maximized both sensitivity and specificity was 4.0 cm. At this cut-off, sensitivity was 100% and specificity was 73.1% (Fig. 3).

In the non-operative group, hydrostatic reduction (HR) was successfully achieved in 35 of 56 patients (62.5%). In the remaining 21 patients, HR had been planned; however, ultrasonography demonstrated spontaneous reduction of the intussuscepted segment, and no intervention was required.

In the operative group, HR was attempted in seven patients, but all attempts failed, necessitating surgical intervention. HR was not performed in two patients due to a provisional diagnosis of ileus without definitive imaging evidence of intussusception, in three patients because of peritonitis detected

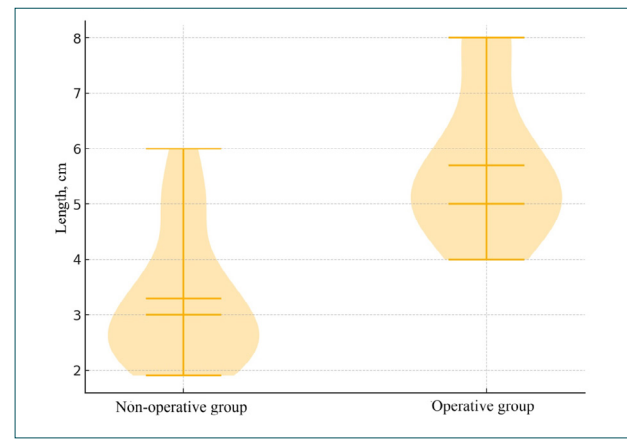

Figure 2. Violin plot of ultrasound-estimated intussuscepted segment lengths in operatively and non-operatively managed patients.

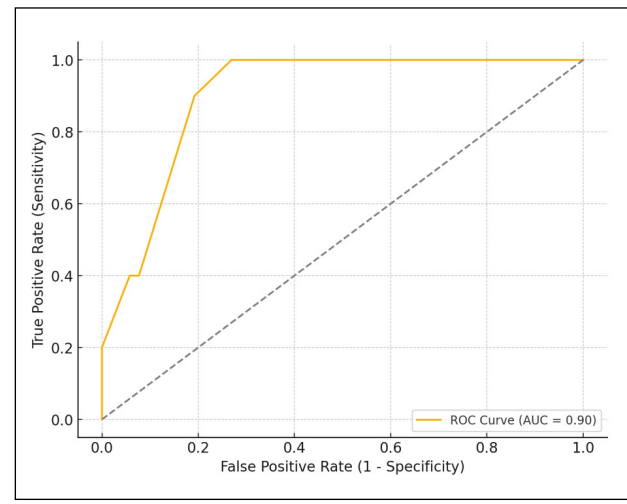

Figure 3. Receiver Operating Characteristic (ROC) curve for predicting the need for surgery.

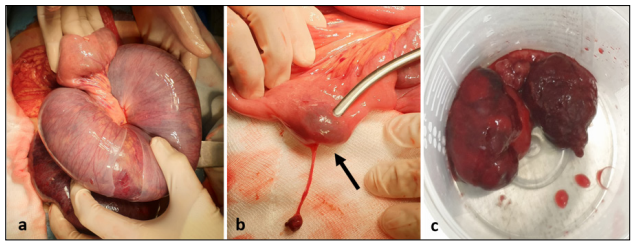

Figure 5. Patient with Peutz-Jeghers syndrome: (a) long segment of intussuscepted bowel at laparotomy, (b) intraluminal polypoid structure (pathologic leading point) (arrow), (c) appearance of excised polyps.

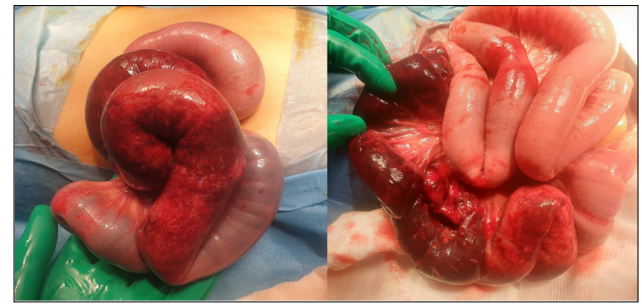

Figure 4. Intraoperative image of a necrotic ileal segment due to small bowel intussusception without an underlying pathologic lead point.

on physical examination, and in the remaining cases due to technical constraints.

In the operative group, the average length of the intussuscepted bowel segment identified intraoperatively was 23.06±36.07 cm (range: 3-150 cm). When compared with preoperative ultrasonographic measurements, the difference was not statistically significant (p=0.071).

Pathologic lead points were identified in 14 patients, whereas no PLP was detected in the remaining two. In one of these cases, bowel necrosis due to intussusception was observed despite the absence of a PLP (Fig. 4). The most common PLP

Table 2. Summary of findings in patients operated on for small bowel intussusception

Patient No	Sex	Age	USG-Based Preoperative Measurement of Intussuscepted Segment Length (cm)	Hydrostatic Reduction Attempted	Operative Findings		Associated Pathology
					Length of the Intussuscepted Bowel Segment (cm)	Surgery Method	
1	M	11 y 11 m	N/A	No	5	Ileal resection	Meckel's diverticulum
2	M	13 y 3 m	5	No	40	Ileal resection	Meckel's diverticulum
3	M	14 y 2 m	N/A	No	10	Ileal resection	Meckel's diverticulum
4	M	13 y 1 m	4	No	3	Ileal resection	Meckel's diverticulum
5	M	3 m	8	No	40	Resection with stapler	Meckel's diverticulum
6	F	9 y 7 m	5	No	3	Resection with stapler	Meckel's diverticulum
7	M	6 y	5	Yes	5	Resection with stapler	Meckel's diverticulum
8	M	5 y 3 m	8	No	10	Ileal resection	Meckel's diverticulum
9	M	4 y 10 y	6	Yes	5	Wedge resection	Meckel's diverticulum
10	M	5 y 7 m	5	Yes	20	Ileal resection	None
11	M	12 y 5 m	N/A	No	150	Ileal resection + polypectomy	Peutz-Jeghers syndrome
12	M	10 m	6	Yes	10	Manual reduction only	None
13	F	6 y 3 m	5	No	3	Ileal resection	Adenomyoma
14	M	11 m	N/A	Yes	15	Ileal resection	Meckel's diverticulum
15	F	1 y 6 m	N/A	Yes	30	Ileal resection	Meckel's diverticulum
16	F	9 y 1 m	N/A	Yes	20	Ileal resection	Meckel's diverticulum

was Meckel's diverticulum (n=12), followed by adenomyoma (n=1) and a hamartomatous polyp (n=1). Histopathologic analysis revealed ectopic gastric mucosa in 5 of the Meckel's diverticulum cases.

Following manual reduction, surgical procedures included ileal resection, wedge resection, or stapled excision of Meckel's diverticulum, with primary repair of serosal defects in selected cases. One patient with Peutz-Jeghers Syndrome (PJS) had an exceptionally long intussuscepted segment, approximately 150 cm in length, necessitating multiple polyp excisions via bowel milking in addition to resection of the compromised ileal segment. The largest polyp measured approximately 3×2 cm in diameter (Fig. 5). Notably, no polyps were detected preoperatively on ultrasonography in this case. Details of patient demographics and operative findings are presented in Table 2.

Postoperative complications occurred in two patients (12.5%). The first case was a six-month-old infant with intussusception caused by Meckel's diverticulum (MD). Intraoperatively, forceful reduction resulted in a large serosal defect, which was primarily repaired. The MD was removed via wedge resection. However, on the fifth postoperative day, the patient's condition deteriorated, and an abdominal X-ray revealed free intraabdominal air. Reoperation revealed a perforation at the site of the repaired serosal defect. An ileal resection with primary anastomosis was performed, after which the patient had an uneventful recovery.

The second case was a 12-year-old male with PJS. On the fourth postoperative day, his abdominal examination findings worsened, prompting a return to laparotomy. The procedure revealed an anastomotic leak, which was managed with re-anastomosis. The patient's postoperative recovery was uneventful, and he was referred to a gastroenterologist for further management. No mortality occurred in the cohort.

During the follow-up period, three patients in the non-operative group experienced recurrent intussusception at 2 months, 9 months, and 2 years after the initial episode. All recurrences were successfully managed with hydrostatic reduction, without the need for surgical intervention.

DISCUSSION

Intussusception is a major cause of acute abdomen in young children, primarily affecting infants under 2 years of age, with a peak incidence between 3 months and 1 year, and is more common in males.[1-3] In this series, the age distribution of non-operatively managed small bowel intussusceptions was consistent with this general pattern, with a median age of 32 months. However, a statistically significant difference was observed between the operative and non-operative groups, as the median age in surgically treated patients was considerably higher, at 75 months ($p<0.05$). These findings suggest that while SBI can occur across a wide pediatric age range, older age may be associated with an increased likelihood of requiring surgical intervention, indicating a distinct clinical course compared to the more typical, conservatively managed cases in younger children.

While ileocolic intussusception is typically characterized by vomiting, colicky abdominal pain, and occasionally currant jelly stools, SBI often presents with more subtle or atypical symptoms and is frequently mistaken for acute gastroenteritis, potentially delaying SBI diagnosis.[7,9] In this cohort, none of the patients in the operative group exhibited rectal bleeding, and vomiting was significantly more frequent. Additionally, physical examination revealed abdominal tenderness in all surgical patients and in a subset of non-operative patients. These findings suggest that classical signs of intussusception may not always be reliable indicators of SBI, emphasizing the need for a high index of suspicion in older children presenting with nonspecific abdominal symptoms, as delays in diagnosis can lead to severe outcomes, including intestinal necrosis.

Abdominal USG is the primary diagnostic modality for intussusception due to its high sensitivity and specificity. Although it might not always pinpoint the specific underlying cause, such as PLPs, its effectiveness in identifying intussusception is notable.[8,11] A key finding in this study is the correlation between the ultrasonographically measured length of the intussuscepted segment and the likelihood of requiring surgery. The mean length in the operative group was significantly greater than that in the non-operative group (5.7±1.33 cm vs. 3.27±1.18 cm, $p<0.001$). ROC analysis further confirmed this relationship, identifying 4.0 cm as the optimal cut-off value for predicting surgical intervention, with a sensitivity of 100% and a specificity of 73.1%. These results suggest that USG can serve not only as a diagnostic tool but also as a valuable predictor of disease severity and the necessity for surgical management.

Ultrasonography can also assist in non-surgical correction, particularly for ileocolic intussusceptions, through HR. [12,13] Although HR is traditionally considered less effective for small bowel intussusceptions, our series demonstrated successful outcomes in a substantial proportion of cases. In the non-operative group, HR was successful in 62.5% of patients, with spontaneous resolution observed in the remainder. In contrast, all HR attempts in the operative group failed, and most of these patients were subsequently found to have a PLP, suggesting a possible association between PLP and unsuccessful non-surgical reduction. However, it should be noted that the presence of PLPs in patients who responded successfully to HR could not be definitively ruled out. Several reports in the literature support the selective use of HR in SBI and advocate for its consideration as an initial therapeutic approach, especially when there is no clinical or radiologic suspicion of a PLP or complications such as peritonitis.[14-16] Our findings further reinforce the notion that HR can be a viable and effective first-line intervention in select cases of SBI.

Small bowel intussusception in children is not extensively documented in the medical literature, leading to ongoing debate about its clinical presentation and management. Some researchers advocate for a watchful waiting approach in managing SBI.[1,5,14] Kornecki et al.[5] reported that many SBI cases resolve independently without a detectable lead point, leading to their recommendation for non-invasive management in patients who do not exhibit symptoms. This trend toward conservative management may also be driven by advancements in ultrasound technology, which have enhanced the detection and evaluation of abdominal conditions in children presenting with abdominal pain.

In contrast to other studies, Tiao et al.[8] reported that all pediatric SBI patients in their series were symptomatic, with PLPs identified in 44% of cases. Although sonographic identification of various lead points such as lipomas, malignant tumors, and Meckel's diverticulum has been described in SBI, it remains challenging in clinical practice.[17] Tiao et al.[8] also noted difficulty in establishing a definitive preoperative diagnosis of these underlying conditions. Similarly, in a retrospective study of 35 pediatric SBI cases, Munden et al.[18] found that 13 patients required surgery, with PLPs identified intraoperatively in nine of them.

In our series, PLPs were identified in 14 out of 16 surgical cases (87.5%), most commonly Meckel's diverticulum, followed by adenomyoma and a hamartomatous polyp. Notably, none of these PLPs were detected on preoperative USG, highlighting a diagnostic limitation of current imaging practices. In certain cases, PLPs such as Peutz-Jeghers polyps resulted in exceptionally long segments of intussusception, necessitating extensive bowel resection. These findings underscore the need to integrate clinical presentation and intraoperative assessment into management planning, given the limitations of preoperative imaging in reliably identifying PLPs.

This study has several limitations that should be acknowledged. First, its retrospective design inherently limits the ability to control for confounding variables and introduces the potential for selection and information bias. Second, the relatively small number of surgically confirmed SBI cases restricts the generalizability of the findings. Third, the reliance on USG as the primary imaging modality may have contributed to the underdiagnosis of PLPs, as no PLPs were identified preoperatively despite their high intraoperative prevalence. Finally, the lack of long-term follow-up data for all patients limits the assessment of late postoperative outcomes, including recurrence and potential functional sequelae.

CONCLUSION

This study highlights the distinct clinical and demographic characteristics of SBI in the pediatric population. Our findings demonstrate that older age, greater ultrasonographic segment length, and symptoms such as persistent vomiting and signs of peritonitis are significantly associated with the need for surgical intervention. Although preoperative ultrasound remains a valuable diagnostic tool, its limitations in detecting underlying PLPs underscore the importance of thorough clinical evaluation. The identification of a 4.0 cm threshold in segment length as a predictive marker for surgery provides a practical metric for clinical decision-making. Early recognition and appropriate management of SBI are essential to prevent complications, and a high index of suspicion must be maintained, particularly in older children presenting with atypical or nonspecific symptoms.

Ethics Committee Approval: This study was approved by the Sancaktepe Şehit Prof. Dr. İlhan Varank Training and Research Hospital Ethics Committee (Date: 10.01.2024, Decision No: 03).

Peer-review: Externally peer-reviewed.

Authorship Contributions: Concept: G.G., A.İ.A., F.A.C.; Design: G.G.; Supervision: F.A.C., S.S.; Resource: G.G., A.İ.A.; Materials: G.G., A.İ.A.; Data collection and/or processing: G.G.; Analysis and/or interpretation: G.G.; Literature review: G.G.; Writing: G.G.; Critical review: G.G., A.İ.A., F.A.C., S.S.

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REFERENCES

1. Saxena AK, Höllwarth ME. Factors influencing management and comparison of outcomes in paediatric intussusceptions. Acta Paediatr 2007;96:1199-202. [CrossRef]
2. Cogley JR, O'Connor SC, Houshyar R, Al Dulaimy K. Emergent pediatric US: What every radiologist should know. Radiographics 2012;32:651-65. [CrossRef]
3. Ein SH. Leading points in childhood intussusception. J Pediatr Surg 1976;11:209-11. [CrossRef]
4. Buettcher M, Baer G, Bonhoeffer J, Schaad UB, Heininger U. Three-year surveillance of intussusception in children in Switzerland. Pediatrics 2007;120:473-80. [CrossRef]
5. Kornecki A, Daneman A, Navarro O, Connolly B, Manson D, Alton DJ. Spontaneous reduction of intussusception: Clinical spectrum, management and outcome. Pediatr Radiol 2000;30:58-63. [CrossRef]
6. Mateen MA, Saleem S, Rao PC, Gangadhar V, Reddy DN. Transient small bowel intussusceptions: Ultrasound findings and clinical significance. Abdom Imaging 2006;31:410-6. [CrossRef]
7. Ko SF, Lee TY, Ng SH, Wan YL, Chen MC, Tiao MM, et al. Small bowel intussusception in symptomatic pediatric patients: Experiences with 19 surgically proven cases. World J Surg 2002;26:438-43. [CrossRef]
8. Tiao MM, Wan YL, Ng SH, Ko SF, Lee TY, Chen MC, et al. Sonographic features of small-bowel intussusception in pediatric patients. Acad Emerg Med 2001;8:368-73. [CrossRef]
9. Long B, Easter J, Koyfman A. High risk and low incidence diseases: Pediatric intussusception. Am J Emerg Med 2025;91:37-45. [CrossRef]
10. Lehnert T, Sorge I, Till H, Rolle U. Intussusception in children--clinical presentation, diagnosis and management. Int J Colorectal Dis 2009;24:1187-92. [CrossRef]
11. Vandewalle RJ, Bagwell AK, Shields JR, Burns RC, Brown BP, Landman MP. Radiographic and clinical factors in pediatric patients with surgical small-bowel intussusception. J Surg Res 2019;233:167-72. [CrossRef]
12. Chukwu IS, Ekenze SO, Ezomike UO, Chukwubuike KE, Ekpemo SC. Ultrasound-guided reduction of intussusception in infants in a devel-

oping world: Saline hydrostatic or pneumatic technique? Eur J Pediatr 2023;182:1049-56. [CrossRef]
13. Binu V, Nicholson C, Granger J, Gent R, Piotto L, Taranath A, et al. Ultrasound guided hydrostatic enema reduction of ileocolic intussusception: A safe and effective technique. ANZ J Surg 2023;93:1993-8. [CrossRef]
14. Doi O, Aoyama K, Hutson JM. Twenty-one cases of small bowel intussusception: The pathophysiology of idiopathic intussusception and the concept of benign small bowel intussusception. Pediatr Surg Int 2004;20:140-3. [CrossRef]
15. Fahiem-Ul-Hassan M, Mufti GN, Bhat NA, Baba AA, Buchh M, et al. Management of intussusception in the era of ultrasound-guided hydrostatic reduction: A 3-year experience from a tertiary care center. J Indian Assoc Pediatr Surg 2020:71-5. [CrossRef]
16. Siaplaouras J, Moritz JD, Gortner L, Alzen G. Small bowel intussusception in childhood. Klin Padiatr 2003;215:53-6. [Article in German] [CrossRef]
17. Navarro O, Dugougeat F, Kornecki A, Shuckett B, Alton DJ, Daneman A. The impact of imaging in the management of intussusception owing to pathologic lead points in children. A review of 43 cases. Pediatr Radiol 2000;30:594-603. [CrossRef]
18. Munden MM, Bruzzi JF, Coley BD, Munden RF. Sonography of pediatric small-bowel intussusception: Differentiating surgical from nonsurgical cases. AJR Am J Roentgenol 2007;188:275-9. [CrossRef]

ORİJİNAL ÇALIŞMA - *ÖZ*

Semptomatik ince bağırsak invajinasyonunda tanısal kriterlerin, cerrahi olarak doğrulanmış 16 pediatrik olguya dayalı analizi

AMAÇ: Bu çalışma, cerrahi olarak tedavi edilen olgulara özel vurgu yaparak, pediatrik ince barsak invajinasyonunun (İBİ) klinik bulguları, tanı yöntemleri, tedavi stratejileri ve sonuçlarını değerlendirmeyi amaçlamaktadır.
GEREÇ VE YÖNTEM: Ocak 2018 ile Aralık 2023 tarihleri arasında İBİ tanısı alan çocuk hastaların kayıtları retrospektif olarak incelenmiştir. Demografik veriler, klinik bulgular, görüntüleme sonuçları, tedavi yaklaşımları ve cerrahi bulgular analiz edilmiştir. Operatif ve non-operatif gruplar arasında istatistiksel karşılaştırmalar yapılmış ve cerrahi gereksinimini öngörmede ultrasonografik segment uzunluğu için ROC eğrisi analizi uygulanmıştır.
BULGULAR: Toplam 618 invajinasyon olgusu arasında 72 (%11.6) olgu İBİ olarak tanımlanmış, bunlardan 16'sı (%2.6) cerrahi müdahale gerektirmiştir. Cerrahi uygulanan hastalar, cerrahi dışı tedavi edilenlere kıyasla anlamlı düzeyde daha büyük yaşta bulunmuştur (ortanca: 75 ay vs. 32 ay, $p<0.05$). Operatif grupta kusma sıklığı anlamlı olarak daha yüksekti (%100 vs. %44.6; $p<0.001$). Ultrasonografide invajine segmentin ortalama uzunluğu, operatif grupta anlamlı şekilde daha fazlaydı (5.7±1.33 cm vs. 3.27±1.18 cm; $p<0.001$). Cerrahi gereksinimi öngörmede 4.0 cm'lik eşik değeri, %100 duyarlılık ve %73.1 özgüllük ile belirlendi. Cerrahi uygulanan hastaların %87.5'inde patolojik tetik nokta (PTN) saptanmış olup, bu tetik noktaların hiçbiri ameliyat öncesi dönemde tanımlanamamıştır. Non-operatif gruptaki hastaların %62.5'inde hidrostatik redüksiyon başarılı bulunmuştur.
SONUÇ: Bu çalışma, pediatrik İBİ'de ileri yaş, ultrasonografide daha uzun invajine segment ve şiddetli semptomların cerrahi gereksinimi öngördüğünü göstermektedir. 4.0 cm'lik bir eşik değeri, klinik karar verme sürecinde pratik bir ölçüt sağlayabilir. Ameliyat öncesi dönemde PTN' lerin sınırlı tespiti, dikkatli klinik değerlendirmenin önemini vurgulamaktadır.

Anahtar sözcükler: Cerrahi; çocuk; ince barsak invajinasyonu.

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