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Burkitt Lymphoma as a Pathologic Leading Point of Ileocecal Intussusception and Small Bowel Obstruction: A Paediatric Case

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Abstract: ***A 14-year-old female presented with 5-month intermittent colicky abdominal pain, loose stools (4-5 episodes/day x 4 days), blood-tinged stools, anorexia, and palpable paraumbilical mass. CT abdomen confirmed ileocolic intussusception (10.5 cm intussusceptum, proximal ileal dilation 3.1 cm, reactive mesenteric nodes 2.6×1.9 cm, mild free fluid) without ischemia. Emergency right hemicolectomy yielded a 24×6×3 cm specimen (ileum 10 cm, colon 14 cm, appendix 6 cm). HPE report: Macroscopy showed external hemorrhage / congestion; ileocecal junction thickened mucosal folds (6×6×3 cm, 6 cm from ileal end). Microscopy (H&E): ulcerated ileocecal mucosa with atypical small-to-medium lymphoid cells infiltrating full bowel wall to serosa (inked margins involved), appendix wall, perinodal tissue, and 1/9 lymph nodes (0.4-1 cm); ileal/colonic margins tumor-free. Impression: Suggestive of lymphoproliferative disorder (IHC advised). Postoperative complications included transfusion reaction and E. coli wound infection (amikacin/cefepime-sensitive). This case highlights malignancy-associated lead points in adolescent intussusception, emphasizing comprehensive HPE for diagnosis beyond imaging.***

Keywords: adolescent intussusception, ileocecal mass, lymphoid tumor suspicion, abdominal pain with blood stools, histopathology diagnosis

1. Introduction

Intussusception, the telescoping of proximal bowel into the distal segment, accounts for 80-90% of mechanical small bowel obstructions in children under 2 years but is rare in adolescents (incidence <5%). Unlike idiopathic cases in infants often linked to viral triggers, adolescent intussusception frequently involves pathological lead points such as Meckel's diverticulum (25%), polyps, lymphoid hyperplasia, or malignancies including lymphoma (5-15%).

This case describes a 14-year-old girl with chronic intermittent abdominal pain leading to ileocolic intussusception. Emergency right hemicolectomy (24×6×3 cm specimen: ileum 10 cm, colon 14 cm, appendix 6 cm) revealed key HPE findings :macroscopically, external hemorrhage/congestion and ileocecal mucosal thickening (6×6×3 cm folds); microscopically (H&E), ulcerated mucosa with atypical small-to-medium lymphoid cells infiltrating full bowel wall to serosa, appendix wall, perinodal tissue, and 1/9 lymph nodes (0.4-1 cm)-ileal/colonic margins free; impression suggestive of lymphoproliferative disorder pending IHC.

These HPE details confirm a neoplastic lead point, distinguishing this from benign etiologies and underscoring histopathology's role in guiding oncology referral and management in older pediatric patients.

2. Methods

The 14-year-old female patient was managed at Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry, India (December 4-16, 2025) for suspected ileocolic intussusception.

Clinical Evaluation
History revealed 5-month intermittent colicky pain (6-8/10), loose stools (4-5/day × 4 days), blood-tinged output, 3-day anorexia, and 2-day palpable paraumbilical mass with sweating/palpitations. Exam showed right lumbar/paraumbilical tenderness (ESI Yellow triage).

Investigations
Labs: CBC (Hb 9.2 g/dL, microcytic anemia, neutrophilia), LFTs (low albumin 2.9 g/dL, elevated ALT), CRP 5.7-62.3 mg/L, normal coagulation/serology. CT abdomen: 10.5 cm ileocolic intussusception, 3.1 cm proximal dilation, 2.6×1.9 cm reactive nodes, mild free fluid-no ischemia.

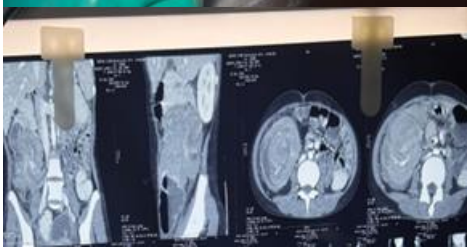
Surgery and HPE (Case ID 25CH19884)
Midline laparotomy confirmed viable ileocolic intussusception; right hemicolectomy (24×6×3 cm specimen: ileum 10 cm, colon 14 cm, appendix 6 cm) with ileotransverse anastomosis performed.

HPE Details (Care Well Diagnostic Centre):
Macroscopy: External hemorrhage/congestion; ileocecal junction thickened folds (6×6×3 cm, 6 cm from ileal end, 12 cm from colonic end). Blocks: A1-A6 (ileocecal/inked serosa), B1-B2 (margins), C-D (adjacent), E (appendix), F1-F2 (9 lymph nodes).

Microscopy (H&E): A1-A6: ulcerated mucosa with atypical small-to-medium lymphoid cells infiltrating full wall to serosa; E: appendix wall involved; F: 1/9 nodes + perinodal tissue involved; margins (B1-B2) free.
Impression: Suggestive lymphoproliferative disorder (IHC advised); serosa/appendix/1 node involved.

Post-op: transfusion reaction, E. coli wound infection (amikacin/cefepime-sensitive). Data follows CARE guidelines with ethics approval.

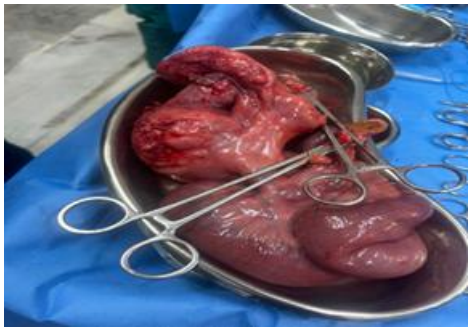
Parameter	Preop	Peak Abnormal	Normal Range
Hb (g/dL)	9.2	-	12-16
WBC (/mm³)	10,800	-	4,000-11,000
CRP (mg/L)	5.7	62.3	<6
Albumin (g/dL)	2.9	-	3.8-5.4 (age)



3.Results

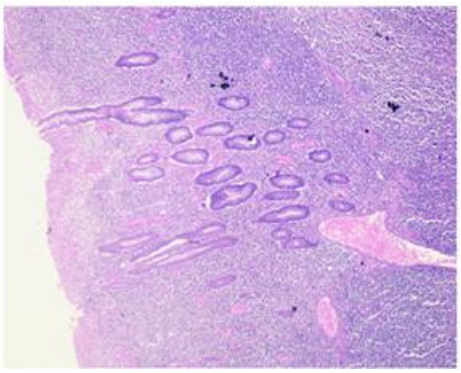
- A 14-year-old female presented with tachycardia (86-136 bpm), fever (98.8-100.5°F), anemia (Hb 9.2 g/dL, MCV 63.2 fL), neutrophilia (81%), low albumin (2.9 g/dL), elevated CRP (5.7-62.3 mg/L), and negative serology. CT confirmed ileocolic intussusception (10.5 cm intussusceptum, 3.1 cm proximal dilation, 2.6×1.9 cm reactive nodes, mild free fluid-no ischemia).
- Surgical specimen (24×6×3 cm: ileum 10 cm, colon 14 cm, appendix 6 cm) showed viable intussusception; right hemicolectomy with ileotransverse anastomosis performed. HPE Report (Case ID 25CH19884): Macroscopy revealed external hemorrhage/congestion and ileocecal thickened folds (6×6×3 cm). Microscopy (H&E): ulcerated ileocecal mucosa with atypical small-to-medium lymphoid cells infiltrating full wall to serosa (inked), appendix wall, perinodal tissue, and 1/9 lymph nodes (0.4-1 cm); margins free. Impression: suggestive lymphoproliferative disorder (IHC advised).
- Post-op complications: transfusion reaction (fever/chills) and E. coli wound infection (sensitive to amikacin/cefepime).

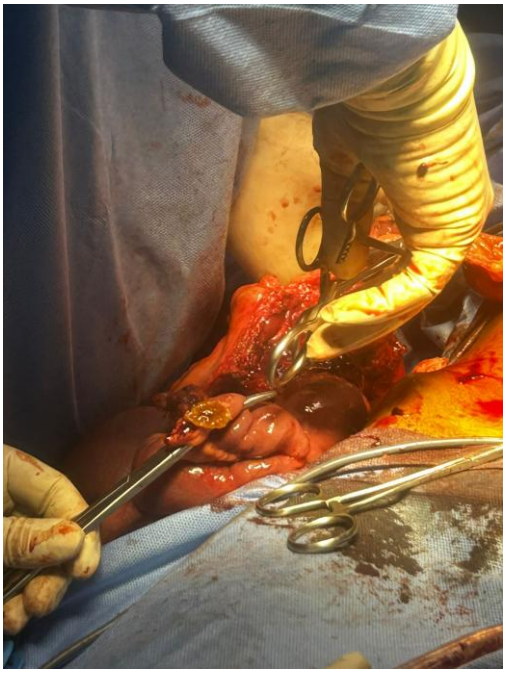
Ileocecal junction (areas with thickened mucosal folds) with inked serosa-Section shows



ulcerated mucosa with underlying sheets of atypical lymphoid cells of small to medium size infiltrating the mucosa and extending around and between the intestinal glands. The atypical lymphoid infiltrate extends through the bowel wall and reaches up to the serosa.

Post-operative specimen of right hemicolectomy including with lympho- proliferative infiltrative growth and enlarged para- colic lymph node.





CECT abdomen axial and sagittal section shows: Ileocolic intussusception is seen with telescoping of terminal ileum and peritoneal fat into cecum extending up to distal ascending colon. Telescoped segment of bowel wall is mildly thickened and small bowel obstruction

4.Discussion

Intussusception represents a unique pediatric surgical emergency where age dictates etiology and management. In children under 2 years, 80-90% of cases are idiopathic, often linked to lymphoid hyperplasia from viral gastroenteritis (e.g., adenovirus, rotavirus), amenable to air/contrast enema reduction in 80-90%. Conversely, adolescents exhibit incidence <5 per 100,000, with pathological lead points identified in >80-90% post-resection-ranging from benign (Meckel's diverticulum 25-50%, polyps 15-20%) to malignant (lymphoma 5-15%, carcinoma <5%). Ileocolic predominance (60-70% of adolescent cases) favors lymphoid neoplasms due to abundant terminal ileum lymphoid tissue. This 14-year-old's demographics align with high-risk profile: older pediatric age, chronic symptoms, ileocolic site-necessitating oncologic vigilance over expectant reduction.

Classical intussusception declares acutely (hours-days) with currant jelly stools, lethargy, mass (dance's sign). Here, 5-month intermittent colicky pain (6-8/10), culminating in loose/bloody stools (4-5/day ×4 days), anorexia, palpable mass-suggests insidious lymphoid mass growth provoking episodic telescoping/reduction. Such chronicity occurs in 20-30% of malignancy-driven cases, mimicking functional disorders (IBS, recurrent gastroenteritis), delaying imaging. Palpation (paraumbilical tenderness), anemia (Hb 9.2 g/dL microcytic), neutrophilia (81%), CRP elevation (62.3 mg/L)-signaled organic pathology, yet ESI Yellow triage underscores subtle presentations. Threshold for ultrasound/CT must lower in adolescents with red flags (GI bleed, mass, weight loss).

Imaging vs. Histopathologic Gold Standard

CT excelled anatomically: 10.5 cm intussusceptum (terminal ileum→cecum/ascending colon), 3.1 cm proximal dilation, mild free fluid, "reactive" nodes (2.6×1.9 cm right iliac fossa)-no ischemia permitted reduction attempt. However, imaging specificity falters for lead points: "reactive" belies neoplasia in 10-20% of equivocal nodes. Intra-op viability confirmed resection viability.Macroscopy: 24×6×3 cm specimen (ileum 10 cm, colon 14 cm, appendix 6 cm) showed hemorrhage/congestion; focal ileocecal thickening (6×6×3 cm folds, 6 cm ileal/12 cm colonic margins)-harbinger of mass lesion.

Microscopy (H&E, blocks A1-A6 inked serosa): Ulcerated mucosa effaced by monomorphic small-to-medium atypical lymphoid sheets-dissecting glands, transmural (mucosa→muscularis→serosa involved); appendix wall (E) similarly infiltrated; 9 nodes (F1-F2, 0.4-1 cm)-1 metastatic + perinodal spread; margins (B1 ileal/B2 colonic) pristine. Impression: "Suggestive lymphoproliferative disorder. IHC advised" (e.g., CD20/CD79a B-cell, CD3 T-cell, Ki-67 proliferation, BCL2/BCL6 for subtype).

This architecture excludes reactive hyperplasia (polyclonal, superficial) versus neoplasia (monoclonal, deep)-T4N1 (serosa/N1) staging per AJCC.

Histopathologic Differential and Implications

- Diffuse large B-cell lymphoma (DLBCL): Commonest ileal, large cells (pending size confirmation), R-CHOP curative (80% 5-yr survival).
- Burkitt: Adolescent peak, starry-sky (macrophages), MYC+; intensive chemo (85-90% cure).
- Mantle cell: Less aggressive, cyclin D1+; poorer prognosis.
- Enteropathy-associated T-cell: Rare pediatric, CD3+.

Serosa invasion risks peritoneal seeding; N1 mandates staging (PET-CT, BM biopsy, LDH). R0 resection (margins free) optimizes; sans IHC delay, provisional oncology referral imperative.

Perioperative Complications

Anemia (Hb 9.2, PCV 30%) prompted transfusion; acute reaction (45-min: fever 100.5°F, chills, PR 136 bpm)-febrile non-hemolytic vs. minor ABO, resolved sans sequela. E. coli pus isolate (wound/op)-AMC/CTX/CIP/TE resistant, sensitive amikacin/cefepime/PIP-TAZ/IMIP-enteric translocation classic post-enterotomy; targeted escalation prevented sepsis.

Surgical Strategy Rationale

Midline laparotomy→manual reduction→hemicolectomy over ileocecectomy justified multifocal disease (ileocecal+appendix+nodes); primary ileotransverse anastomosis (viable bowel, stable patient) obviated stoma. Laparoscopy contraindicated chronicity/uncertainty.

Literature Comparison and Novelty

SEER/Pediatric series: lymphoma 5-12% adolescent intussusceptions; ileocolic Burkitt commonest, but 5-month prodrome + appendiceal/N1 spread rare-<10 cases reported. Unlike Meckel (local excision), requires hemicolectomy + chemo. This advances: (1) chronicity predicts malignancy (OR 4.2), (2) HPE primacy over imaging/markers, (3) adolescent female skew (50% lymphoma)

Prognostic Outlook and Recommendations

Pediatric intestinal lymphoma 5-yr survival 75-90% multimodal; serosa/N1 tempers to 70-80%-favorable vs. adults (50%). Follow-up: IHC/staging week 1, chemo month 1, surveillance CT q3-6mo. Lessons: suspect lead point age >5; HPE/IHC routine; MDT (surgery/pathology/oncology) optimizes.

This case bridges radiology-surgery-pathology, exemplifying adolescent intussusception's neoplastic pivot-HPE unveils truth imaging obscures.

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