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Case Report

Ileo-colic intussusception in an adolescent secondary to high-grade B-cell (Burkitt's) lymphoma: a case report and literature review

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ABSTRACT

Intussusception in older children and adolescents is relatively uncommon and is frequently associated with a pathological lead point. High-grade B-cell lymphomas (e.g., Burkitt lymphoma) may involve the abdomen and precipitate intussusception. A 16-year-old male presented with a two-week history of intermittent upper abdominal pain, melena, and symptomatic anemia. Contrast-enhanced computed tomography (CECT) demonstrated ileo-colic intussusception. Exploratory laparotomy revealed a polypoidal mass in the ascending colon acting as the lead point, necessitating a right hemicolectomy. Histopathological and immunohistochemical analyses confirmed high-grade B-cell lymphoma consistent with Burkitt lymphoma. The patient's postoperative course was uneventful, and he was referred for chemotherapy. This case underscores the importance of considering Burkitt lymphoma in adolescent patients with intussusception. Prompt surgical intervention, definitive histopathological confirmation, and timely initiation of chemotherapy are critical to optimizing patient outcomes.

Keywords: Intussusception, Ileo-colic, Burkitt's lymphoma, High-grade B-cell lymphoma, Immunohistochemistry

INTRODUCTION

Intussusception is defined as the telescoping of one bowel segment into an adjacent segment, resulting in luminal obstruction and potential ischemic compromise. Although ileo- colic intussusception is common in young children, it is relatively rare in adolescents and adults, where a pathological lead point (e.g., polyp, Meckel's diverticulum, or neoplasm) is frequently identified.[1] Burkitt's lymphoma is a highly aggressive B-cell non-Hodgkin's lymphoma (NHL) characterized by a translocation involving the myc oncogene, most commonly t (8;14).[2] Extranodal involvement is common in its sporadic form, with abdominal presentations ranging from asymptomatic masses to intestinal obstruction or intussusception.[3,4] Here, we present a rare case of ileo-colic intussusception in a 16-year-old male secondary to Burkitt's lymphoma, emphasizing the necessity for early diagnosis and multidisciplinary management.

CASE REPORT

A 16-year-old male presented with a one-day history of acute onset lower abdominal pain accompanied by episodes of black, tarry stools (melena). Initial evaluation at a local facility revealed a hemoglobin level of 7.5 g/dl. Despite conservative management, his symptoms persisted, and over the subsequent two weeks he experienced intermittent abdominal pain culminating in another episode of melena. On re-assessment, his hemoglobin had further decreased to 6.3 g/dl, prompting transfusion with two units of packed red blood cells (PRBCs).

Physical examination revealed a pale, hemodynamically stable patient (pulse rate 104/min; blood pressure 120/70 mmHg). Abdominal examination demonstrated mild tenderness in the right iliac fossa without guarding, rebound tenderness, or palpable masses. A contrast-

enhanced computed tomography (CECT) scan of the abdomen revealed ileo-colic intussusception with a characteristic "target sign," although a definitive lead point was not clearly delineated; multiple ileocolic lymph nodes were noted (Figure 1). An attempted colonoscopy was incomplete due to luminal narrowing in the ascending colon caused by a polypoidal mass extending to the hepatic flexure. In view of ongoing symptoms, significant anemia, and corroborative imaging findings with failed endoscopic reduction, the decision was made to proceed with exploratory laparotomy.

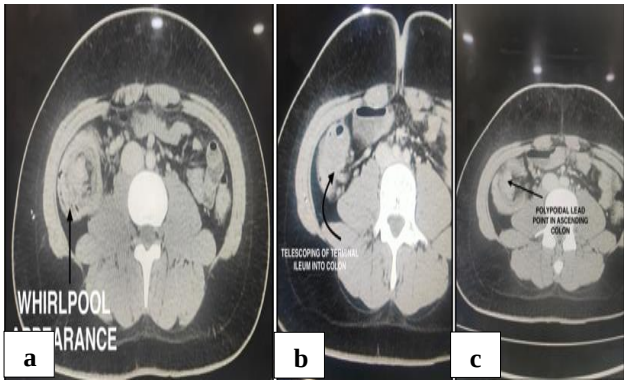

Figure 1 (a-c): CECT image showing ileo-colic intussusception.

Intraoperatively, telescoping of the terminal ileum into the ascending colon was confirmed (Figure 2). Congestion of the ileal segment was evident, and a firm polypoidal mass measuring 4.5×3.0 cm was identified in the ascending colon as the lead point (Figures 3 and 4).

A conventional right hemicolectomy with a side-to-side isoperistaltic ileo-transverse anastomosis was performed. The postoperative course was uneventful, with the patient remaining hemodynamically stable and was discharged after normalization of bowel functions and stabilization of hemoglobin levels. He was subsequently referred to the Pediatric Oncology Division for further evaluation and chemotherapy planning.

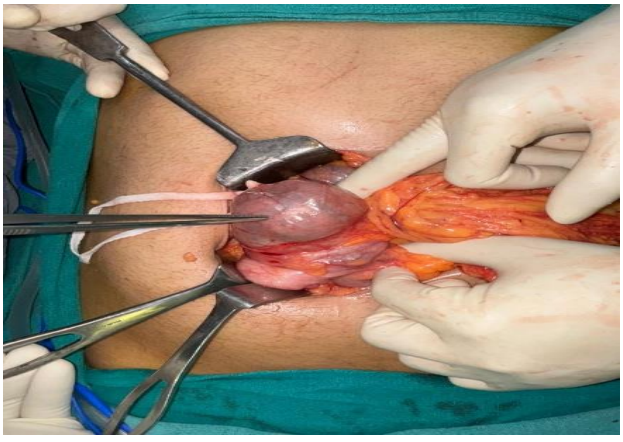

Figure 2: Intraoperative photograph showing the intussuscepted bowel segment being mobilized.

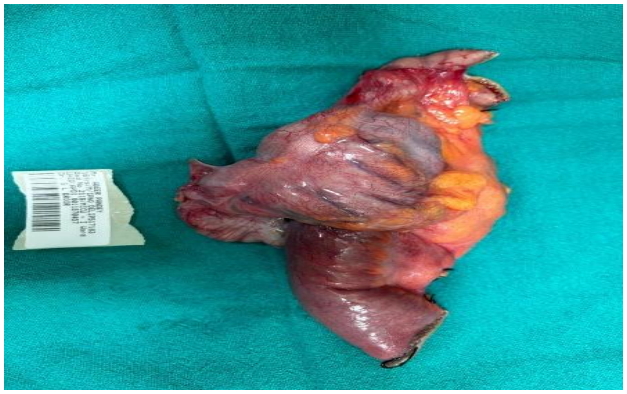

Figure 3: Resected specimen demonstrating the intussusception and ascending colon.

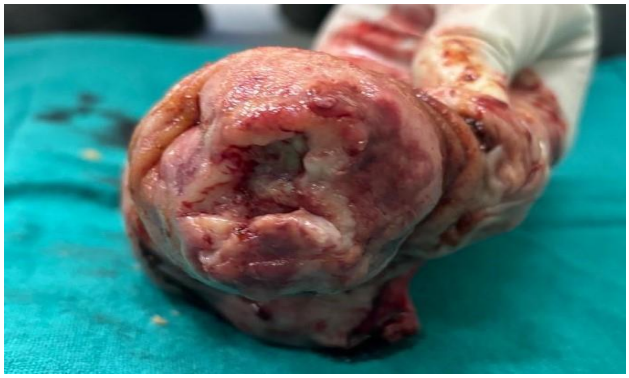

Figure 4: Close-up of the polypoidal lesion within the ascending colon.

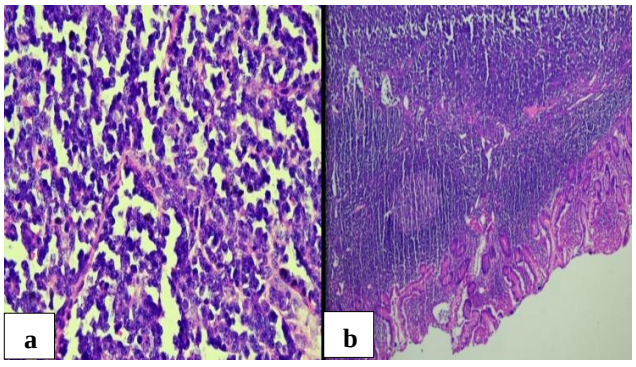

Figure 5: (a) 400x magnification image of lymphoma cells infiltrating the mucosa, and (b) 100x magnification image of lymphoma cells in high power field.

Pathological and immunohistochemical findings

Histopathological evaluation of the polypoidal lesion (lead point) revealed small round blue cells, raising suspicion of a high-grade lymphoma. The right hemicolectomy specimen contained a 4.5×3.0 cm polypoidal lesion with a grey-white cut surface and no gross necrosis. Microscopically, the lesion demonstrated sheets of medium-sized lymphoid cells with high nuclear-to-cytoplasmic ratios, frequent mitotic figures, apoptotic

bodies, and a classic "starry sky" appearance (Figure 5). Immunohistochemical analysis showed that the tumor cells were positive for CD10, CD20, Bcl 6, and c-myc, and negative for CD5, Bcl 2 and MUM1, with a Ki-67 proliferation index approaching 100% (Figure 6). All 24 regional lymph nodes harvested were free of tumor metastasis. These findings established the final diagnosis of high-grade B-cell lymphoma (Burkitt's lymphoma) of the ascending colon with negative surgical margins and no nodal involvement.

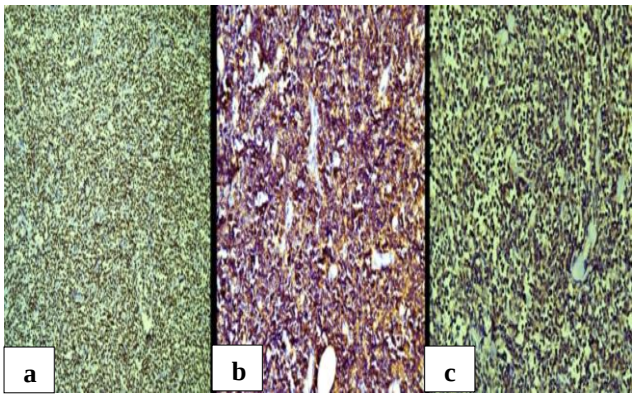

Figure 6: (a) Immunohistochemistry findings- Ki67 proliferative index 100%, (b) CD 20+, diffuse positivity, and (c) CD 10+ positivity.

DISCUSSION

Intussusception in adolescents and adults accounts for approximately 5% of cases overall, with most instances linked to an organic lead point.[1] In older children, a pathological lesion such as a polyp, Meckel's diverticulum, or neoplasm is typically implicated. Burkitt's lymphoma, due to its rapid proliferation and aggressive clinical course, often presents with abdominal involvement and can manifest as intussusception.[2,3] Histologically, Burkitt's lymphoma is distinguished by a "starry sky" pattern resulting from interspersed tingible body macrophages within a background of malignant lymphocytes. Immunophenotyping that demonstrates positivity for CD20, CD10/Bcl 6, and c-myc, along with a nearly 100% Ki-67 index, is diagnostic.[4] Prompt surgical resections not only alleviates intestinal obstruction but also enables definitive diagnosis, which is essential for guiding subsequent multi-agent chemotherapy regimens (e.g., LMB or BFM protocols) that significantly improve outcomes.[5] In our case, the absence of nodal involvement suggests localized disease, portending a favourable prognosis if timely chemotherapy is initiated.

Furthermore, although intussusception is a well-recognized pediatric emergency, its occurrence in adolescents necessitates a high index of suspicion for an underlying malignancy. Differential diagnoses in this age group must include both benign and malignant etiologies, with lymphoma being particularly concerning given its aggressive behaviour and rapid doubling time. Advances in imaging and molecular diagnostics, including the identification of myc translocations, have enhanced preoperative evaluation; however, limitations remain when luminal narrowing precludes complete endoscopic assessment. A multidisciplinary approach, incorporating surgical, pathological, and oncological expertise, is imperative for optimizing management and improving survival outcomes in these patients. Future research should focus on refining diagnostic protocols and treatment algorithms for such atypical presentations.

CONCLUSION

We report a rare presentation of ileo-colic intussusception in a 16-year-old male due to a polypoidal Burkitt's lymphoma of the ascending colon. Surgical intervention relieved the acute obstruction and facilitated histopathological confirmation, underscoring the critical role of a multidisciplinary approach in the management of such cases.

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