

## CASE IMAGE

# Ileocecal intussusception as a first presentation of Burkitt's lymphoma with multi-organ involvement

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**Key Clinical Message**

In children, intussusception may have a pathologic cause, such as Burkitt's lymphoma. As a result, we should be cautious of Burkitt's lymphoma in children with intussusception. Finally, the importance of histological assessment of resected tissues in pediatric operations, particularly those with intussusception, should be emphasized.

**Abstract**

A 2-year-old boy was diagnosed with ileocecal intussusception and underwent surgical treatment and appendectomy. Appendix histopathology revealed lymphoid cells with hyperchromatic nuclei, high mitotic activity, and starry sky appearance. The patient was diagnosed with Burkitt's lymphoma, which involves many organs, such as the appendix, liver, kidney, and bone marrow.

**KEYWORDS**

Burkitt lymphoma, children, Intussusception

## 1 | CASE PRESENTATION

A 2-year-old boy with no known past medical history presented to the pediatric surgery department with abdominal pain, abdominal distention, and vomiting since 3 days ago. The patient was diagnosed with ileocecal intussusception and underwent surgical treatment with intussusception reduction and appendectomy.

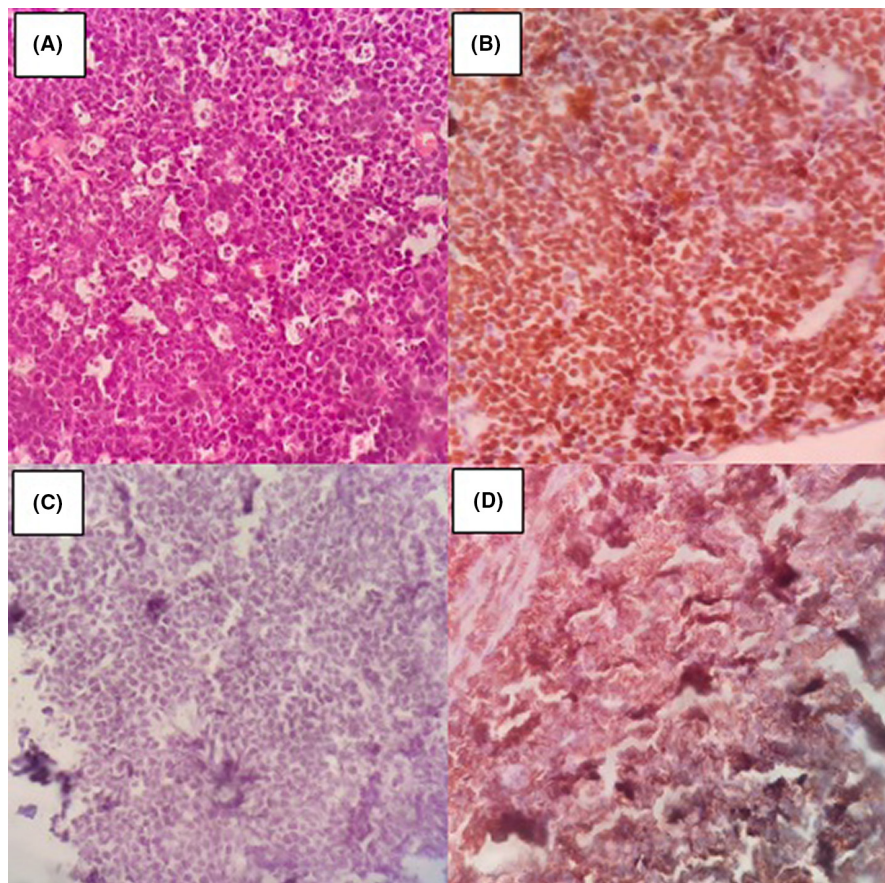
In histopathological examination of appendix specimens, the serosal layer show an infiltrative neoplastic growth formed of sheets of small to medium-sized lymphoid cells with hyperchromatic nuclei, high mitotic activity, and starry sky appearance (Figure 1A). The immunohistochemistry (IHC) analysis of the samples revealed positive Ki-67 expression in about 95% of tumoral cells (Figure 1B), negative terminal deoxynucleotidyl transferase (TdT) expression (Figure 1C), and diffuse positive CD20 expression in tumoral cells (Figure 1D).

For further evaluation, the patient underwent abdominopelvic computed tomography (CT) scan and bone marrow biopsy and aspiration. As a result, several hypodense hepatic lesions with a maximum diameter of 7 mm in the hepatic segment II (Red arrow in Figure 2A) and in the upper pole of the left kidney, a hypodense lesion was discovered (Blue arrow in Figure 2B). The flow cytometry of bone marrow aspirate showed positivity for CD10 (24%), CD19 (100%), and CD20 (100%). Finally, the patient was diagnosed with Burkitt's lymphoma, which involves multi-organs, such as the appendix, liver, kidney, and bone marrow. Following the appendectomy, the patient's clinical symptoms improved, and underwent chemotherapy immediately.

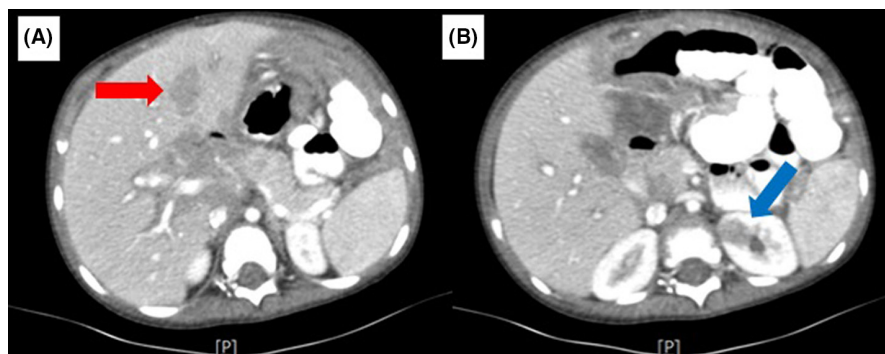
Burkitt's lymphoma is a very aggressive B-cell lymphoma that is more common in boys and has a peak incidence at age 6 years.<sup>1</sup> According to World Health Organization (WHO) classification, Burkitt's lymphoma is divided into three classes based on clinical features:

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**FIGURE 1** Burkitt's lymphoma. Hematoxylin and eosin (H&E) stain show (A) starry sky appearance. Immunohistochemistry revealed, (B) Ki-67 expression, (C) TdT negativity, and (D) CD20 positivity.



**FIGURE 2** Abdominopelvic computed tomography (CT) scan. (A) Hypodense hepatic lesions with a maximum diameter 7 mm in hepatic segment II: Red arrow (B) hypodense lesion in upper pole of left kidney: Blue arrow.

endemic, sporadic, and immunodeficiency-associated.<sup>1,2</sup> The abdomen is the most commonly involved location in sporadic Burkitt's lymphoma.<sup>1</sup> In children, abdominal pain had various causes, such as intussusception. 10% of patients with intussusception have a pathologic cause, such as Burkitt's lymphoma, despite the fact that the majority of them are idiopathic.<sup>3</sup> As conclusion, we should be aware of Burkitt's lymphoma in children with intussusception and keep in mind that Burkitt's lymphoma might have many extra-nodal involvements.

#### AUTHOR CONTRIBUTIONS

**Zahra Farahmandinia:** Supervision. **Mohsen Nakhaie:** Writing – original draft. **Mohammad Rezaei Zadeh**

**Rukerd:** Validation; visualization; writing – original draft; writing – review and editing.

#### FUNDING INFORMATION

None.

#### CONFLICT OF INTEREST STATEMENT

The authors declare that there was conflict no of interest.

#### DATA AVAILABILITY STATEMENT

The data supporting the findings of this study are available upon reasonable request from the corresponding author.

## CONSENT

Written informed consent was obtained from the parents to publish this report in accordance with the journal's patient consent policy.

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**How to cite this article:** Farahmandinia Z, Nakhaie M, Rukerd MRZ. Ileocecal intussusception as a first presentation of Burkitt's lymphoma with multi-organ involvement. *Clin Case Rep*. 2023;11:e07347. doi:[10.1002/ccr3.7347](https://doi.org/10.1002/ccr3.7347)