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International Journal for Case Reports

2025
Vol.9 No.1:4

Case Report on Rare Gastrointestinal Stromal Tumor of the Duodenum: Surgical and Pathological Insights

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Received date: February 22, 2025, Manuscript No. ipijcr-25-20916; **Editor assigned date:** February 25, 2025, PreQC No. ipijcr-25-20916(PQ); **Reviewed date:** March 14 2025, QC No. ipijcr-25-20916; **Revised date**: March 23, 2025, Manuscript No. ipijcr-25-20916(R); **Published date:** March 31, 2025, DOI: 10.36648/9.1.4

Citation: Brown D (2025) Case Report on Rare Gastrointestinal Stromal Tumor of the Duodenum: Surgical and Pathological Insights. Int J Case Rep Vol.9 No.1:4

Introduction

Gastrointestinal Stromal Tumors (GISTs) are uncommon mesenchymal neoplasms of the gastrointestinal tract, arising primarily from the interstitial cells of Cajal. They account for less than 1% of all gastrointestinal tumors, with the stomach and small intestine being the most common sites. Duodenal GISTs, however, are particularly rare, representing only about 5% of all GIST cases. Due to their infrequency and nonspecific clinical presentation, these tumors often pose diagnostic and therapeutic challenges. Symptoms can vary from vague abdominal pain and gastrointestinal bleeding to features of obstruction, depending on the tumor's size and location. Surgical resection remains the cornerstone of curative treatment, while histopathological and immunohistochemically evaluation play a crucial role in confirming the diagnosis. This case report presents a rare instance of a duodenal GIST, emphasizing its clinical presentation, surgical management, and pathological features that guided definitive diagnosis and postoperative care [1].

Description

A 52-year-old male presented to the surgical department with complaints of upper abdominal pain, fatigue, and melena for one month. He denied any history of weight loss, vomiting, or previous gastrointestinal disorders. Physical examination revealed mild pallor but no palpable abdominal mass. Laboratory tests showed anemia with hemoglobin of 8.9 g/dL, while liver and renal function tests were within normal limits. An upper gastrointestinal endoscopy revealed an ulcerated mass in the second portion of the duodenum, and contrast-enhanced CT imaging demonstrated a 4.5 cm well-defined submucosal lesion without evidence of distant metastasis [2].

Given the risk of bleeding and potential malignancy, the patient was scheduled for surgical resection. A segmental duodenectomy with primary anastomosis was performed successfully, ensuring complete removal of the mass with negative margins. Histopathological examination of the resected specimen revealed spindle-shaped tumor cells arranged in interlacing fascicles, with moderate cellularity and minimal atypia. Immunohistochemistry showed strong positivity for CD117 (c-KIT) and DOG1, confirming the diagnosis of a gastrointestinal stromal tumor. The Ki-67 labeling index was low (<5%), suggesting a low-grade tumor with favorable prognosis [3].

Postoperative recovery was uneventful, and the patient was discharged on the tenth day. Based on tumor size and mitotic index, adjuvant therapy with imatinib mesylate was not initiated, but regular follow-up with abdominal imaging every six months was advised. At the one-year follow-up, the patient remained asymptomatic, with no evidence of recurrence or metastasis [4,5].

Conclusion

This case highlights the rarity of duodenal GISTs and the importance of considering them in the differential diagnosis of submucosal duodenal lesions presenting with gastrointestinal bleeding. Accurate diagnosis relies on a combination of imaging, surgical evaluation, and histopathological confirmation, supported by immunohistochemically markers such as CD117 and DOG1. Complete surgical excision with clear margins remains the gold standard for localized disease, offering excellent long-term outcomes in low-risk cases. Early recognition and appropriate multidisciplinary management including input from surgeons, pathologists, and oncologists are essential to ensure accurate diagnosis, effective treatment, and long-term surveillance for potential recurrence.

Acknowledgement

None

Conflicts of Interest

None

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