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Primary Gastric Inflammatory Myofibroblastic Tumour Mimicking GIST in an Adult Female: A Case Report

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Abstract: ***Inflammatory myofibroblastic tumour (IMT) is a rare mesenchymal neoplasm with intermediate biological potential. Gastric involvement in adults is extremely uncommon and often mimics gastrointestinal stromal tumour (GIST) clinically and radiologically. We report a case of a 48-year-old female who presented with upper gastrointestinal bleeding and was clinically diagnosed as GIST. Histopathological examination and immunohistochemistry confirmed the diagnosis of inflammatory myofibroblastic tumour. This case highlights the importance of considering IMT in the differential diagnosis of gastric spindle cell tumours and the crucial role of immunohistochemistry in establishing the diagnosis.***

Keywords: Inflammatory myofibroblastic tumour, stomach, spindle cell tumour, ALK, case report

1. Introduction

Inflammatory myofibroblastic tumour (IMT) is a rare spindle cell neoplasm composed of myofibroblastic cells admixed with inflammatory infiltrates. Primary inflammatory myofibroblastic tumor (IMT) is a very rare type of mesenchymal tumor.[1]

It exhibits a variable biological behavior that ranges from frequently benign lesions to more aggressive variants.[2] It commonly affects children and young adults, with the lung being the most frequent site. Gastric IMT in adults is extremely rare and poses a diagnostic challenge due to its resemblance to malignant gastric tumours, particularly gastrointestinal stromal tumour (GIST). At the molecular level, half of IMTs show a clonal cytogenetic aberration that activates the anaplastic lymphoma kinase (ALK)-receptor tyrosine kinase gene at 2p23. [3,4,5]. We present a rare case of primary gastric IMT in a middle-aged female.

2. Case Report

A 48-year-old female presented with complaints of melena for one month and one episode of hematemesis. There was no significant past medical history. On clinical examination, the patient was pale. No abdominal mass or organomegaly was detected.

Laboratory investigations revealed hemoglobin of 9.9 g/dL, red blood cell count of 3.5 million/mm³, and total leukocyte count of 8600/mm³. Renal and liver function tests, vitamin B12 levels, and serum total protein (6.8 g/dL) were within normal limits.

Upper gastrointestinal endoscopy showed a gastric ulcer with an associated mass lesion. Contrast-enhanced CT scan of the abdomen revealed an enhancing soft tissue lesion measuring approximately 3 × 2.4 cm at the cardia of the stomach, about 1–1.5 cm from the gastroesophageal junction. A provisional diagnosis of malignant gastric ulcer, likely GIST, was made.

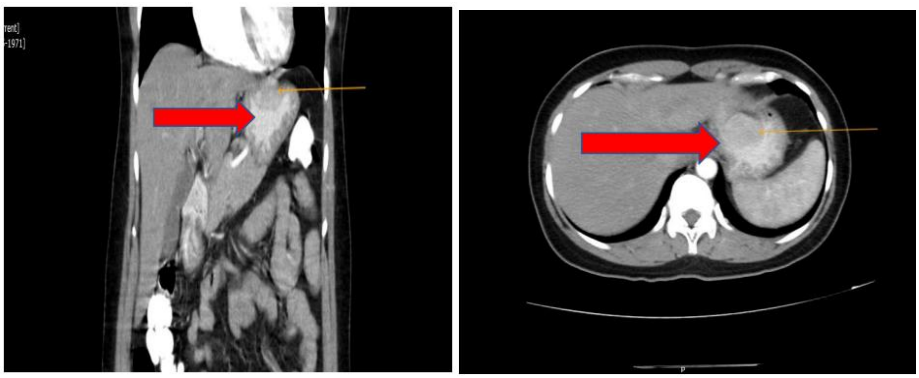

Figure 1 and 2 showing Contrast enhanced CT scan of the abdomen showing an enhancing soft tissue lesion.
The patient underwent total gastrectomy.

Gross examination showed a mass lesion in the gastric cardia. Histopathological examination revealed a spindle cell neoplasm composed of fascicles of spindle-shaped cells with vesicular nuclei and eosinophilic cytoplasm, along with a prominent inflammatory infiltrate consisting of lymphocytes, plasma cells, and occasional eosinophils.

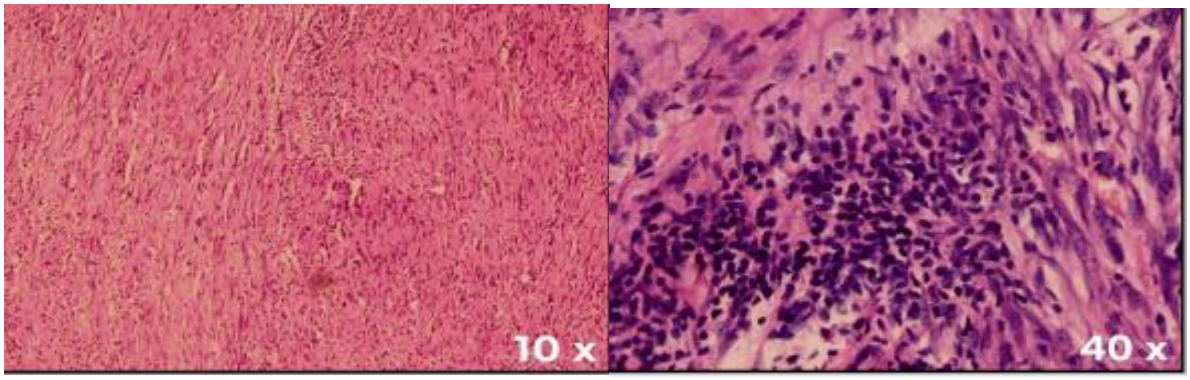

Figure 3 and 4 Shows spindle cells arranged in fascicles admixed with inflammatory infiltrate

Based on morphology, the differential diagnoses considered were GIST, inflammatory leiomyosarcoma, solitary fibrous tumour, inflammatory fibroid polyp, inflammatory myofibroblastic tumour, and peripheral nerve sheath tumour.

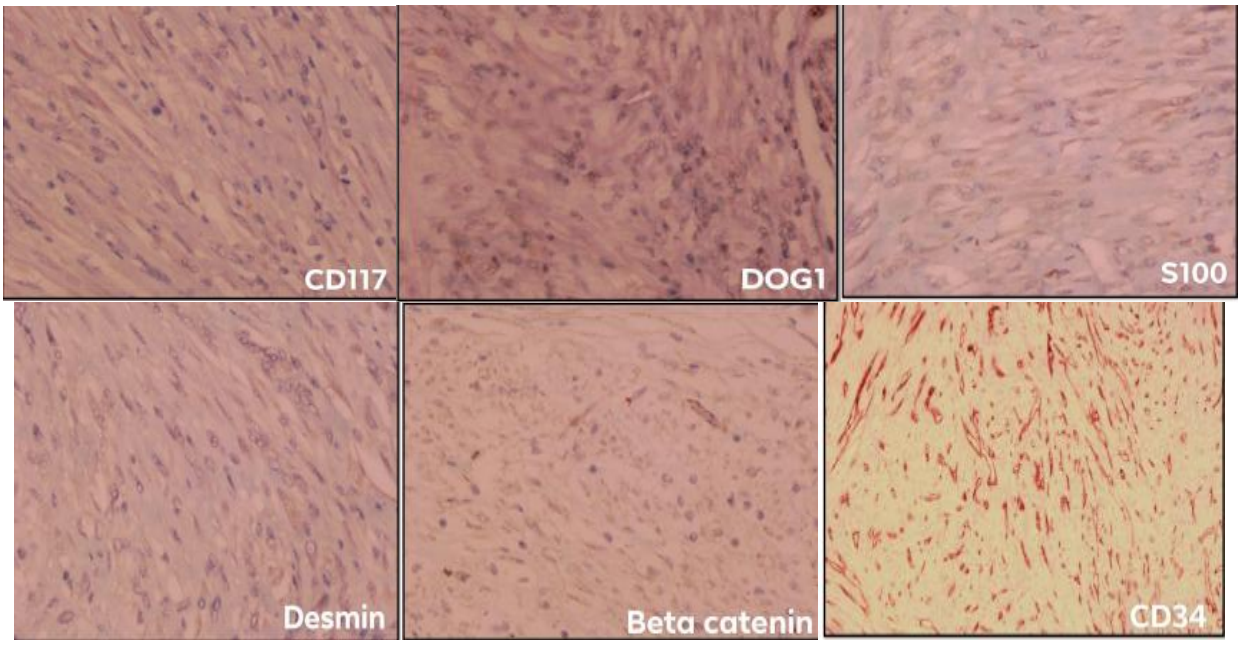

Figure 6, 7, 8, 9, 10, 11: CD117 (c-KIT), DOG1, S100, Desmin, β-catenin and CD34 (positive in vessels) were negative.

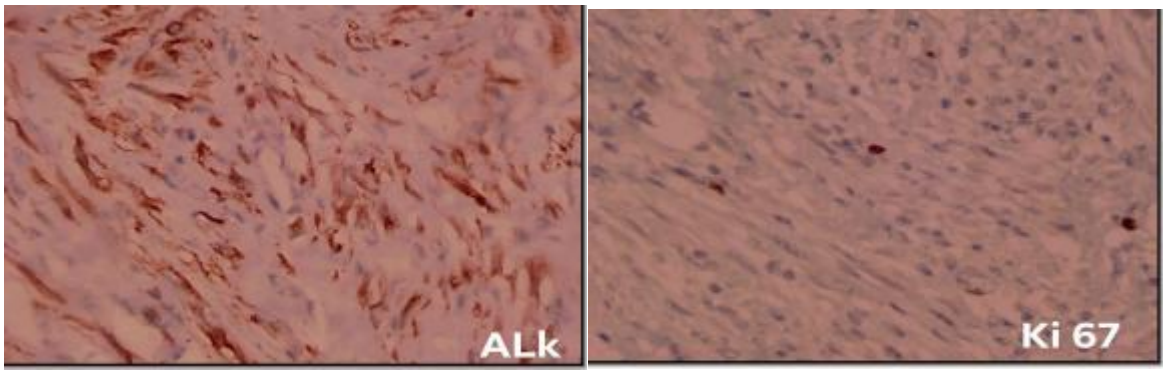

Figure 12: Immunohistochemical analysis showed tumour cells positive for ALK

These findings confirmed the diagnosis of inflammatory myofibroblastic tumour.

3. Discussion

Inflammatory myofibroblastic tumour is a rare mesenchymal neoplasm with variable biological behavior, ranging from benign to locally aggressive lesions with rare metastatic potential. It is classified as an intermediate malignant neoplasm by the World Health Organization Histological Typing of Soft Tissue Tumors [6]. Although initially described in the lungs, IMT is now known to occur in virtually any organ and across all age groups.

Primary gastric IMT in adults is exceedingly rare. Clinically and radiologically, it often mimics GIST, as observed in the

present case. Histologically, IMT demonstrates three basic patterns: myxoid and vascular areas resembling nodular fasciitis; compact spindle cells with inflammatory infiltrates resembling fibrous histiocytoma; and dense collagenous areas resembling desmoid-type fibromatosis.[1, 7.]

IMT is composed of myofibroblastic spindle cells accompanied by an inflammatory infiltrate of plasma cells, lymphocytes and eosinophils, and usually occurs in the soft tissue and viscera.[8]ALK gene rearrangements are seen in approximately 50–60% of IMTs and can be detected by immunohistochemistry. ALK positivity has been associated with local recurrence but has a lower risk of distant metastasis, whereas ALK-negative IMTs have a higher risk of metastasis. [9]In the present case, ALK positivity suggests a favorable prognosis.

Most IMT cases require surgical exploration to obtain an accurate microscopic diagnosis.[10]Complete surgical excision remains the treatment of choice. Due to the risk of recurrence, long-term follow-up is recommended.

4. Conclusion

Primary gastric inflammatory myofibroblastic tumour is a rare entity in adults and should be considered in the differential diagnosis of gastric spindle cell tumours. Histopathology and immunohistochemistry are essential for accurate diagnosis. Awareness of this rare entity can help avoid misdiagnosis and ensure appropriate management.

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