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Case Series

Gastric Xanthomas: A Series of Three Cases

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Abstract

Gastric xanthoma is an uncommon non-neoplastic lesion of the stomach characterized by the accumulation of lipid-laden foamy macrophages within the lamina propria. It is usually detected incidentally during endoscopy and maybe associated with chronic gastritis, Helicobacter pylori infection, intestinal metaplasia, or previous mucosal injury. This study highlights three cases of gastric xanthoma in adults diagnosed on histopathological examination, emphasizing on their clinicopathological features and diagnostic significance.

Keywords: Foamy, Histopathology, Macrophages, Metaplasia.

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Introduction

Gastric xanthomas are rare benign lesions of gastrointestinal tract seen in 0.2- 0.8% of individuals. [1] They are often detected incidentally in upper gastrointestinal endoscopic biopsy in the form of nodules. Biopsy shows presence of abundant macrophages in the lamina propria most commonly seen in the antral region of the stomach. They sometimes masquerade gastric malignancy on clinical and radiological examination. Three rare cases of gastric xanthoma are hereby elaborated with distinctive histopathological features to highlight importance of biopsy in making timely and correct diagnosis.

Case History

Case 1

A 65 year female presented to the Gastroenterology outpatient department with chief complaints of generalized abdominal pain and nausea since 5 months. She had smoking history since 25 years. Her general physical examination revealed no abnormalities. Abdominal examination revealed mild right upper quadrant tenderness. She was on anti-hypertensive and anti-diabetic medications since 10 years. No significant family history was elicited. Her routine laboratory investigations revealed deranged lipid profile with increased total serum cholesterol levels (320mg/dl). . With the possible clinical differential of gastric growth, upper gastrointestinal endoscopic biopsy was planned which showed presence of multiple discrete yellowish white nodules within 1cm size scattered throughout fundus, body and antrum of the stomach. No other growth, ulcer or varix was found in esophagus or duodenum.

Multiple biopsies were taken and sent for histopathological examination. Biopsy revealed gastric mucosal bits showing normal gastric foveolar epithelium with underlying lamina propria having abundant foamy histiocytes and moderate chronic inflammatory cells infiltrates consisting of lymphocytes and few plasma cells. Individual tumor cells were medium to large sized round to oval shaped cells having abundant foamy cytoplasm, eccentrically placed nuclei with vesicular chromatin and inconspicuous nucleoli. Immunohistochemistry done for CD68 showed diffuse strong cytoplasmic positivity in histiocytic

cells and faint cytoplasmic positivity for CD163. PAS staining was negative ruling out fungal etiology. Hence a final diagnosis of gastric xanthoma was made based on biopsy and immunohistochemistry (Figure 1a- d). Patient was followed up after 6 months of consumption of protein pump inhibitors and showed significant improvement.

Case 2

46 year male presented to the General surgery outpatient department with chief complaints of nausea and occasional episodes of non-bilious vomiting for 2 months. Her general physical examination revealed no abnormalities. Abdominal examination revealed normal systemic findings. He had hypertension and diabetes mellitus for which he was under medications. No significant family history was present, except mother being hypertensive. He had no addiction history and occasionally consumed alcohol.

All laboratory investigations were within normal limits. With the possible clinical differential of gastric growth, upper gastrointestinal endoscopic biopsy done showed presence of multiple small irregular yellowish white nodules in the antrum of the stomach. No other growth/ ulcer/ varix was found in other part of stomach or esophagus or duodenum. Multiple biopsies were taken and sent for histopathological examination. Biopsy revealed gastric mucosal bits showing normal gastric foveolar epithelium with underlying lamina propria showing abundant foamy histiocytes and mild chronic inflammatory cells infiltrates consisting of few lymphocytes and occasional plasma cells consistent with chronic antral gastritis and gastric xanthoma. Immunohistochemistry done for CD68 showed diffuse strong cytoplasmic positivity in the histiocytic cells and negative for PAS, thus ruling out fungal etiology. However, immunohistochemistry for helicobacter pylori test was positive. Hence a final diagnosis of gastric xanthoma was made based on biopsy and immunohistochemistry. Patient has been kept on follow up after prescribing H.pylori eradication kit.

Case 3

A 39 year female presented with the chief complains of dyspepsia for 1 month. Her general physical examination revealed no abnormalities with normal per abdomen. No significant family history present. Her routine laboratory investigations revealed derangement in lipid profile with slightly increased total serum triglyceride levels (185mg/dl) and mildly lower serum HDL levels(40mg/dl) . Rest all biochemical tests were within normal range.

Upper gastrointestinal endoscopic biopsy was planned which incidentally showed presence of a single discrete yellowish white plaque like lesion measuring 4mmx1mm. No other growth, ulcer or varix was found in esophagus or duodenum. Multiple biopsies were taken and sent for histopathological examination. Biopsy revealed gastric mucosal bits showing normal lower esophageal and gastric foveolar epithelium with underlying lamina propria showing abundant foamy histiocytes and moderate chronic inflammatory cells infiltrates consisting of good number of lymphocytes. Immunohistochemistry done for CD68 showed diffuse strong cytoplasmic positivity in the histiocytic cells and negative for PAS stain, thus ruling out fungal etiology. Hence a final diagnosis of gastric xanthoma was made based on histopathology and Immunohistochemistry.

Table 1: Case Findings

Sl. No.	Age and Sex	Clinical diagnosis	Gross	Final diagnosis
1.	65 year female	? gastric growth	Greyish white tissue bits altogether measuring 0.9cm.	Gastric xanthoma (CD68 strong diffuse cytoplasmic positivity in histiocytes with faint cytoplasmic positivity for CD163)
2.	46 year male	? Malignancy	Multiple bits of greyish white tissue structure altogether measuring 1.5 cm	Gastric xanthoma
3.	39 year female	? Gastric growth	Single bit of yellowish white tissue structure altogether measuring 0.5cm.	Gastric xanthoma

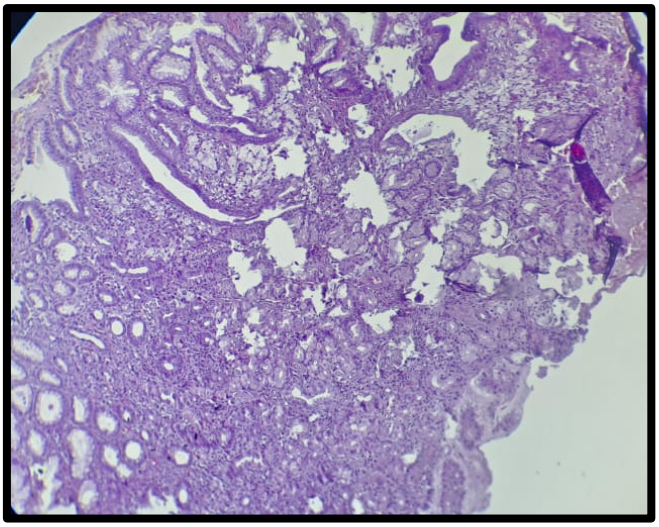

Figure 1a: (HPE, 40x); Gastric mucosal bits showing surface epithelial ulceration.

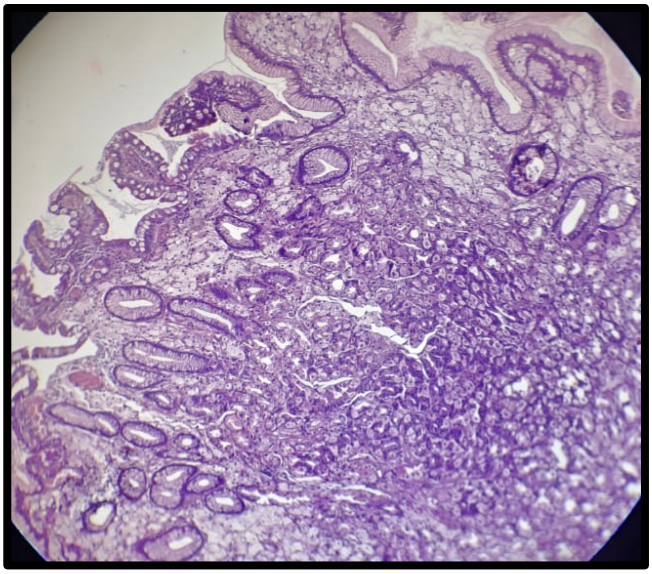

Figure 1b: Gastric mucosal bits showing surface epithelial ulceration with mild to moderate lymphoplasmacytic infiltrate in lamina propria.

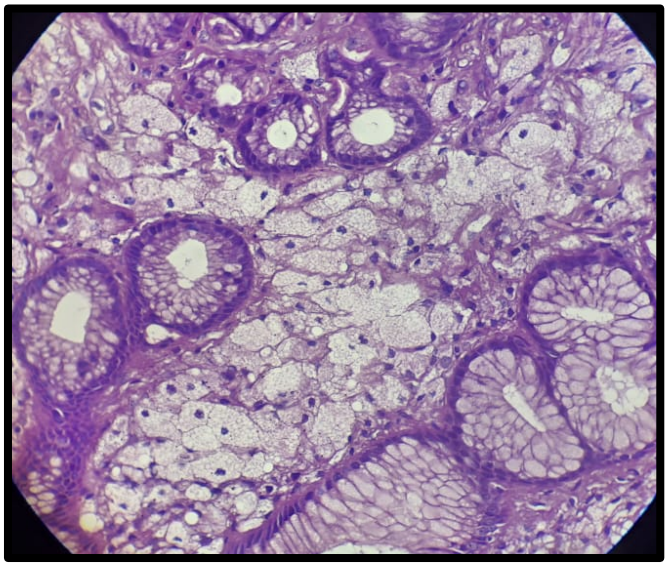

Figure 1c: (HPE, 400x) Foamy histiocytes in the lamina propria

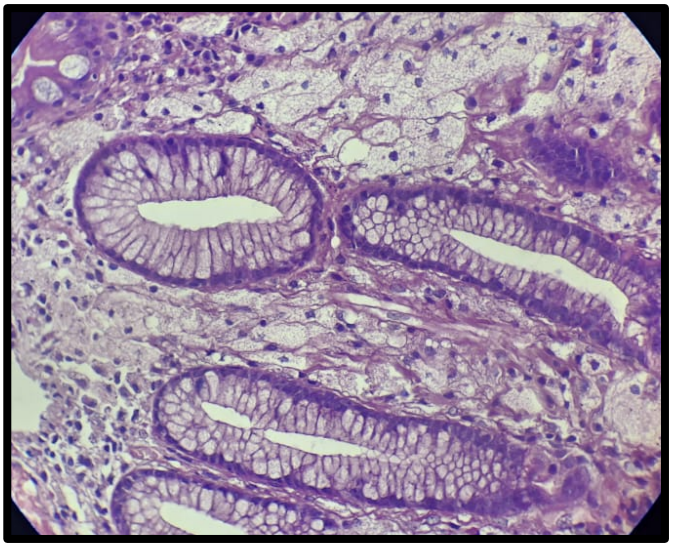

Figure 1d: (HPE, 400x) Foamy histiocytes in the lamina propria

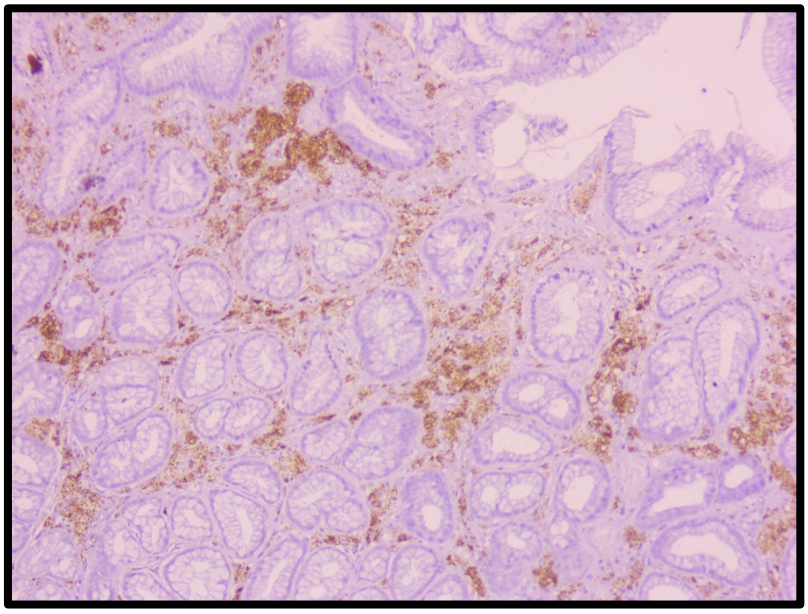

Figure 1e: (IHC, 200x) Strong diffuse cytoplasmic positivity of CD 68 in the foamy histiocytes.

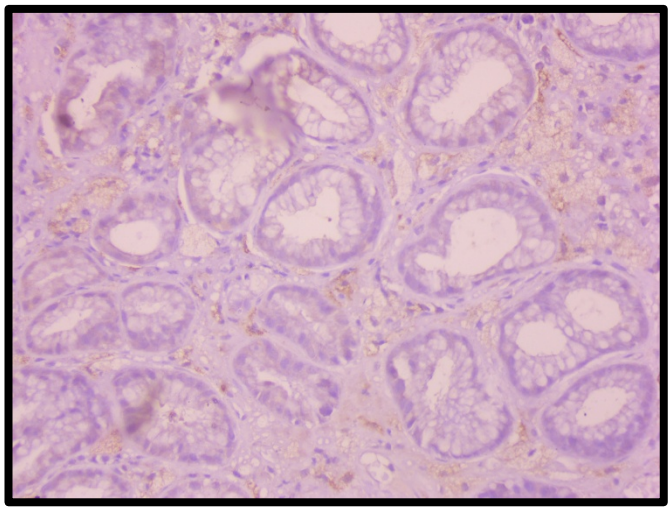

Figure 1f: (IHC, 200x) Faint cytoplasmic positivity of CD 163 in the foamy histiocytes.

Discussion

Gastric xanthomas or xanthelasmas are very rare benign lesions of gastrointestinal tract characterized by the accumulation of foamy macrophages in the lamina propria. [2] Xanthelasmas are also referred to as lipid islands, was first coined by Lubarsch and Borchadt in 1929. [3] The incidence ranges from 0.2-0.8% with most common occurrence in east Asian countries rather than western population. [4] Most commonly affects stomach, followed by esophagus and duodenum. It is predominantly seen in elderly population, though it can have wide age range of presentation. The pathogenesis of this entity is uncertain, however few studies have shown a significant association with helicobacter pylori.1 Gastric mucosal injury due to atrophic gastritis, intestinal metaplasia, and hypertrophic polyp forms predisposing factor on which gastric xanthomas rests. [4] Clinically, these lesions stand significant due to confusion with malignancy. In upper gastrointestinal endoscopy shows well defined round solitary to multiple nodular lesions or plaque like lesions present either localized or throughout the tract. [5] Endoscopic differentials could be candidiasis, polyp, lymphangiectasias or malignancy. [4]

Biopsy is characterized by accumulation of lipid laden macrophages in the lamina propria with intact gastric foveolar epithelium. Microscopic differentials could be whipple's disease, mycobacterial infections, submucosal lipomas, signet ring adenocarcinomas. Hence, it is equally relevant to do special stains like PAS, Ziehl Neilson stain to rule out tuberculosis, and IHC for histiocytes, CD68 and CD163. IHC for lipid laden histiocytes show strong diffuse cytoplasmic positivity for CD68 and CD163. Surrounding inflammatory reaction could be elicited in the form of lymphocytes or plasma cells. Several studies have shown that xanthelasmas are an independent risk predictor for development of malignancy. Finding out how it relates to metabolic issues is similarly crucial. In our example, it was linked to a modest lipid profile abnormality, and Case 1 had a history of diabetes. [3,5] Accumulation of oxidized LDL leads to the production of free radicals leading to the accumulation of lipid laden macrophages in the gastrointestinal tract.

Regular follow up is required in cases of alarming signs of malignancy. Conservative approach forms the mainstay of treatment.

Conclusion

Gastric xanthoma is a rare, tumor like lesion, and often incidental finding on endoscopic biopsy. Awareness of its characteristic histomorphological features is essential to prevent diagnostic pitfalls. Identification of gastric xanthoma should prompt a thorough evaluation of the gastric mucosa for associated inflammatory or premalignant conditions by histopathology plays a crucial role.

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