A Case of Systemic Mastocytosis Diagnosed Endoscopically

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Abstract

Mastocytosis, or mast cell proliferation is very rare. 60% of patients with systemic mastocytosis (SM) will have gastrointestinal involvement, with the colon being the most prevalent site affected in these cases. However, most patients are diagnosed through bone marrow biopsy. Indolent SM, which is characterized by both gastrointestinal and cutaneous symptoms in the absence of bone marrow suppression is extremely rare and often missed due to the complexity of the diagnosis. We present a patient with abdominal pain, flushing and nausea who was diagnosed endoscopically with systemic mastocytosis, likely indolent type.

Introduction

Mastocytosis is an uncommon disorder of the immune system, with an annual incidence of 2/100,000. Mastocytosis was first described in France in 1930, however the first instance of urticaria as an effect of mast cell activation traces back to 1869. It affects both men and women alike, although the systemic form is more prevalent in adults compared to children. Mast cell over-activity is a result of a somatic mutation in the KIT gene, in the 816th codon where valine is substituted for an aspartate. This gain-of-function is positive in more than 90% of patients with SM. The 2008 WHO Classification defines mastocytosis as either cutaneous mastocytosis or systemic mastocytosis, although subdivisions of these main classes do exist. More than 90% of all mastocytosis is the cutaneous type. Biopsy is gold standard and are usually taken from the bone marrow or cutaneous lesions. Rarely are patients diagnosed endoscopically.

Case Presentations

A 39 YO F with no significant PMH presented to the GI clinic with dull and non-radiating RLQ pain associated with nausea and flushing of her face, lips, and ears. The patient appeared well-nourished and her examination, including perianal and digital rectal exams were unremarkable. She had a normocytic anemia (Hbg 11.7 g/dL, MCV 90.6 fL), but otherwise complements, CRP and ESR were normal. A CT abdomen/pelvis demonstrated a soft tissue nodule near the ileocecal region measuring 1.5x1.2 cm, concerning for a carcinoid tumor. Colonoscopy revealed numerous 5-15 mm yellow-white mucosal nodules with a central hyperpigmentation visualized in the entire colon. There were discontinuous areas of non-bleeding and ulcerated mucosa in the transverse colon, ascending colon and cecum. Cold forceps biopsies from the ileal and colonic mucosa revealed sheets of eosinophils mixed with clusters of mast cells, showing atypical morphology including oval to short spindled nuclei and focal clustering. IHC stains were positive for CD117, CD25, and Tryptase. OnkoSight KIT Sequencing detected Tier 1 genomic alterations in KIT pAsp816Val, strongly supporting the diagnosis of systemic mastocytosis. She was started on Loratadine and Famotidine. A repeat colonoscopy was performed, indicative of persistent disease. She was referred to Rheumatology for aggressive therapy.

Surveillance Colonoscopy

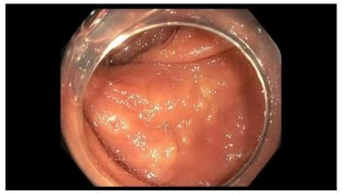


Figure 1. Irregular patchy and nodular mucosa of the ascending colon.

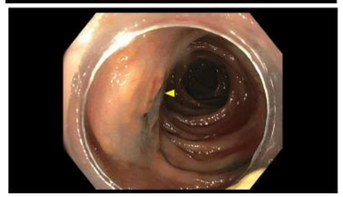


Figure 2. Nodularity of the ascending colon.

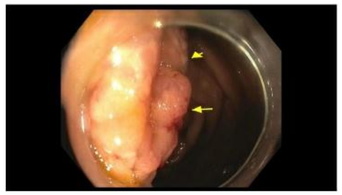
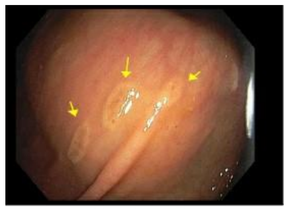


Figure 3. Nodularity of the ileocecal valve.

Diagnostic Colonoscopy



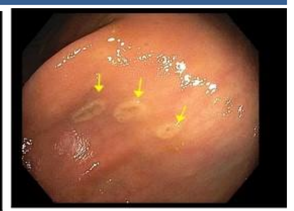


Figure 1. Yellowish-white mucosal nodules with central hyperpigmentation visualized in the transverse colon and descending colon (left-right)

Histology

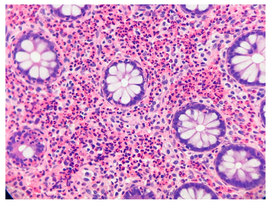


Figure 1. H & E stain showing eosinophils and mast cell proliferation within the cryptic architecture.

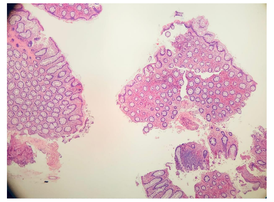


Figure 2. Ileocecal mucosa with markedly increased eosinophils and abnormal mast cell proliferation in the lamina propria.

Discussion

Only 10% of all mastocytosis is considered systemic, with the most common site of involvement being the bone marrow. However, of those patients with SM approximately 60% will also have gastrointestinal symptoms. A case series observing the clinicopathologic features in 5 patients determined the colon to be the most prevalent site of involvement. 4 out of 5 patients had cutaneous symptoms, gastrointestinal symptoms and bone marrow involvement, however up to 50% of patients with SM often lack cutaneous symptoms at time of diagnosis Endoscopically, patients were found to have mucosal nodularity, loss of normal architecture and friability with pathologically positive dense mast cell infiltration of the lamina propria. This is similar to our patient who had colonic involvement characterized by mucosal nodularity, friability and ulceration, however our patient likely had indolent SM given the absence of bone marrow suppression. Our patient was also unique in the way in which she was diagnosed, endoscopically.

Conclusions

Mastocytosis is a rare disease characterized by heterogeneous clinicopathological features and variable treatment and prognosis. In the absence of classical cutaneous lesions, bone marrow suppression and/or serum tryptase elevations, the diagnosis of indolent systemic mastocytosis can be easily missed. As many patients lack cutaneous symptoms at time of diagnosis, the clinical suspicion should remain high if other more common diseases can be excluded. This is a rare case of indolent systemic mastocytosis diagnosed endoscopically.

References

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