Gastric mesenchymal lesions other than gastrointestinal stromal tumor

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Abstract

Interpretation of gastrointestinal mesenchymal lesions involving the stomach and the remainder of the gastrointestinal tract is daunting but can be simplified somewhat merely by knowing in which layer they are usually found. For example, gastric Kaposi sarcoma is detected in mucosal biopsies whereas inflammatory fibroid polyp is nearly always in the submucosa. Gastrointestinal stromal tumors (discussed elsewhere in this issue) are generally centered in the muscularis propria. Gastric schwannomas are essentially always in the muscularis propria. Mesenteric lesions are usually found in the small bowel mesentery but the gastric mesentery is not immune. Knowledge of the favored layer is even more important in interpreting colon biopsies, since many mesenschymal polyps are encountered in the colon, but the same principle applies in the stomach. Herein we discuss several gastric mesenchymal lesions.

Keywords gastric schwannoma; gastrointestinal stromal tumor; sarcoma mesenteric fibromatosis

Gastric mesenchymal lesions — mucosa to serosa

When a mesenchymal lesion is encountered in the stomach or anywhere else in the gastrointestinal tract, noting whether it is centered in the mucosa, submucosa, muscularis propria or serosa goes a long way towards establishing a differential diagnosis; each type of lesion tends to be restricted to one of these layers. This discussion of gastric lesions will begin with mucosal lesions and end with serosal ones. Table 1 shows the likely locations of various gastrointestinal tract mesenchymal lesions.

Kaposi sarcoma

In the present era of better control of HIV disease, we seldom encounter Kaposi sarcoma in our gastrointestinal tract material. However, when gastrointestinal tract Kaposi sarcoma is encountered, it is most likely to be detected in the gastric mucosa rather than that of the remainder of the gastrointestinal tract.[1] When identified there is often a history of extreme immunosuppression. Gastric Kaposi sarcoma can be extremely subtle on biopsies (Figures 1—4) since the normal gastric lamina propria of the stomach often contains plasma cells, a feature of the backdrop of Kaposi sarcoma. If the spindle cell proliferation is noted, it typically appears more spindled than normal lamina propria and often contains hemosiderin, hyaline globules, and prominent plasma cells. The proliferation is CD34-reactive spindle cells. Antibodies to HHV-8 are also available to confirm this impression.

Moriz Kaposi's series established this tumor as a distinct clinicopathologic entity. Kaposi's paper, entitled "idiopathic multiple pigmented sarcoma of the skin" described in detail five adult male patients, ages forty to sixty-eight, and briefly mentions a boy age eight to ten.[2] He believed the condition to be a generalized disease which proved rapidly fatal. Interest in the condition remained relatively dormant in the literature for the next one hundred years until the disease began manifesting in immunosuppressed individuals, first in the setting of iatrogenic immunosuppression associated with solid organ transplantation and later as a feature of the acquired immunodeficiency syndrome (AIDS).

In the "classic" or European form of the disease, Kaposi sarcoma (KS) typically affects male patients between the ages of fifty and eighty. The peak incidence is in the sixth or seventh decade. Combining data from two large series[3,4] gives a male to female ratio of 11:1. A racial predilection is evident, with an increased incidence in men of Mediterranean descent or of Ashkenazic Jewish extraction.[5] Isolated familial cases have been reported.[6] The disease frequently follows an indolent course.[3] Patients typically survive an average of 10—15 years following their initial diagnosis and commonly die of an unrelated cause. Secondary malignancies have been reported in more than thirty-five percent of the patients[7] with approximately half of these tumors being of hematopoietic/lymphoreticular derivation (i.e., leukemia, lymphoma, multiple myeloma). In most instances, the patients are clinically well at presentation, having no anemia or abnormal leukocyte counts. Cutaneous lesions are usually first noted in the distal portion of the lower extremities and evolve in stages, consisting initially of purple patches, followed by plaques and nodules. Over time, the lesions extend proximally, gradually coalesce and may ulcerate. Some foci may regress while others progress. Upper extremity and internal involvement may develop although the latter is often clinically silent.[5]

The African or "endemic" form of Kaposi's sarcoma was classically described in the northeast Zaire-northwest Ugandan region.[5] In the early 1980s, this disease reportedly accounted for 9% of malignancies in Ugandan males and approximately 10% of all cancers in Zaire. The relationship to the HIV epidemic has somewhat clouded the issue of endemic disease, but there remains a subset of patients who are uninfected with HIV who seem to have an endemic form of Kaposi's sarcoma[8—10]; this presumably relates to HHV-8 serotypes in various endemic areas.[8—10]

A third epidemiologic subgroup at risk for Kaposi's sarcoma is composed of individuals (primarily transplant patients) receiving potent, high dose or long term immunosuppressive therapy. The overall risk to these patients is relatively low. Kaposi's sarcoma is estimated to account about 5% of all malignancies in the transplant population.[11] The mean interval to onset after transplantation is 16.5 months.[12] Many of these individuals are also of Jewish or Mediterranean descent. However, females comprise a higher percentage of those affected; the male to female ratio

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Location of mesenchymal lesions in the gastrointestinal tract by layer

Lesion	Favored site in gastrointestinal tract	Mucosa	Submucosa	Muscularis propria	Mesentery
Benign epithelioid nerve sheath tumors	Colon	x			
Sporadic ganglioneuroma	Colon	x			
Schwann cell hamartoma	Colon	x			
Benign fibroblastic polyp/ perineurioma	Colon	x			
Leiomyoma	Colon	X (associated with muscularis mucosae)			
Kaposi sarcoma	Stomach	x			
Inflammatory fibroid polyp	Stomach (antrum)		x		
Synovial sarcoma	Stomach	x	x	x	
Gangliocytic paraganglioma	Small bowel (duodenum)	x	x		
Glomus tumor	Stomach			x	
Plexiform fibromyxoma	Stomach			x	
Gastrointestinal stromal tumor	Stomach			x	
Gastrointestinal schwannoma	Stomach			x	
Leiomyoma	Esophagus			x	
Lipoma	Colon		x		
Gastrointestinal clear cell sarcoma-like tumor	Small intestine (ileum)			x	
Ganglioneuromatosis	Colon	x	x	x	x
Mesenteric fibromatosis	Small intestine			x	x
Inflammatory myofibroblastic tumor	Small intestine			x	x
Sclerosing mesenteritis	Small intestine				x
IgG4-related fibrosclerosing disease	Small intestine				x
Heterotopic myositis ossificans	Small intestine				x

Adapted from: Montgomery EA, Voltaggio L. *Biopsy Interpretation of the Gastrointestinal Tract Mucosa Volume 2: Neoplastic*. P. 104. Wolters Kluwer 2012 Philadelphia.

Table 1

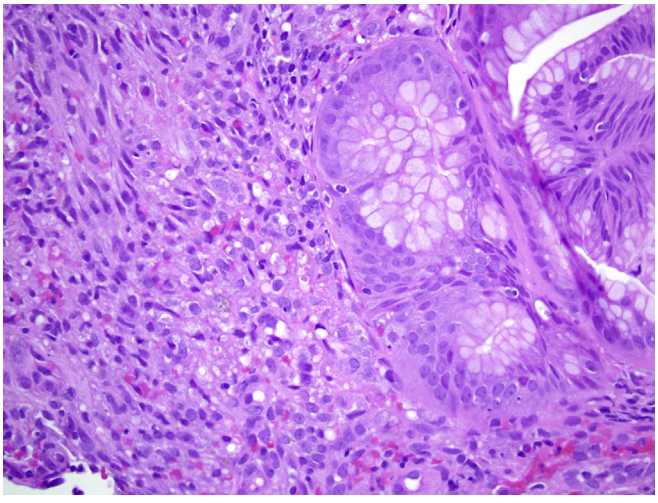

Figure 1 Gastric Kaposi sarcoma. This example is classic and features spindle cells, hemosiderin deposition and hyaline globule formation.

ranges from 2 to 3:1 (309,311–316). Although Kaposi's sarcoma may assume a chronic or aggressive course in these patients, regression frequently follows discontinuation of the immunosuppressive treatment. Patients receiving immunosuppressive agents for various other collagen vascular and skin disorders are also included in this category.

The "epidemic" or AIDS-related form of Kaposi's sarcoma occurs in HIV-positive individuals. The risk of developing Kaposi's sarcoma for untreated AIDS patient is estimated to be three hundred times greater than that of other immunosuppressed individuals and twenty thousand times greater that of the general population.[13] In this group, Kaposi's sarcoma frequently assumes an aggressive course. Areas prone to Kaposi's sarcoma in the adult AIDS population include: the oral cavity, especially the hard palate, the tip of the nose, behind the ears, the trunk, penis, legs and feet. Lesions more often involve the upper half of the body than in classic Kaposi's sarcoma. Postmortem studies have demonstrated a high incidence of concurrent disease in lymph nodes, the gastrointestinal tract, and lungs. Pediatric cases of AIDS-KS have a proclivity for lymphadenopathic disease.