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Endoscopic Approach to Gastrointestinal Stromal Tumors

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The scenario is unfortunately all too common. Evaluating a patient for dyspepsia, the endoscopist is surprised to discover a submucosal mass in the stomach. It is obviously unrelated to the patient's complaint and probably benign—but then again, maybe not. The ensuing encounter with the patient ends unsatisfactorily amid confusion and alarm: Is it causing my symptoms? Is it cancer? Why don't you just take it out? Unrevealing CT scans and ambiguous surveillance endoscopies fuel rising frustration for patient and physician. When the curtain finally rings down on this drama—if it ever does–the plot is often left unresolved. Fortunately, a revision of this sad script is at hand because several recent developments have added considerably to our understanding of submucosal masses and the stromal cell tumors often lurking within them.

Evaluation of submucosal tumors

Background

Mesenchymal tumors of the gastrointestinal (GI) tract arise from the embryologic mesoderm and as such usually occupy a position within the wall of the GI tract. They often protrude into the lumen of the hollow viscus, where they can be seen on endoscopic or radiographic studies. Such an appearance is referred to as a "submucosal tumor," which is a somewhat confusing term because not all such lesions arise within the submucosal layer. A large variety of lesions originating in several locations can present such an appearance, some of which are

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Table 1
Classification of submucosal tumors of the GI tract

	Non-neoplasms	Neoplasms
Extramural position	Cyst of adjacent organ (pancreas, liver) Organomegaly	Primary or metastatic neoplasm of adjacent organ including lymph nodes
Intramural position	Intramural cyst varices Pancreatic rest	GI stromal tumor Lipoma Granular cell tumor Glomus tumor Metastatic malignancy

listed in Table 1. Whenever a submucosal tumor is encountered, the alert endoscopist bears in mind all the possibilities.

Prior studies of submucosal tumors (SMTs) have suggested that as many as half are extramural structures. These include normal organs such as the liver, spleen, gallbladder, and kidney; enlargement of these adjacent organs (organomegaly); abnormal structures such as aneurysms, cysts, and pseudocysts; and neoplasms of adjacent organs [1–3]. Among the intramural non-neoplastic lesions, varices are likely the most common but are easily recognized by endoscopic appearance and clinical circumstances. A few other non-neoplastic masses, such as pancreatic rests and duplication cysts, may occasionally be seen.

What are left, after these have all been excluded, are the mesenchymal neoplasms. This group comprises a confusing array of obscure and infrequent tumors, many of which are listed in Table 2. GI stromal tumors (GISTs) are the most frequently encountered tumors on this list [4], and all GISTs contain potential for malignant behavior. For this reason, a discussion of SMTs almost always evolves promptly into a discussion of GIST.

Of lumps and bumps: initial characterization

When a submucosal tumor is encountered on visual endoscopy, the first step is to characterize it with respect to several parameters. The important considerations include location, size, shape, number, color, overlying mucosa, and compression characteristics. Other specific features, such a pedunculation, may occasionally be relevant. Table 3 lists the parameters that may characterize each of these features.

Table 2
Mesenchymal tumors of the GI tract

Tumor type	Examples
Stromal tumor	GI stromal tumor, smooth muscle tumor (true leiomyoma or leiomyosarcoma), glomus tumor
Lipocytic tumor	Lipoma, liposarcoma
Vascular tumor	Hemangioma, hemangiosarcoma, Kaposi's sarcoma
Neural tumor	Neuroma/neurofibroma
Miscellaneous tumors	Granular cell tumor, inflammatory fibroid polyp, fibrovascular polyp