

## Submucosal Elastosis of the Right Colon-A Case Report with Review of the Literature

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Received: 19 Nov 2021

Accepted: 16 Dec 2021

Published: 21 Dec 2021

J Short Name: AJSCCR

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**Citation:**

Al Amin, Submucosal Elastosis of the Right Colon-A  
 Case Report with Review of the Literature. *Ame J Surg  
 Clin Case Rep.* 2021; 4(2): 1-3

**1. Abstract**

Submucosal elastosis of the colon is a rarely reported condition that may resemble colonic polyp and amyloid deposition. We report a case of 68-year-old male who underwent screening for colorectal malignant neoplasm. Multiple sessile polyps along with innumerable firm yellow nodules of varying sizes are identified throughout the right colon. Histopathologically, the nodules are characterized by extensive submucosal accumulation of eosinophilic elastic fibers, positive for elastin stain and negative for Congo red stain. The overall findings are consistent with fibroelastoma. The clinical, microscopic, and immunohistochemical characteristics of the current case are reviewed in detail in this report. Other 25 reported cases between 2004-2019 are summarized and their clinical and pathological features are compared with the current case.

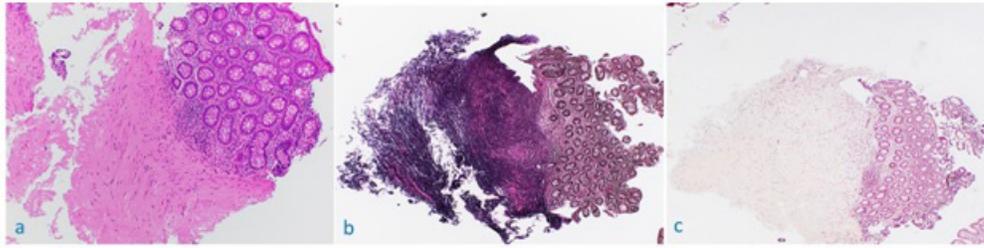
**1.2. Introduction:** Submucosal elastosis of colon also known as fibroelastoma is a rare benign entity is usually present as polypoid lesions. Histopathologically, the lesion is characterized by an enormous deposition of eosinophilic to gray amorphous materials (elastin) with occasional fibrous component involving the

submucosa and/or muscularis mucosa of the gastrointestinal tract and predominantly in the colon. The elastin components may be centered around the blood vessels [1], which can be mistaken for amyloid deposition. Lack of negative Congo red stain and strong positivity for elastin stain will confirm the diagnosis of elastosis.

**1.3. Clinical History and pathologic findings:** A 68-year-old Caucasian male with no past significant medical history presented for evaluation of colorectal malignant neoplasm. Colonoscopy revealed multiple sessile polyps along with the innumerable firm yellow nodules of varying sizes throughout the right colon (Figure 1a). The polyps were removed with cold snare and yellow nodules were biopsied. Histopathological examination of the polyps revealed hyperplastic to adenomatous changes and yellow nodules revealed eosinophilic amorphous material with fibrous background in the submucosa of the colon (Figure 2a). Special stains for the submucosal lesions were positive for elastin (Figure 2b) and trichrome, negative for Congo-red (Figure 2c). Immunostain for CD34 is negative. The overall findings are consistent with elastosis.



**Figure 1:** Endoscopic findings of innumerable firm polypoid yellow nodules in the right colon.



**Figure 2:** Submucosal elastosis, colon. (a) H&E, x100; (b) Positive Elastin special stain, x40; (c) Negative Congo red special stain, x40.

**1.4. Discussion:** In this report, we described a submucosal elastosis of right colon. The clinicopathological features of the previously reported 25 cases of similar lesion between 2004-2019 [1, 4, 5, 6] along with current case are summarized in Table 1. The most common site is colon (17 cases), in which the sigmoid colon is most frequently affected (7 cases). The gastric, small intestine and rectum are less common site of this lesion (6 cases). The reviewed lesions show a male predominance (male: female 65: 35) and mainly affects middle-aged to elderly persons (average age 58.27 years, median age 57.5 years), with few exception of young persons as well (the youngest case reported as 24-year-old male

with elastofibromatous lesion of ileum [5]. Most of the colonic cases are presented as polyp or polypoid lesion except for three cases. Two of them (current case and other) are described as yellow/pearly yellow nodules and one is documented as a multifocal, linear white elevated lesion. Some of the patients had signs and symptoms such as abdominal pain, constipation, diverticulitis, hematochezia, or anemia. However, many of the lesions were found in asymptomatic patients during routine screening. Two patients with gastric lesions had a history of Billroth operations and two patients had a positive history of either colon cancer or family history of colon cancer.

**Table 1:** we described a submucosal elastosis of right colon. The clinicopathological features of the previously reported 25 cases of similar lesion between 2004-2019 [1, 4, 5, 6] along with current case are summarized in Table 1.

Case No	Age/sex	Location	Endoscopic /gross findings	Clinical data	Reference
1	63/F	Colon	Multifocal, linear, white, elevated lesion	Family h/o of colon cancer	1
2	53/M	Colon	Pearly yellow polyp	Routine screening	1
3	61/F	Sigmoid colon	polyp	None given	1
4	77/M	Ileum	Sac like dilation, hemorrhagic and granular mucosa, ulcer	Small bowel obstruction	1
5	77/M	Gastric antrum	Thick, soft antral folds	GERD, Billroth II for ulcer disease, constipation,	1
6	51/F	Sigmoid colon	Polyp	Abdominal pain	1
7	71/F	Descending colon	Diverticulitis, flattened and cobblestone mucosa	Diverticulitis	1
8	83/M	Hepatic flexure colon	Pedunculated polyp	Colonic polyps	1
9	55/M	Stomach	Gastric erosions, thickened wall	Billroth I, Stricture of gastrojejunostomy	1
10	61/F	Cecum	Polyp	Hematochezia	1
11	47/M	Colon	Polyp	None given	1
12	50/F	Transverse colon	Pedunculated polyp	Anemia	1
13	47/M	Descending colon	Sessile polyp	None given	1
14	45/M	Colon	Polypoid lesion	None given	5
15	60/F	Sigmoid colon	Polypoid lesion	None given	5
16	55/F	Rectum	Diverticulitis, polyp	Diverticulitis	5
17	70/M	Colon	Polyp	None given	5
18	24/M	Ileum	Polyp	None given	5
19	64/M	Colon	Polyp	Colon Cancer	5
20	76/M	Jejunum	Polypoid lesion	Black stool	4
21	70/M	Transverse and sigmoid colon	Polypoid lesion	None given	4
22	52/M	Sigmoid colon	Polypoid lesion	None given	4
23	38/M	Colon	Polyp	Duodenal ulcer	6
24	48/M	Sigmoid colon	Polyp	Routine screening	6
25	49/F	Sigmoid colon	Polyp	Routine screenin g	6
New case	68/M	Right colon	Sessile polyps, firm yellow nodules of varying sizes	Screening for malignancy	

Submucosal elastosis of the colon is a rare but benign entity can be presented as a polypoid lesion or diffuse non polyp forming deposits [2]. It is also described as elastoma, elastofibroma or elastofibromatous changes. They can be found though out the gastrointestinal tract. Because of their eosinophilic and amorphous appearance in hematoxylin and eosin (H&E) stained slides, elastosis often resemble amyloidosis. However, they are negative in Congo red staining. Some authors consider the alterations as a reactive process (ulcers, gastritis etc.), and the others believe that these lesions are connected with the systemic diseases of connective tissue (Ehlers-Danlos Syndrome, Pseudoxanthoma elasticum) [3]. Post-interventional status, previous irradiation and gastrointestinal lymphoma are frequently observed in certain cases [2]. Some study illustrates significant CD34 positivity among the studied samples (negative in our case), suggesting a potential role for CD34-positive mesenchymal cells in the accumulation of elastic fibers [1]. As the pathogenesis remains unclear, the most convincing hypothesis is that, the collections of degenerative elastic vascular wall may have an important role in the development of this lesion [4,7]. In conclusion, elastosis is rare but more common as a benign polyp in the gastrointestinal tract. The findings of excessive eosinophilic amorphous deposition in the submucosa/mucosa of gastrointestinal tract along with positive Elastin and negative Congo red immunohistochemistry can confirm the diagnosis.

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