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Abstract

We present a case of pre-elastofibroma-like lesion, a kind of elastic-producing fibrous tumor. The small colonic polyp, which was found in a 49-year-old asymptomatic man in association with a large colonic adenoma, showed submucosal nodular deposits of fine granular or fibrillar eosinophilic materials with interspersed fibroblastic cells. Elastic stain revealed these deposits to consist mainly of dark gray granular or partially fibrillar dense elastinophilic materials, most of which were digested with elastase. This stromal lesion somewhat resembled a pre-elastofibroma. Therefore, pre-elastofibroma-like lesions should be kept in mind as a possible origin of colonic polyp.

KEYWORDS: pre-elastofibroma, elastic tissue, colon, polyp

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Pre-Elastofibroma-like Colonic Polyp: Another Cause of Colonic Polyp

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We present a case of pre-elastofibroma-like lesion, a kind of elastic-producing fibrous tumor. The small colonic polyp, which was found in a 49-year-old asymptomatic man in association with a large colonic adenoma, showed submucosal nodular deposits of fine granular or fibrillar eosinophilic materials with interspersed fibroblastic cells. Elastic stain revealed these deposits to consist mainly of dark gray granular or partially fibrillar dense elastinophilic materials, most of which were digested with elastase. This stromal lesion somewhat resembled a pre-elastofibroma. Therefore, pre-elastofibroma-like lesions should be kept in mind as a possible origin of colonic polyp.

Key words : pre-elastofibroma, elastic tissue, colon, polyp

Pre-elastofibroma and elastofibroma, both of which are rare elastic-producing fibrous tumors (1), usually occur in the subscapular region (3). However, the latter has been reported also in the stomach (2) and greater omentum(8). We report a case of small submucosal pre-elastofibroma-like polyp in the colon of a 49-year-old man. This type of lesion has not, to our knowledge, been described previously in the colon.

Report of a Case

A 49-year-old asymptomatic man was admitted to Kochi Nokyo General Hospital for a health check-up in September, 1988. Sigmoidoscopy

revealed a large pedunculated polyp, 25mm in diameter, with lobulation in the sigmoid colon. A barium enema and colonoscopy showed not only the polyp of the sigmoid colon, but also a small pedunculated, smooth-surfaced polyp, 5mm in height, in the proximal transverse colon (Fig. 1). Endoscopic snare polypectomy of these two colonic polyps was performed. A barium enema of the stomach, chest roentgenograms and laboratory examination revealed no significant abnormality. There was no significant past history of colonic disease or elastofibroma dorsa, except for an appendectomy at the age of 18 years. The family history was not remarkable.

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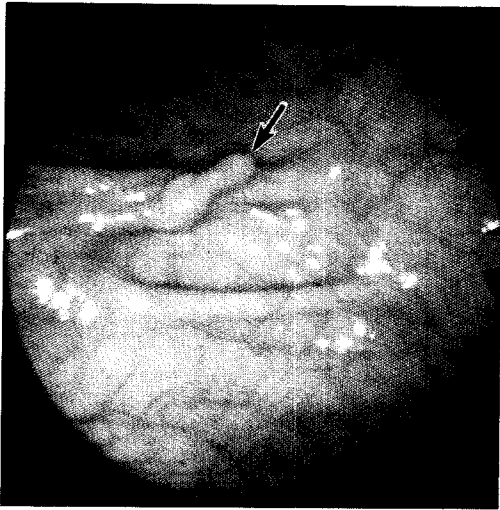


Fig. 1 A small pedunculated polyp (arrow), approximately 5 mm in height, of the transverse colon. Colonoscopy.

Materials and Methods

All tissues excised were fixed in 10 % formalin and embedded in paraffin. Dewaxed sections were stained with hematoxylin eosin (HE). Serial sections of the small polyp were additionally stained by Weigert's method for elastic fibers, as well as with Van Gieson stain (EVG), Orcein's stain, periodic acid-Schiff (PAS) reaction with prior diastase digestion, alcian blue at pH2.5, silver impregnation, Azan Mallory stain and dylon stain for amyloid. The residual material of the small polyp was later cut into serial sections and microscopically examined after staining with HE and EVG.

As controls, specimens of normal colon (3 cases), mucosal nodule (5), mucosal tag (4), hyperplastic polyp (4), juvenile polyp (4), colon adenoma (11), ulcerative colitis (4), Crohn's disease (3), and tuberculous colitis (1) were examined after HE and EVG staining.

An elastase digestion study was performed using the paraffin-embedded sections of the small polyp and skin as control. Ten mg of porcine pancreatic elastase (Boehringer-Mannheim, W. Germany) was diluted in 1 ml of Tris buffer at pH8.5. The dewaxed sections were covered with the elastase solution in a moist chamber for 1 h at 37°C. After the incubation, sections with or without prior digestion by elastase were stained with Weigert's elastic stain.

Results

The large polyp of the sigmoid colon was histologically a typical tubulovillous adenoma. However, histological examination of the small polyp in the transverse colon revealed unusual findings. HE-stained sections showed non-encapsulated localized deposits of homogenous, fine granular or fibrillar weakly eosinophilic materials with interspersed fibroblasts in the submucosa and in some parts of the lower portion of lamina propria mucosae (Fig. 2A, 2B). Muscularis mucosae were absent. A few small vessels, and some collagen fibers were also sparsely intermingled with the eosinophilic materials. The epithelial components of the mucosa showed no remarkable change. Lamina propria mucosae contained slight infiltrates of plasma cells, lymphocytes and a few neutrophils.

EVG stained the nodular eosinophilic deposits dark gray in the amorphous area and deep black in the fibrillar area, with a gradual transition between the two areas (Fig. 3A, 3B). These elastophilic materials were mostly digested by elastase. Intertwining fibers intensely stained with EVG were identified especially around vessels and in lamina propria mucosae. The elastophilic materials showed no clearly organized structure as observed in elastofibromas. The materials were also stained light brown in the homogenous area and dark brown in the fibrillar area with Orcein's stain for elastic fibers. They were negative for PAS reaction and alcian blue staining.

Using dylon stain, the presence of amyloid deposits was ruled out. Examination of serial sections stained with HE and EVG excluded the presence of other lesions such as leiomyoma, hemangioma, hamartoma or granular cell tumor.

Control materials had no eosinophilic deposit which stained black with EVG

Judging from these results, we diagnosed this case as pre-elastofibroma-like lesion, which appeared as a colonic polyp.

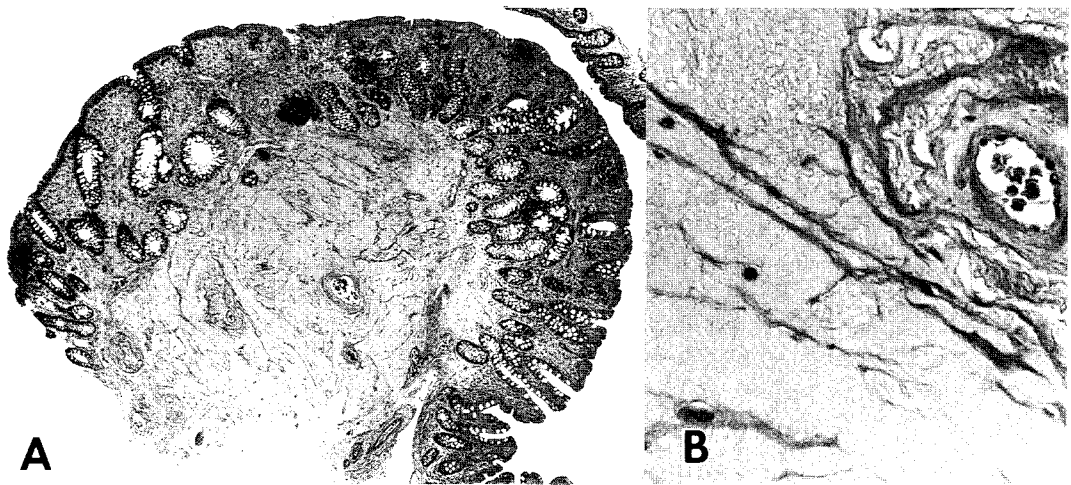


Fig. 2 A; A low-power view of the small colonic polyp showing submucosal eosinophilic deposits. B: A high-power view of the deposits, which mainly consisted of homogenous or fibrillar materials with interspersed fibroblasts. HE A: $\times 35$, B: $\times 350$

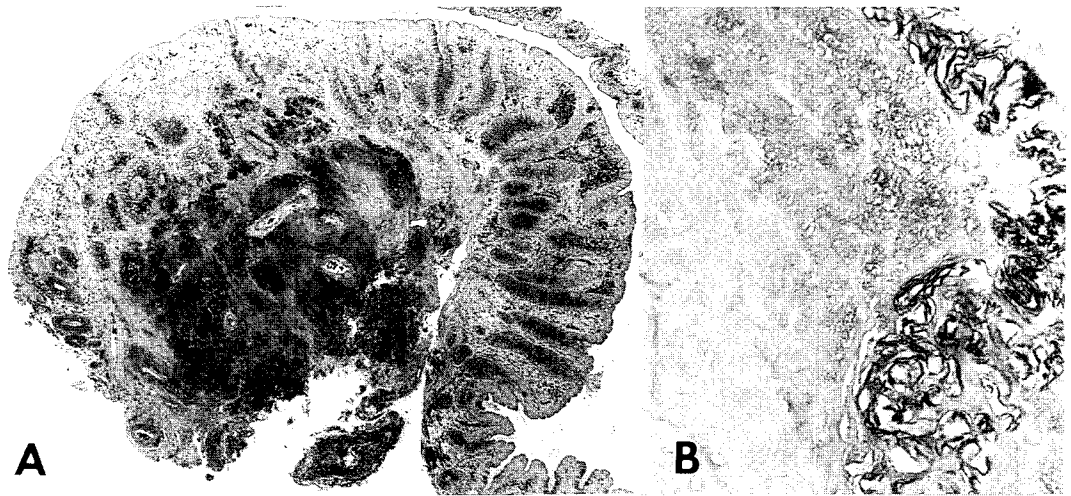


Fig. 3 A; A low-power view of the colonic polyp revealing submucosal elastinophilic materials with elastic stain. B; A high power view of elastinophilic deposits showing transition from homogenous (less dense) materials to intertwining dense elastic fibers. EVG A: $\times 35$, B: $\times 350$

Discussion

Nodular and elastophilic deposits associated with fibroblastic cells in a small colonic polyp have not, to our knowledge, been described yet, although elastosis associated with colon carcinoma is known (5). Colonic polyps which develop from non-epithelial lesions are usually benign lymphoid polyps, submucosal lipomas, leiomyomas, ganglioneuromas or neurofibromas (6).

The peculiar stromal deposits of the small colonic polyp in the present study somewhat resembled pre-elastofibroma in the soft tissue near the scapula (1), amyloid deposits of the colon, and solar elastosis of the skin (4).

Pre-elastofibroma is classified at one end of the continuum of elastic-producing fibrous tumors. It is fibroproliferative lesion with abundant granular and often fibrillar, weakly eosinophilic deposits which stain less intensely with elastic stain than does mature elastin (1). Pre-elastofibromas show neither characteristic organized structures of elastophilic fibers nor ultrastructurally apparent progression from fibrillar material to mature elastic tissues, which are detected in the typical elastofibroma (1).

The elastophilic fibrillar materials observed in both elastofibromas and pre-elastofibromas are considered to be the products of active fibroblasts, and not of degenerated collagen (1, 3). It is also thought that elastofibroma is a true elastodysplasia, followed by excessive production of elastophilic materials, which is usually initiated by fibrosis and healing (10).

Occurrence of the elastofibromatous lesion is known in the stomach (2) or greater omentum (8) in association with or without elastofibroma dorsi, respectively.

The elastophilic nature of eosinophilic deposits in the present case was confirmed not only by elastic staining with EVG and Orcein's stain, but also by elastase digestion (7). The deposits of this polyp consisted mainly of homogenous or fine granular pre-elastin and inter-

mingled, twisted mature elastic fibers on occasion. Gradual transition from the former to the latter was observed, but organized structures characteristic of elastofibroma were not detected in this case. The stromal lesion of this colonic polyp contained more prominent eosinophilic deposits and fewer collagenous fibrous tissues than reported pre-elastofibromas (1).

There was no past history of colonic disease or elastofibroma dorsi, from which this peculiar lesion might have developed. Neither the histogenesis nor the cause of this stromal lesion is known, but it may be regarded as being within the continuum of elastin-producing tumors, probably a pre-elastofibroma.

A low power view of this small polyp gave us the first impression of its being a mucosal tag or excrescence, which are relatively common among small colon polyps (188/1046; 18 %) (9). This lesion also had histological features indicative of amyloid deposits of the colon. However, amyloid materials are more homogenous and positive with amyloid stain, and solar elastosis is basophilic and positive for alcian blue (4). Therefore, it is important to try elastic stain in order to confirm the elastophilic character of lesions, in which nodular eosinophilic fibrillar deposits of the colon are observed with no evidence of amyloid deposition.

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