International Journal of Colorectal Disease (2019) 34:1801–1803
https://doi.org/10.1007/s00384-019-03361-8

CASE REPORT

Osseous metaplasia in a recurrent symptomatic rectal lesion: a rare occurrence

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Accepted: 25 July 2019 / Published online: 28 August 2019

Abstract

Background Osseous metaplasia of the gastrointestinal tract is exceedingly rare. Associated with colorectal cancer, juvenile polyps , and inflammatory polyps, the exact etiology is still unknown. We present a case report on a young male with recurrent rectal polyps and rectal bleeding. Histopathology revealed an inflammatory polyp with focal osseous metaplasia.

Case presentation A 30-year-old male without significant past medical history but with a significant smoking history of 10 pack-years. He initially presented to the colorectal clinic approximately 8 months prior with complaints of rectal pain and bleeding. The patient subsequently underwent colonoscopy which demonstrated a friable 2-cm mass at the dentate line. He was taken to the operating room for a transanal mass excision which, at the time, pathologic examination demonstrated a hyperplastic polyp with no evidence of dysplasia or malignancy. The patient returned to the clinic 8 months later with similar complaints of rectal bleeding. He denied any constitutional symptoms, weight loss, abdominal pain, diarrhea, or constipation. Upon rectal examination, he was noted to have a soft palpable mass blood on digital rectal exam. The patient was taken for repeat colonoscopy and was found to have a recurrent mass at the dentate line. Given the recurrent mass, the patient was taken for a re-excision in the operating room. Histopathology returned showing a 1.8 × 1.5 × 1.5 cm inflammatory polyp with focal osseous metaplasia.

Conclusion Osseous metaplasia of the gastrointestinal tract is a rare occurrence that can be associated with benign polyps or malignancy. Certain markers have been shown to be linked to this process and polypectomy remains the gold standard of treatment; however, further research is warranted.

Keywords Osseous metaplasia · Rectal polyp · Ectopic ossification · Recurrent lesion

Introduction

Osseous metaplasia of the gastrointestinal tract is a rare occurrence with a prevalence of less than 1% reported in the literature. These ectopic ossified lesions have been reported in cases of juvenile polyps, Peutz-Jegher's syndrome, inflammatory polyps, and colon cancer [1]. The etiology of this process is still poorly understood. We present the case of a patient with symptomatic osseous metaplasia in a recurrent rectal lesion.

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Case report

Our patient is a 30-year-old male without significant past medical history but with a significant smoking history of 10 pack years. He initially presented to the colorectal clinic approximately 8 months prior with complaints of rectal pain and bleeding. The patient subsequently underwent a colonoscopy which demonstrated a friable 2-cm mass at the dentate line. He was taken to the operating room for a transanal mass excision which, at the time, pathologic examination demonstrated a hyperplastic polyp with no evidence of dysplasia or malignancy. The patient returned to the clinic 8 months later with similar complaints of rectal bleeding. He denied any constitutional symptoms, weight loss, abdominal pain, diarrhea, or constipation. Upon rectal examination, he was noted to have soft palpable mass blood on digital rectal exam. The patient was taken for repeat colonoscopy and was found to have a recur-

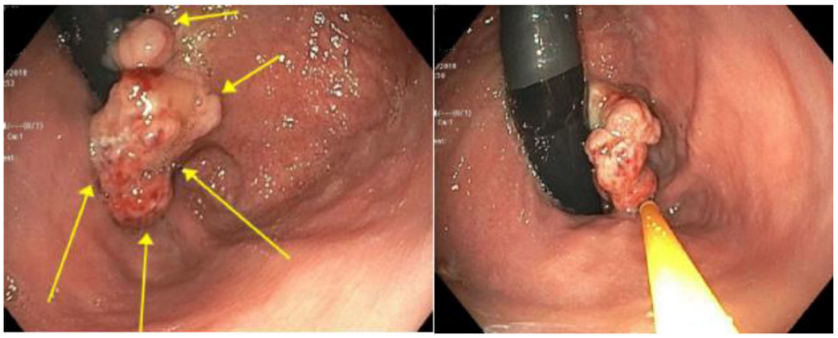

Fig. 1 Recurrent mass at the dentate line found after colonoscopy

rent mass at the dentate line (Fig. 1). Given the recurrent mass, the patient was taken for a re-excision in the operating room. Histopathology returned showing an 1.8 × 1.5 × 1.5 cm inflammatory polyp with focal osseous metaplasia (Fig. 2). Prior to the follow-up visit, the patient returned to his home country and was lost to follow-up.

Discussion

Ossification outside of the skeletal system is a rare entity. These lesions can be found in various systems, including, infrequently, the gastrointestinal tract. Approximately 0.4% of these occur in the rectum, the most common gastrointestinal manifestation [1]. They have the potential to most commonly present as constipation or rectal bleeding or can be asymptomatic and found incidentally.

GI manifestations were first reported by Duke et al. in 1939 mentioning 4 separate cases all related to rectal carcinomas or recurrences [2]. The exact pathophysiology of osseous metaplasia in benign and malignant transformation of these polyps is poorly understood. Local tissue damage, inflammation, and cellular repair may induce the ossification process leading to the transformation of mesenchymal cells into osteoblasts [3]. These cells synthesize ground substance and collagen thereby promoting bone formation. Randall et al. suggested the release of various ossification factors, including alkaline

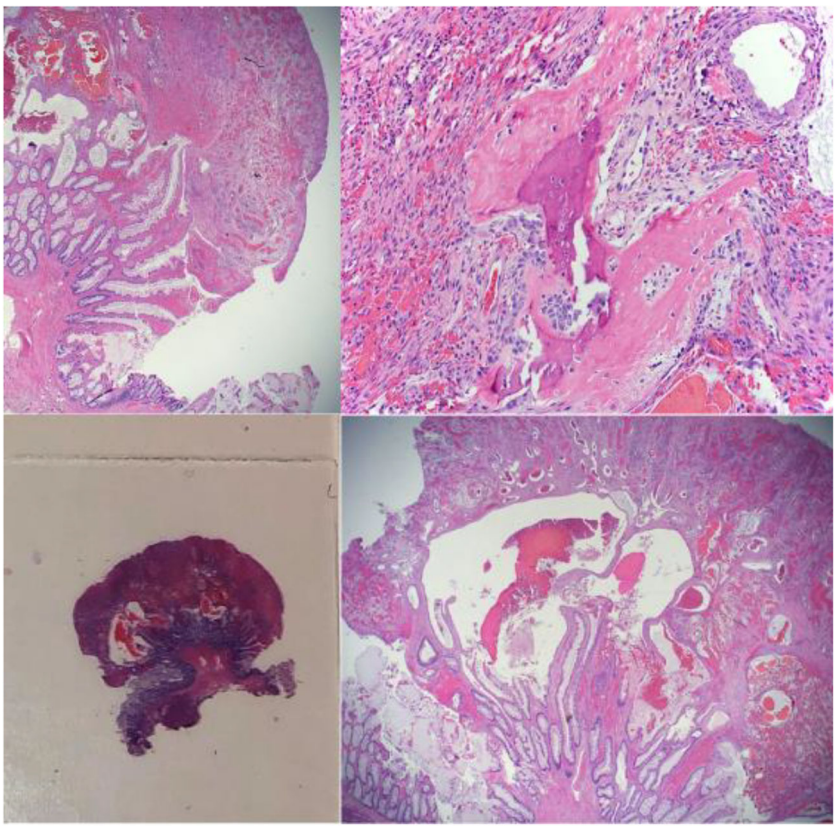

Fig. 2 Histopathology showing an 1.8 × 1.5 × 1.5 cm inflammatory polyp with focal osseous metaplasia

phosphatase, from metastatic colonic carcinoma which can promote this process, thereby causing these changes in malignant lesions [4].

Recent studies have shown expression of bone morphogenetic proteins (BMPs) which have a significant role in bone formation. These proteins, specifically BMP-2, BMP-4, BMP-5, and BMP-6, have been found within the cytoplasm of malignant cells strengthening this hypothesis. Immunohistochemistry often demonstrates an overexpression of BMP-2 in rectal adenocarcinoma suggesting the correlation between the osseous lesions and tumor lesions [2, 5].

Although osseous metaplasia within polyps may be associated with a malignant process, they are often benign. Definitive treatment is a polypectomy. Due to a paucity of cases, timing of repeat colonoscopy after these pathological findings remains a source of debate.

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