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Rectal Polyp with Osseous Metaplasia: A Case Report and Review of the Literature

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Abstract

An osseous metaplasia in colonic tissue is extremely rare. The current report presents a case of osseous metaplasia in a hamartomatous rectal polyp in a four-year-old boy, who presented with intermittent rectal bleeding. Though this condition has minimum adverse effects on the prognosis of the patient, awareness of this rare histological variant is of utmost importance.

Keywords: Polyp, Metaplasia, Histopathology

1. Introduction

Metaplasia is a reversible transformation of one type of differentiated cell to another type of differentiated cell. The occurrence of osseous metaplasia is rare in the gastrointestinal tract. An osseous metaplasia is associated with both benign and malignant diseases. The exact pathogenesis for this condition is not known. The current report presents a case of rectal hamartomatous polyp with incidental finding of the osseous metaplasia along with the review of literature on this unique condition.

2. Case Presentation

A four-year-old boy was presented to the department of gastroenterology with history of intermittent bleeding per rectum since last one year. He never required blood transfusion. There was no history of abdominal pain, fever, vomiting, and abdominal distension, or any mass coming out of the anus. Physical examination was unremarkable. Complete blood count, liver, and kidney function tests were within normal limits. Coagulation profile, including PT/INR, was in the normal range. The patient underwent colonoscopy preparation by ingesting polyethylene glycol along with water. Colonoscopy was done under conscious sedation. It revealed 1.5 cm × 1 cm polyp with a short stalk at 5 cm from the anal verge (Figure 1). Polypectomy was done and the entire rectal polyp was sent for histological examination. Sections from the polyp showed partly ulcerated and partly covered columnar epithelium. Fibrocollagenous core with dense inflammatory infiltrate, comprised of lymphocytes, plasma cells, and at times pigment laden macrophages with osseous metaplasia, was seen. The impression of hamartomatous rectal polyp with osseous metaplasia was indicated (Figure 2A and 2B). The post-polypectomy patient had a normal uncomplicated course at the ward.

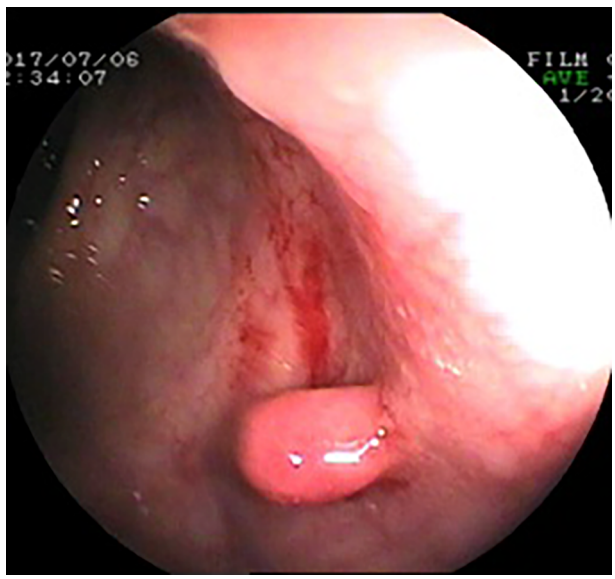

Figure 1. Rectal polyp on colonoscopy

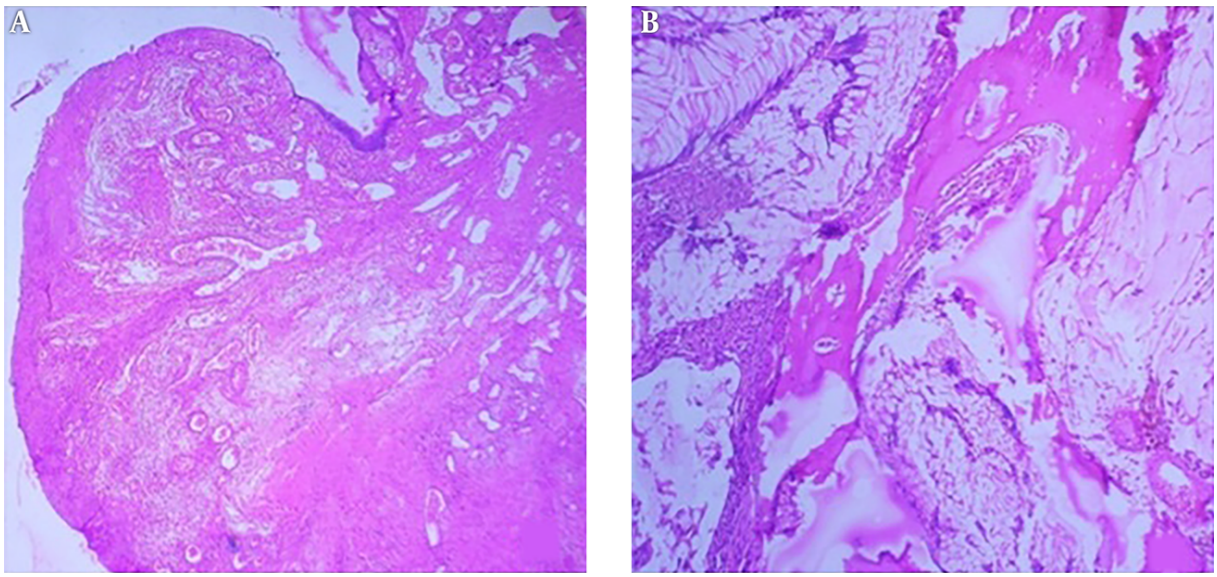

Figure 2. A, H&E staining showing hamartomatous polyp; B, Osseous metaplasia in polyp

3. Discussion

The formation of bone, apart from the bony skeleton, can occur pathologically in many situations. It may sometimes be of clinical significance as in generalized myositis ossificans, however, at times it may not have any effect on the prognosis of the patient in many benign conditions.

Osseous metaplasia, which occurs in colonic polyp, is extremely rare in the literature (1).

Pathogenesis of osseous metaplasia still remains unknown. Formation of bone is a rare occurrence in the gastrointestinal tract. This type of osseous metaplasia is mostly associated with mucin-producing tumours of the appendix and large intestine (2).

Stromal ossification in the gastrointestinal malignancies results from tumor production of bone morphogenetic protein (BMP) (3). Although the exact etiology for heterotrophic bone formation in gastrointestinal cancers is not known, the postulated reasons may be extracellular mucin deposition, hypervascularity, active inflammation and necrosis, and pre-existing calcification.

The literature also suggests the possibility of osseous metaplasia resulting because of the ability of fibroblasts to convert to osteoblasts (4).

Juvenile polyps are hamartomatous polyps. In a previously published review of the literature by Odum et al. seventeen cases of osseous metaplasia in colonic polyps have already been reported. Odum et al. also published a case of osseous metaplasia in an inflammatory polyp of the rectum (5).

Cavazza et al. described osseous metaplasia in a tubulovillous adenoma (6).

Occurrence of osseous metaplasia mostly occurs in adenomatous polyps. Ten cases of osseous metaplasia have been reported in benign colonic polyps, out of which four were reported in inflammatory polyps (7). An osseous metaplasia is often an incidental finding, which barely has clinical and prognostic significance.

In the present case of juvenile polyp, the pathogenesis could be the result of a metaplastic conversion of the fibroblasts to osteoblasts.

3.1. Conclusion

Osseous metaplasia is a prominent and unique histological finding. This was a mere incidental histological finding in the current case of hamartomatous polyp and does not have any clinical or prognostic significance. The pathogenesis of osseous metaplasia in gastrointestinal tract polyps and tumors is unclear, yet rarity of this occurrence makes it a notifiable condition.

Footnotes

Conflict of Interests: No conflict of interest.

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Informed Consent: Consent was obtained from the patient's parents as patient was four years old.

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