



Case Report

## Juvenile Rectal Polyp with Osseous Metaplasia - A Rare Case with Review of Literature

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### ABSTRACT

Heterotopic bone formation (osseous metaplasia) is rarely detected in the gastrointestinal tract. We report a unique case of juvenile rectal polyp occurring in a 5 year old female child which showed osseous metaplasia. This phenomenon is detected at histology but has no clinical significance. Literature with regard to the pathogenesis of osseous metaplasia is reviewed.

**Key Words:** Juvenile rectal polyp; osseous metaplasia; mucin

### INTRODUCTION

Osseous metaplasia occurring in various types of polyps of the stomach, colon & rectum etc has been described in literature. It is definitely a striking morphological feature but has not been shown to have any clinical significance. (1,2)

We report a case of juvenile rectal polyp occurring in a 5 year old female child with this rare histological feature.

**CASE REPORT:** A 5 year old female child presented with complaints of bleeding per rectum for the last 9 months. Colonoscopic examination revealed a solitary polypoid lesion in the upper rectum measuring 1X0.5cm in diameter. The polyp was excised. Gross examination showed single

pale brown mucosa covered polypoid structure measuring 1X0.5X1cm with a stalk measuring 0.3cms.was seen. It was submitted in total for histopathological examination.

**MICROSCOPY:** A polypoid lesion with extensive surface ulceration was seen (Fig.1a). There were remnant areas showing hyperplastic rectal mucosa with underlying lamina propria showing oedema, irregular cystically dilated glands (Fig.1b). Some showed inspissated luminal mucin. Osseous metaplasia of the connective tissue core was seen composed of osteoid and bone formation. There were also areas of extravasated mucin and mixed inflammatory cell infiltrate (Fig.1c & Fig.1d).

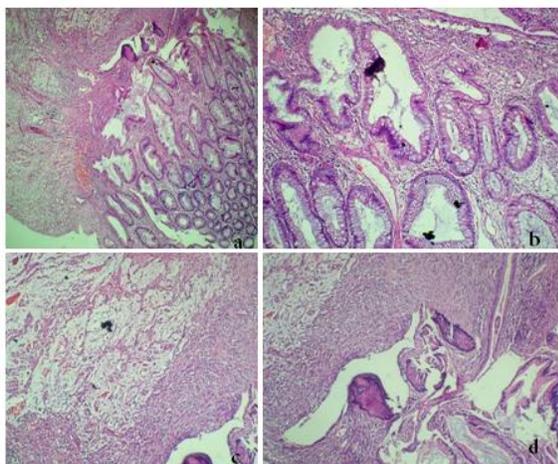


Fig.1a. Polyp lined by rectal mucosa with ulceration (Haematoxylin & Eosin X200)  
 Fig.1b. Cystically dilated glands with inspissated mucin (Haematoxylin & Eosin X400)  
 Fig.1c. Foci of mucin extravasation surrounded by granulation tissue (Haematoxylin & Eosin X400)  
 Fig.1d. Stroma of polyp showing osseous metaplasia (Haematoxylin & Eosin X400)

## DISCUSSION

Despite the interest in heterotopic ossification of GI polyps, as evinced by the abundant literature, its precise morphogenesis has remained obscure. Osseous metaplasia has been described in various types of polyps as well as in mucin-producing tumours in the stomach, colon etc. These include adenomatous, hyperplastic and hamartomatous polyps.<sup>(3,7)</sup> Multiple case reports are present in the literature (Table.1) which describes this morphological curiosity which has no clinical significance.

The present case illustrates a juvenile polyp with extensive surface ulceration, mixed inflammatory cell infiltrate and mucin extravasation along with calcified osteoid and bone formation. Similar cases were reported by Groisman et al<sup>(2)</sup> and Rashida et al.<sup>(1)</sup>

Various mechanisms have been suggested although the pathogenesis of osseous metaplasia still remains unknown. Osteogenic stimulation was considered to be a result of the inflammatory process.<sup>(7,8)</sup> Histologically, necrosis, inflammation, pre-existing calcification, increased vascularity, and extracellular mucin deposition are reported to be associated with heterotopic bone formation in tumors.<sup>(2,7,8)</sup> The tumor cells may secrete an unknown substance that stimulates bone formation. Histologically, both benign and malignant lesions with osseous metaplasia are commonly seen in the presence of mucin production and extravasation.<sup>(2,3)</sup> On the other hand, benign lesions with osseous metaplasia are often seen with a histological background of active chronic inflammation and/or ulceration.<sup>(4,5)</sup>

The pathogenesis could, therefore, be a reactive change stimulated by the repeated local trauma, or be a peculiar characteristic of the rectal mucosa itself. Clinically, the presence of the metaplastic bone seems to be innocuous. This is the 3<sup>rd</sup> reported case of juvenile polyp showing metaplastic ossification.

**Table.1.Summary of reported cases of benign colorectal polyps with metaplastic ossification**

Case	Author	Year	Age	Sex	Size mm	Site	Histology	Inflammation	
1	Sperling	1981	25	M	10	Rectum	Inflammatory polyp	+	+
2	Castelli	1992	22	F	10	Rectum	Inflammatory polyp	+	-
3	Groisman	1994	67	M	18	Rectum	Tubulovillous adenoma	-	-
4	Groisman	1994	3	F	20	Rectum	Juvenile polyp	+	+
5	Cavazza	1996	NI	NI	NI	NI	Tubulovillous adenoma	NI	NI
6	McPherson	1999	73	M	20	Cecum	Tubulovillous adenoma	-	-

7	Rothstein	2000	NI	NI	25	Sigmoid colon	Tubular adenoma	-	-
8	Al-daraji	2005	85	F	15	Sigmoid colon	Tubular adenoma	-	-
9	White	2008	63	F	NI	Transverse colon	Tubular adenoma	+	-
10	Yasuhiro Oono	2009	39	M	12	Rectum	Inflammatory polyp	+	-
11	Rashida Ahmed,	2012	17	M	18	Rectum	Juvenile retention polyp	+	-
12	Present case	2012	5	F	15	Rectum	Juvenile retention polyp	+	+

## CONCLUSION

In conclusion, we have reported a rare case of heterotopic bone formation in a rectal juvenile retention polyp where persistent inflammation and long duration of lesion which might have lead to dystrophic calcification followed by osseous metaplasia.

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