# Osseous Metaplasia in a Colonic Polyp

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## ❖ Introduction:

- Osseous metaplasia is a heterotopic bone formation that has been described in a wide variety of tissue types, both neoplastic and inflammatory lesions.
- However, its occurrence in colorectal cancer is exceedingly rare.
- Bone formation in a rectal polyp was first described in 1981.
- We describe a rare case of osseous metaplasia in rectal mucosa with a nearby hyperplastic polyp.

Figure 1a. 7 mm rectal polyp (yellow arrow) seen on colonoscopy and subsequently removed by cold snare technique.

## ❖ Case Description:

- A 36-year-old male presented to the clinic complaining of diarrhea and hematochezia that had been ongoing for several years.
- He had a history of infrequent NSAID use but denied anticoagulant or antiplatelet use.
- He noticed hematochezia several times a day.
- He did not notice any rectal mass, swelling, or pain.
- He denied any abdominal pain, vomiting, or melena.
- The patient underwent a colonoscopy, revealing a 7 mm sessile polyp in the rectum (Fig 1a).
- The polyp was removed by a cold snare and was sent for histopathological evaluation
- Histopathology of the hyperplastic polyp demonstrated osseous metaplasia with foreign body reaction (Fig 1b).

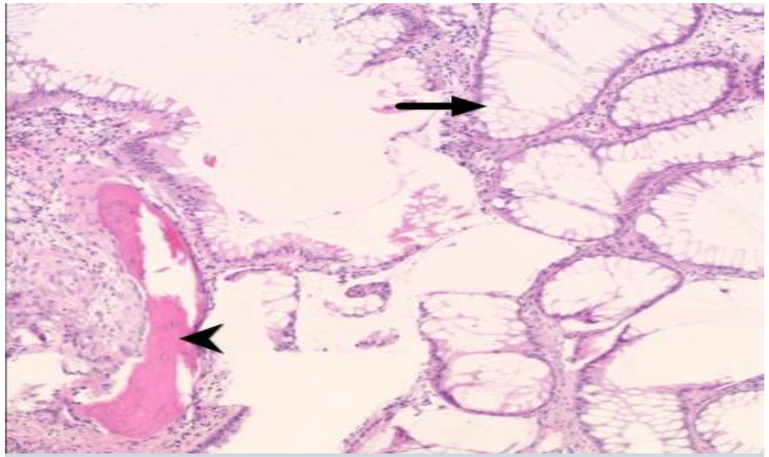

Figure 1b. Histology specimen (x80 magnification) obtained from a rectal mucosa biopsy demonstrating osseous metaplasia (Arrowhead) with benign foreign body reaction. Figure also demonstrates the osseous metaplasia surrounded by normal colonic mucosa and crypts (Arrow).

## ❖ Discussion:

- Osseous metaplasia of the gastrointestinal tract is an exceedingly rare phenomenon with a prevalence of less than 1%, with osseous metaplasia of the rectum accounting for 0.4% of cases. The pathogenesis is still unclear.
- Osseous metaplasia secondary to a malignant lesion has been hypothesized to be due to the presence of bone morphogenetic protein (BMP), which belongs to the TGFβ family.
- The underlying mechanism seems to be the recruitment of undifferentiated stromal mesenchymal cells into osteoprogenitor cells or fibroblasts, a phenomenon termed epithelial-mesenchymal transformation.
- An alternative mechanism proposed is the increased expression of osteocalcin and upregulation of type-1 collagen and osteonectin, markers of bone matrix synthesis
- Multiple theories exist regarding the development of metaplasia in malignant lesions. However, benign lesions have only been linked with chronic inflammation, as described in our case.
- Given the rarity of this condition, no large trials have been conducted to establish clear guidelines on surveillance of benign or malignant masses with osseous metaplasia. Therefore, the prognosis in metastatic lesions remains unclear.