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Heterotopic Mesenteric Ossification Presenting as a Pseudotumour Causing Intestinal Obstruction: A Case Presentation.

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ABSTRACT

Mesenteric ossification is an uncommon reactive condition that usually follows trauma or infection to the intra-abdominal structures. Here we report a case of rapidly occurring heterotopic mesenteric ossification (HMO) following Laparotomy for a ruptured gangrenous appendicitis.

Key Words: Intestinal obstruction, mesenteric ossification

INTRODUCTION

Heterotopic mesenteric ossification is the formation of trabecular bone outside the skeletal system and in this context the mesentery. It is an uncommon entity, first described by Riedel in 1883 as a complication after spinal cord injury.^{1,2} The spectrum of clinical presentation ranging from Minute foci of ossification to large clinically significant deposits causing intestinal obstruction and even presenting as tumour of the gut. Heterotopic mesenteric ossification is a metaplastic process that usually follows trauma and infections. Heterotopic.

Ossification can be recurrent and should not be misinterpreted for cancer³ Rarely lesions occur intra-abdominally, with the most common location being in the mesentery.

Generally, these patients are male, middle aged and have a history of abdominal trauma and/or surgeries and present with bowel obstruction⁴ our index case has many of these clinical settings.

CASE PRESENTATION

We present Mr. F. O. a 45years old man who presented with complaints of abdominal pain, vomiting and fever all of one duration. Clinical evaluation confirmed a diagnosis of Acute Appendicitis. Patient had appendectomy done the following day. Intra operative findings revealed incarcerated ceacum tethered by severe adhesions. The proximal part of the appendix was free while the distal part was gangrenous and ruptured with pockets of pus and fecal matter walled off by the omentum.

Adhesiolysis was done to deliver the ceacum and free the appendix. Appendectomy was done and post

operative condition was satisfactory. Patient was placed on intravenous antibiotics and analgesics, he made good clinical recovery and was discharged on oral antibiotics and analgesics seven days post – op.

He however presented 2days after discharged with complaints of severe colicky abdominal pains and later started vomiting. An abdominal ultra sound scan done showed increased bowel gas pattern. An impression of partial intestinal obstruction secondary to bands and adhesions was entertained. He was initially managed conservatively for 6 days without any clinical improvement as he was non tolerant to Nasogastric tube which necessitated an exploratory Laparotomy for intestinal obstruction. At surgery, a right ceacal mass dense and hard with adhesions and loops of intestine was seen. The mass was mobilized with difficulty and a right hemicolectomy done with end to end transverse anastomosis done and tissue sent for histopathologic analysis. Post operatively, he vomited and bowel sounds were slow to return. He was commenced orally by the 11th day post – op. He then made progressive clinical improvement and was discharged home by the 20th day post – op.

HISTOPATHOLOGIC ANALYSIS

Tissue specimen received in 10% neutral buffered formalin consisted of a ceacal loop of bowel grossly distorted by a thick mass of hard tissue. It is 45cm in length, 15 cm from one of the resection margins. The omentum around it appears necrotic. It was gritty to cut and cut section reveals a partial occlusion from the serosal layer towards the lumen. Blocks were taken from the resection margins, hard mass omentum, hard mass, lymph nodes and other segments of gut.

Microscopic review shows inflammation of the

omentum as evidenced by numerous lipophages and mononuclear inflammatory cells, also seen were dense calcific deposits of mineralized bone in the omentum and muscular layer of the intestine. The mucosa however appeared unremarkable a diagnosis of mesenteric ossification was made.

See below the gross and microscopic pictures.



Figure 1: Gross picture of the resected segment of bowel

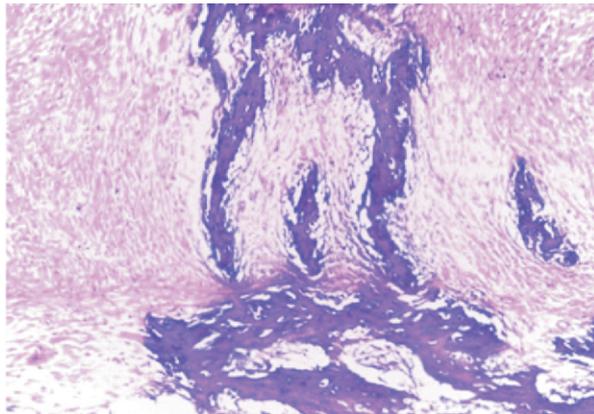


Figure 2: Hematoxylin and Eosin section showing dense trabecular bone formation in the mesentery

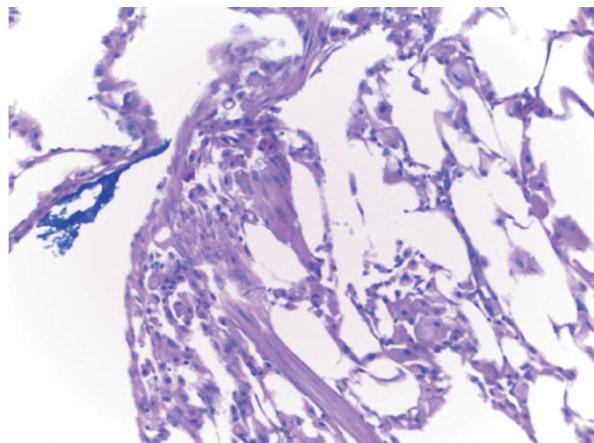


Figure 3: Hematoxylin and Eosin section showing of the mesentery showing numerous lipophages and lymphocytic infiltrates

DISCUSSION

Heterotopic mesenteric ossification is a rare benign reactive condition of abnormal bone formation in soft tissue and may be broadly subdivided into traumatic, neurogenic and genetic¹. HMO occurs in mid to late adulthood⁵, our index case also falling within this age group. There is a strong male predominance and age distribution^{1,2,3} as in our index case. The reasons for this increased male incidence are still not well established.

There are two postulated theories as to this reactive bone formation; first, it is believed that bone formation is developed from implantation of small particles containing osteogenic cells from perichondrium or periosteum of pubic symphysis or sternum or rarely other bone that are incubated during laparotomy or trauma. The second theory postulates that stem cells differentiated to mesoblasts and also erroneously to osteoblasts or chondroblasts due to local injury or infectious inflammatory stimuli^{6,7}. In our case, we believe that HMO may have occurred following the later theory of infection because there was initially a ruptured gangrenous appendix with extensive peritoneal inflammation as evidenced by numerous inflammatory infiltrate of the mesentery. It is known that heterotopic ossification is determined by both systemic and local tissue changes primarily characterized by inflammation, cell death and up regulation of mineralization growth factors. Both inflammation and cell death can result in local alterations in PH and matrix that promotes the deposition of calcium. Growth factor such as bone morphogenic protein (BMP) stimulate mineralization and bone formation via their effect on osteoblasts progenitor cells¹⁰

HMO usually develops rapidly between 1 to 3 weeks following the stimuli⁸, in our index case, presentation was within a week with severe colicky abdominal pains, nausea, vomiting and abdominal distention. This may not be unconnected with the extensive gangrene and resultant inflammation of the mesentery at the time of initial surgery for the ruptured appendix^{6,7}.

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Consent: Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

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