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Osteoid Metaplasia Of The Rectus Muscle : A Case Repport

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Abstract:
Osteoid metaplasi or Heterotopic ossification, characterized by bone growth within soft tissues, is often benign and post-traumatic, notably following surgical interventions. A case involving a 67-year-old man, multi-operated for intra-abdominal neoplasia, revealed a painful calcified tumor in the anterior abdominal wall, requiring surgical resection. Analysis demonstrated an ossifying lesion with bone, adipose tissue, and muscle fibers. Typically, this condition does not necessitate treatment, except in cases of severe pain where resection may be considered. Malignant degeneration is rare. This case highlights the necessity for a personalized approach to address this rare condition, emphasizing the importance of symptom management and lesion localization.

Keywords: *Osteoid metaplasia, Heterotopic ossification, Rectus abdominis muscle*.

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I. Introduction:

Heterotopic ossification primarily pertains to orthopedic pathology dominated by osteoarthropathy. It is rare in abdominal surgery (1, 2). This refers to the ossification of a benign abdominal scar of unknown etiology. The therapeutic approach to this condition is not standardized. We report two cases following a midline abdominal incision to highlight this form of operative morbidity and discuss its etiopathogenesis.

II. Patient and Observation:

This is a clinical case involving a 67-year-old patient who underwent laparotomy for intra-abdominal neoplasia at an unusual site, with post-operative complications necessitating additional surgical interventions. One year later, the patient experienced abdominal pain associated with the discovery of a tender mass palpable in the abdominal wall. CT imaging revealed the presence of dense material with a sinuous trajectory involving the anterior abdominal wall (Figure 1-3). Faced with this situation, a surgical decision was made, and during exploration, a calcified tumor was identified in the abdominal wall. Complete resection of the lesion was performed (Figure 4,5), and the patient recovered well without major post-operative complications. Histopathological examination of the lesion revealed an ossifying structure characterized by intertwined bone trabeculae with areas of adipose tissue and striated muscle fibers. The patient was followed up for three years, with no observed recurrence.

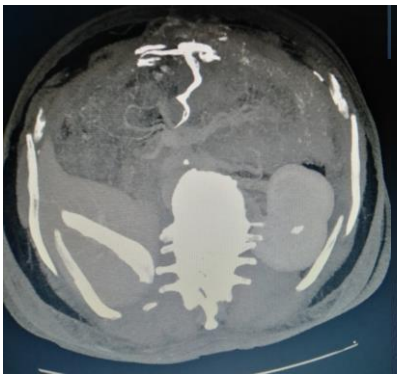

Figure 1

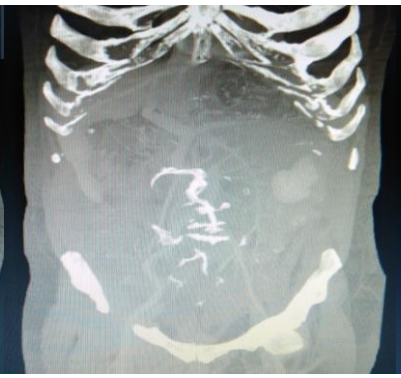

Figure 2

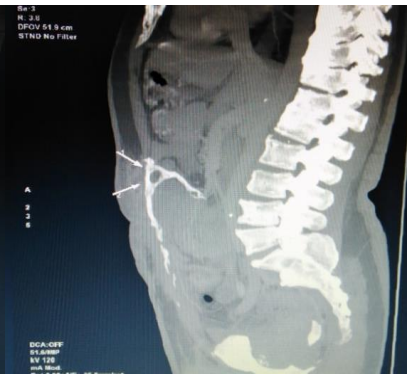

Figure 3

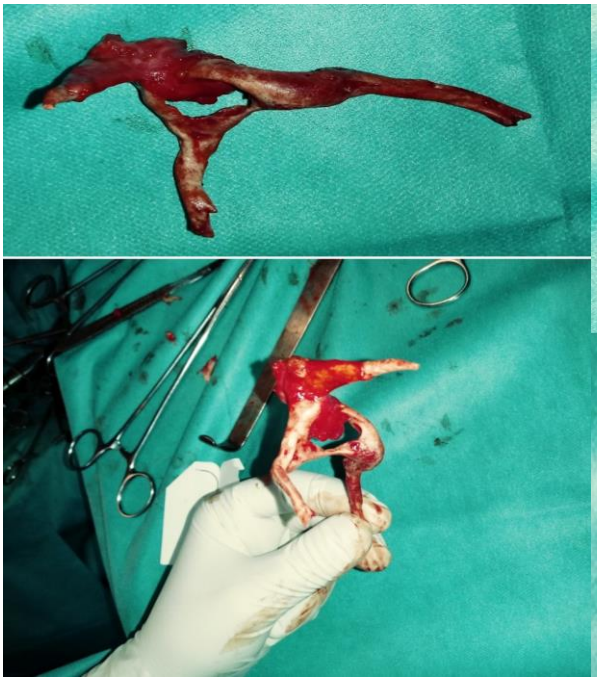

Figure 4

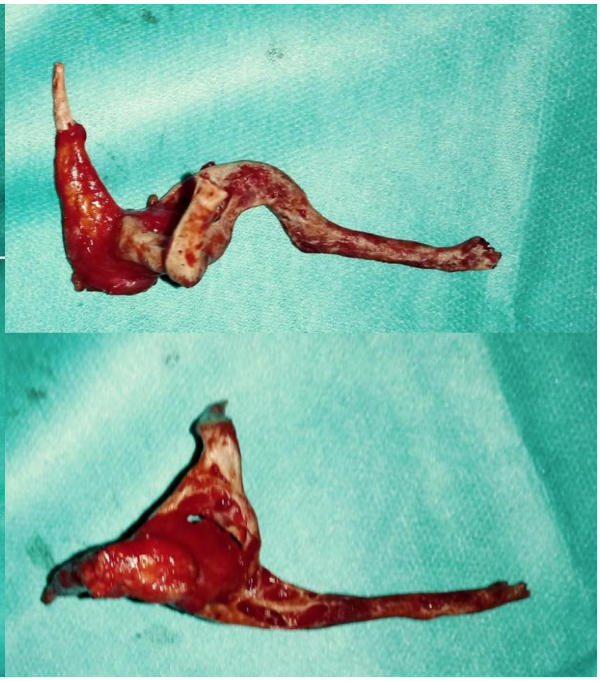

Figure 5

III. Discussion:

Heterotopic ossification, a process involving the formation of bone deposits outside the normal skeleton, poses a medical challenge due to its varied presentation and poorly understood origin. This condition can start subtly as small asymptomatic lesions and progress to larger, sometimes debilitating, lesions. Despite medical advancements, the exact pathophysiology remains enigmatic. While trauma seems to play a predominant role, particularly in cases of post-surgical ossifications, the cause-effect relationship isn't entirely elucidated (3). Hypotheses, such as the potential role of post-operative hematoma, persist without formal evidence. The etiology of heterotopic ossification within soft tissues remains unknown. Two etiopathogenic mechanisms are suggested (4). The first involves the grafting of osteoblastic cells within the granulation tissue, facilitated by proximity to osseous tissue. This theory is supported by the frequency of heterotopic calcifications when incisions are near bony structures such as the xyphoid or pubis, as seen in our patient with a paraxyphoid incision. The second mechanism implicates osteoblastic metaplasia of mesenchymal cells within rapidly renewing tissue. This metaplasia can be triggered by hormonal stimuli (coma), repeated mechanical trauma, or metabolic dysfunction. Diagnostic tools, notably CT scans, prove more sensitive than radiography in early detection of these bony deposits, enabling early intervention and heightened monitoring, thereby reducing the risks of subsequent complications.

While malignant transformation is rare, continuous surveillance remains essential. Generally, a conservative approach is favored, except in particularly painful forms where complete surgical resection is necessary to prevent recurrence and enhance the patient's quality of life. Previously, the treatment for this condition predominantly involved removing median calcification, sometimes coupled with post-operative radiotherapy (2). However, medical management is increasingly crucial in current therapeutic options, centered around Etidronate Disodium (EHDP). This molecule inhibits the transformation of calcium and phosphate ions into hydroxyapatite crystals, the primary mineral component of bone structure. It also impedes the maturation of osteoblasts into osteocytes (1). Some authors (5) recommend prophylactic EHDP use in at-risk surgical patients, especially those who experienced coma, physical trauma, or are manual laborers. The recommended dose is 20 mg/kg/day (6). In-depth study of heterotopic ossification emphasizes the importance of research to better comprehend underlying mechanisms and establish effective management strategies. This would enhance the quality of care for individuals with this rare yet potentially disabling condition.

IV. Conclusion:

Heterotopic ossification represents abnormal bone growth outside the usual skeleton. These formations are generally considered benign and rare, often associated with prior traumas. In most cases, these lesions exhibit no notable symptoms and might be incidentally discovered during medical imaging exams conducted for other reasons. Surgical approach aims at complete lesion removal to minimize recurrence risks and symptom

exacerbation. However, this decision is often made on a case-by-case basis, carefully weighing potential benefits against the risks associated with surgical intervention.

Conflicts of interest : The authors declare no conflicts of interest.

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