Heterotopic Ossification In Previously Operated Fracture

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Abstract: Background: We are presenting a case of heterotopic ossification of both sides thigh region in pre-operated fracture of Right femur trochanter. It is theorized that mesenchymal stem cells are introduced into soft tissue through trauma and then differentiate into osteoblasts, eventually leading to unwanted bone formation. This case demonstrates the heterogeneity of the condition (long bone fracture) that may predispose individuals to the development of heterotopic ossification and highlight the importance of considering such a diagnosis in order to achieve early treatment so as to prevent functional loss and progression that may require more aggressive intervention. [Shah D Natl J Integr Res Med, 2023; 14(1): 37-38, Published on Dated: 20/01/2023]

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Introduction: Heterotopic ossification (HO) is the presence of bone in soft tissue where bone normally does not exist. The acquired form of HO most frequently is seen with musculoskeletal trauma, spinal cord injury, or central nervous system injury (e.g.: stroke). All the clinical features like fever, swelling, erythema, and occasional joint tenderness seen in early HO may be difficult to distinguish from cellulitis, osteomyelitis, or thrombophlebitis; but the advanced imagining techniques have made it easy.

As treatment or prophylaxis for HO, a nonsteroidal anti-inflammatory drug (such as indomethacin), a diphosphonate or local radiation or physical therapy is recommended. In addition, surgical resection of HO is used to preserve joint mobility; however, HO is likely to recur and possibly progress if resection is undertaken before the lesion has become mature. With a view toward avoiding recurrent HO and other operative complications, serial quantitative bone scans are used as an aid to time surgical intervention[1].

Case Description: A male 55-years presented to hospital with complaints of stiffness and occasional mid-thigh pain on right side. He had undergone for surgery for fracture of Right femur-trochanter-5 years back. On the first examination vitals were normal. The musculoskeletal and neurological examinations were also normal. Following investigations were carried out: Calcium: 9.3 mg/dl, Phosphorous: 4.1 mg/dl, Alkaline phosphatase: 106 IU/L. Other investigations like haematological parameters, liver function test, renal function tests were normal.

X-Ray: Right thigh and left thigh suggest-heterotopic ossificans. The patient and his relatives were explained about this condition that there is formation of bone in extra skeletal soft tissue where it does not exist normally, it's aetiology (trauma, neurogenic), risk factors (older age, bone fractures), and about the medical, physical and surgical treatment options, and its chances of recurrence after surgery. Then early treatment with passive range of motion exercises was advised along with Tablet. Indomethacin 75mg and Bisphosphonate daily for 3 weeks and was called for follow up.

Figure 1: Radiograph Showing Heterotrophic Ossification Of Right Thigh

Figure 2: Radiograph Showing Heterotrophic Ossification Of Left Thigh

Discussion: Here, with this case would like to emphasize on the controversial pathway of bone formation in HO. The nongenetic HO can form through both endochondral and intramembranous ossification processes, and a spectrum exists within a given lesion from "endochondral-predominant" HO in some cases to "intramembranous-predominant" HO in others.

Classic intramuscular HO (termed myositis ossificans), which is biopsied early in its evolution, almost always shows intramembranous rather than endochondral bone[2]. There has also be observed in study analysing the prophylactic effect of NSAIDs for HO after total arthroplasty, and was noticed that after total hip arthroplasty (THA), between 2% and 7% of patients develop extensive periarticular HO.

In fact, when all severities of ossification are included, HO may occur at up to 40% post arthroplasty. Patients with metabolic bone disorders are at risk of developing HO post arthroplasty. Certain surgical factors also predispose to HO post arthroplasty, including extended ischemia time, use of cemented implants, and type of approach[2].

Thus, these precarious and uncertain effects are more challenging and must have to be thought in advance. Taking care of an operated limb has an effect on non-operated limb due to some compensatory mechanisms and we have to think in advance and try to preserve it and avoid new injuries or conditions[3].

Conclusion: Heterotopic ossification, a pathologic process of formation of bone in muscles and surrounding joints, with different etiologies, tissue locations, mechanisms of ossification, and putative cell types of origin, difficult to predict which patients and what injury types will progress to HO formation. The diagnosis of complicated or rare disorders like heterotopic ossification requires not only astute patient-centered approach from physicians but an interprofessional team of healthcare workers who can guide the patients from their first clinic visit until achieving symptomatic control.

Any lapses in inter-professional communication may lead to mistakes, lethal consequences leading to mortality and morbidity. Complete excision is not always practical or possible, incomplete resection of the HO is associated with recurrence.

HO does not always respect natural anatomic barriers and may encase major neurovascular structures. Hope that this case will add reminder to add heterotopic ossification as differential diagnosis wherever fever, joint pain and stiffness occur in hospital settings[3].

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