CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.2547761

Available online at: http://www.iajps.com ***A Case Report***

A CASE REPORT ON "TIO" (TUMOUR INDUCED OSTEOMALACIA) PRESENTING MUSCULAR WEAKNESS AND NON-SPECIFIC WEAKNESS

[1]Dr. Bushra Iftikhar, [2]Dr Faryad Hussain, [2]Dr. Muhammad Uzair

[1]Senior Demonstrator, Azra Naheed Medical College, Biochemistry Department, [2]Medical Officer, Sheikh Zayed Medical College Rahim Yar Khan.

Abstract:

Tumor-induced osteomalacia is a group of rare disorder that is triggered by an abnormal immune system to a cancerous tumour known as a neoplasm. It is symbolized by a twinge in bones, fissure of bones and weak physique. The main cause of this disorder is the greater serum altitude of fibroblast escalation factor 23. These are hormone amendable phosphate, and vitamin D. Various cancerous cells release FGF-23. Mostly it is released by a little tumour cell whose location is difficult to identify. The name of that tumour is benign mesenchymal tumours. The nature of this cancer is found to be mystical that's why it's difficult to identify its signs at early stages. Here we are going to discuss a young man suffering from a similar disorder. He was suffering from pain in muscles and physical weakness with the passage of time gradually. At last, patient was on the bed. We identify and make a report on this patient to guide the doctors. It has been identified that patients who are not able to explain their weakness and muscular fatigue may also a sufferer of TIO. They could be cured at an early stage because it is an easily curable disease if identified at early onset.

Keywords: *Tumor-induced Osteomalacia, Paraneoplastic Syndrome.*

Corresponding author:

Dr. Bushra Iftikhar,

Senior Demonstrator,

Azra Naheed Medical College, Biochemistry Department.

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Please cite this article in press Bushra Iftikhar et al., ***Cytotoxicity And Antibacterial Activity Of The 70%Ethanolic Extract Of The Stem Bark Of Piptadeniastrum Africanum Hook (Fabaceae).,*** *Indo Am. J. P. Sci, 2019; 06(01).*

INTRODUCTION:

Tumour-induced osteomalacia (TIO) is a group of disorder that is rarely triggered by the abnormal immune system to a cancerous tumour. It is symbolized by bone ache, rupture of bone and muscular weakness [1]. Fibroblast growth factor 23 is a phosphate which is involved in regulation of hormones and vitamin D. If this Fibroblast growth factor 23 increases its level in serum it can cause TIO. Various tumours are involved in the outflow of FGF-23. Especially it is released by the mesenchymal tumour. Mesenchymal tumours are smaller in size and their localization is difficult to identify. FGF-23 functions as a renal tubule. It spoils phosphate reabsorption. It also spoils 1α-hydroxylation of 25-hydroxyvitamin D and causing hypophosphataemia and low level of 1, 25-dihydroxy vitamin D [2, 3].

To identify TIO in a patient is difficult for a doctor. There is a delay in the diagnosis of symptoms because of the secretive nature of the tumour. Even when the cancer is identified in a patient it takes about five years to localize its position in the body [3]. The best cure for this treatment is the removal of tumour from the body. Such actions usually lead to a normalization of patients from biochemical abnormalities. If removal of tumour is not possible due to some reasons then treatment is done by vitamin D and phosphorus supply. These cures and also mend the osteomalacia. But due to this treatment, there is a chance of hypocalcaemia because this treatment handling can cause the motivation of parathyroid hormone. Therefore, during treatment, it is necessary to completely observe the serum and urinary calcium, renal actions along with parathyroid hormone [1]. In this study we examine a young male having tumour-induced osteomalacia.

CASE REPORT:

This case is about a young male of 35 years old which was reported at Services Hospital Lahore (May 2017). He is married, having two children. He is not a smoker. According to the reports of the neurologists, he had a pain in his arms and legs for about subsequent 8 years.

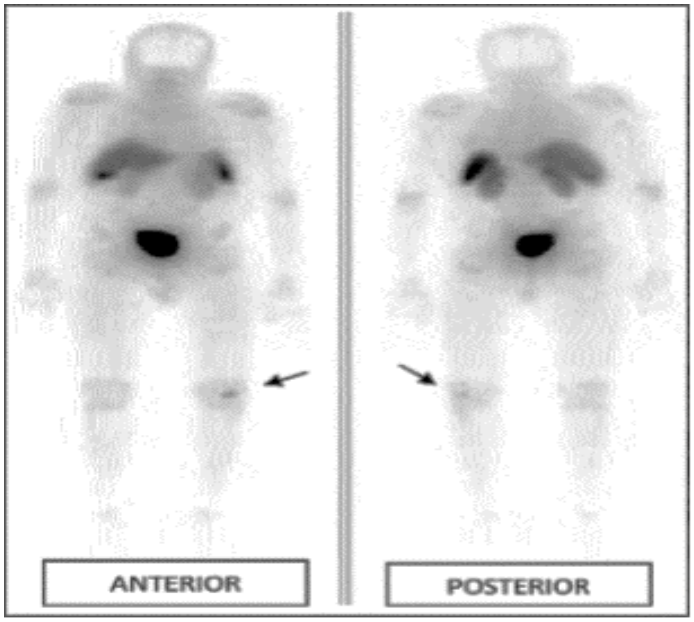

Figure – I: Octreotide examination expressing a distinct circular region of amplified tracer uptake over the centre of left lap point.

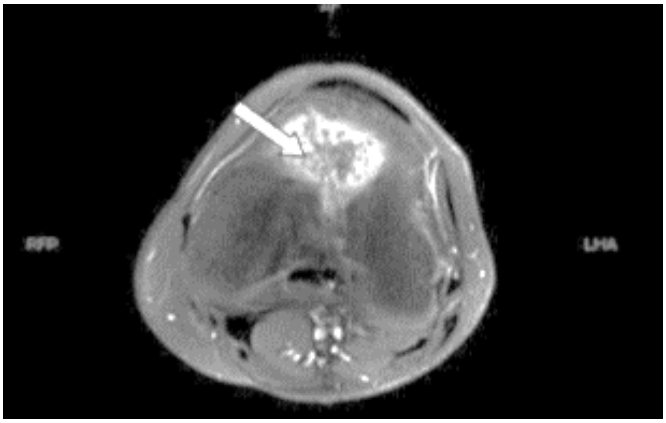

Figure – II: Magnetic resonance imaging (MRI) of the left knee with disparity viewing unbalanced anomalous passion abrasion (white arrow) frontal to the lower end of femoral condyle in the intercondylar notch just below the level of patella showing momentous post-contrast enhancement.

In the early stages of disease, the victim feels pain in left calf, later on this pain spread to the arms, legs and the coffer. This pain and weakness of patient increases with the evolution of time. At last patient becomes bound to wheel-chair and bed. Patient cannot sit himself without the help of another person or stick. The bowel and bladder of the patient remained functional. No increases in temperature, loss of weight or mass laceration were identified in patients having disorder. The disease was not found in the ancestors of the patients or other family members. The patient was on calcium increment, tramadol and esomeprazole at the instance of appearance. The appearance time was June 2012. When patient was observed thoroughly, he was in the situation of torment and pain. His blood pressure was noticed to be 160/110mmHg. There was no abnormal situation present in belly, trunk or heart. In the extremities no mass laceration was noticed. Arms and legs were sternly warm. Power was noticed to be 3/5. Weakness was more dominant on proximal parts. Feelings were remained normal. No symbols were observed about the active synovitis. Different tests of the patients were observed in the laboratory. According to the reports of the labs it was identified that in patient serum calcium 9.9mg/dl, serum phosphate 1.1mg/dl, repeat serum phosphate 1.2mg/dl, alkaline phosphate 511, serum albumin 4.6g/dl, serum magnesium 2.3g/dl, serum sodium 141mEq/L, potassium 3.7mEq/L, chloride 105mEq/L, and uric acid 6.4mg/dl. For amino acids, spot urinary creatinine 140mg/dl, spot urinary phosphate 126mg/dl, fractional excretion of phosphate 66%, FGF 23 level 800RU/ml, vitamin B12 536pg/ml, urine was pessimistic. Whole magnetic imaging of the body was taken. It showed two-sided femoral neck fissure, in ribs much looser regions were observed, posterior two-sided femurs medially and a previous breakage of right fibula. A distinct circular region of enhanced tracer uptake over the centre of left knee multiparty was recognized by octreotide scrutinize. This was recognized as a potential tumour location in sight of clinical suspicion. MRI of the left knee was observed. It showed uneven atypical concentration laceration frontal to the inferior end of femoral condyle in the intercondylar notch just beneath the intensity of patella. This laceration was expressing considerable post disparity augmentation. This region of abnormal strength related with the irregular uptake on octreotide check over the left knee. It frequently showing, mesenchymal tumour. After the biopsy, the patient was asked for therapy but he was not agreed.

DISCUSSION:

In 1947, the first case of TIO was identified [4]. TIO is found to be present in about 300 patients reported by journalism [5]. The symptoms of this disorder are the muscles and bone pain and bone breakage. The duration of time between the starting of the signs of disease and its detection is about 2.5 years. This is because the disease is of secretive nature. The signs of the disease are also not too much obvious [3]. In our cases, patients came to hospitals after a longer period of time so the diagnosis of disease takes about eight years. Due to the late detection of disease our cases suffered much because of disorder and totally dependent on others for their routine functions. After the detection of disease, it may take five more years for treatment because the localization of a tumour is a difficult task [3]. In our patients, we identify the location of the disorder and try to remove a tumour but our patient disagreed by the therapy.

TIO is due to a mesenchymal tumour. Mesenchymal tumours are secretive tumours which grow slowly. These are present either in soft tissues or in bones. These tumours can spread rapidly. Even if they occurred histologically spiteful, limited repetition or isolated metastasis is hardly ever found to occur [6]. These are frequently present at the lower side but are also found to occur at facade, head and neck [7]. In our patient, most of the tumour found in left femur which is the most frequent place. Several imaging modalities have been recognized which have been utilized to identify the position of tumours in the body. The most commonly used modalities are computed tomography, MRI, position-emission tomography, octreotide and sestamibi scans, and bone scintigraphy [8]. First of all, we took the MRI of our patients. No tumour was identified by this. After that, a tumour on the left knee was identified by performing somatostatin receptor imaging. The MRI of the left knee was done which showed a mesenchymal tumour in the left femur.

Lessor improper serum 1, 25(OH) 2 D was reported by laboratory analysis of TIO. Serum calcium and 25(OH) 2 D are suitable. Serum PTH was found to be eminent by chance. Serum alkaline phosphate which is primarily consequent from bone is also eminent [3].

Removal of the tumour completely is the solution to this issue. Due to removal biochemical abnormalities becomes normal and bones become demineralized [3]. If the tumour remains hidden then it is important to eliminate it by treatment. This includes the supply of phosphorus and vitamin D to the patient. However, it is important to supervise the treatment thoroughly because it can cause hypercalcaemia and even tertiary hyperparathyroidism [3]. Therefore it is suggested to supervise the serum calcium, phosphorus, and urinary calcium every three months [3].

TIO is a disease which can be cured but is seldom present. Due to usual chemistry team and scarcity of disease, a doctor can fail to notice the disease.

CONCLUSION:

The main purpose of this case presenting in front of you is to guide the physicians that they could treat the TIO without identification of muscular weakness and pain in bones. The disease is uncommon but can be cured easily.

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