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RESEARCH ARTICLE

CHONDROSARCOMA OF GREAT TOE : CASE REPORT

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Abstract

Here is a case of grade 1 chondrosarcoma of the distal phalanx of left great toe in a 58 year old diabetic patient .Foot is an unusual site for chondrosarcoma and and involvement of phalanges are extemely rare. Patient complained of gradual swelling in left great toe since 2 years which progressed to it present stage. Xray showed lytic lesion destroying the distal phalanx with soft tissue extension. Amputation of great toe done and tissue sent for histopathological examination. Microscopically examination revealed grade 1 chondrosarcoma. The patient is on one year follow up which is uneventful.

INTRODUCTION

Chondrosarcoma is a third most common primary malignancy of bone after myeloma / plasmocytoma and osteosarcoma and accounts for 20% of malignant bone tumours(1) . It is commonly seen in pelvic bone, proximal humerus, distal femur and ribs. Small bones of hands and feet are rarely affected(<1% of all chondrosarcoma)(2). Most patients present with symptopms of pain(3). Phalangeal chondrosarcoma behaves like a locally aggressive lesion unlike other location where metastasis is uncommon

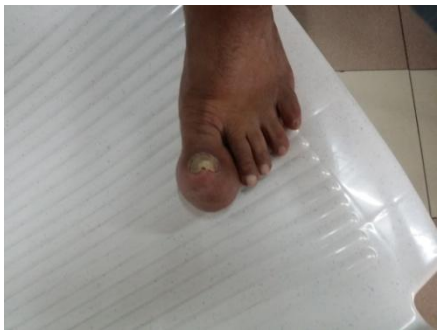
CASE REPORT

A 58/m patient complained of diffuse swelling on his left great toe since 2 years also a yellowish discolouration of great toe nail(figure 3). Patient first reported in department of general surgery owaisi hospital where he was referred to department of orthopaedcis for furthur management. Here the patient was advised deep tissue biosy with evaluation of fungal elements as he is suspected for deep fungal infection(figure2). Patient is a k/c/o dm type 2 since 2 years .

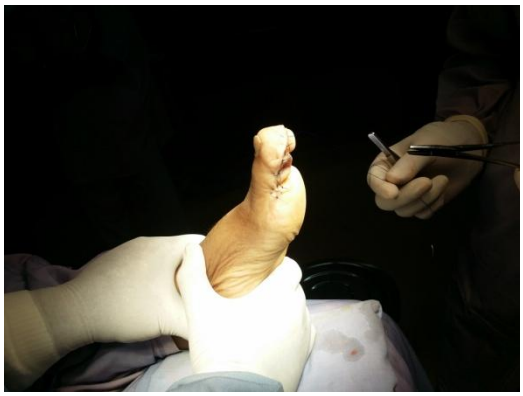
On examination : soft tissue swelling around the left great toe predominantly over the plantar aspect and measures around 5.7x3.6cm. Swelling shows smooth outerwalls with internal irregular hypodense area,suggesting variable thick fluid and multiple irregular densities.
The subcutaneous fat plane over the soft tissue swelling show variable enhancement.
The proximal 3rd of distal phalanx of the great toe show small area of extrinsic erosion over the plantar aspect.
Rest of bones of foot and toes as well as surrounding soft tissue planes appear normal.

XRAY LEFT FOOT showed lytic lesion on the distal phalanx of left great toe. Cortical destruction along the soft tissue extension. Periosteal reaction was absent. It is also confirmed by 3D CT reconstruction of left foot (fig 4)

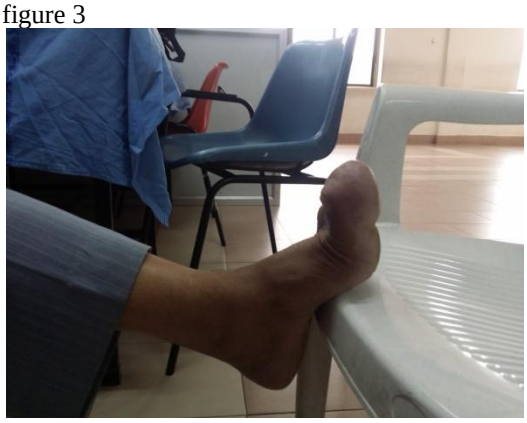
All routine haematological biochemical and xray chest were within normal limits. Surgeon decided to excise the tumour at the metatarso-phalangeal joint after discussion with the patient.
On gross examination a glistening tumor measuring 5x3 cm was found having marked myxoid changes. Microscopically chondroid neoplasm with prominent chondroid stroma in lobulated pattern. Tumour involved the surrounding skeletal muscle and soft tissue.
18 F- FDG PET CT SCAN of whole body was done which reveals post operative case of chondrosarcoma of left great toe with no other significant active disease in the whole body (fig 5)
Patient underwent 3 cycles of chemotherapy. No local and distant recurrence after 1 year follow up



PREOPERATIVE IMAGE
figure 2

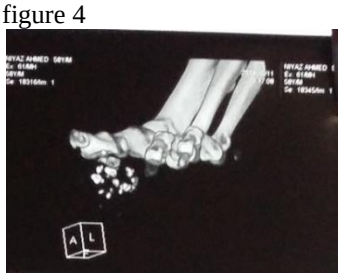


INTRAOPERATIVE IMAGE
figure 3



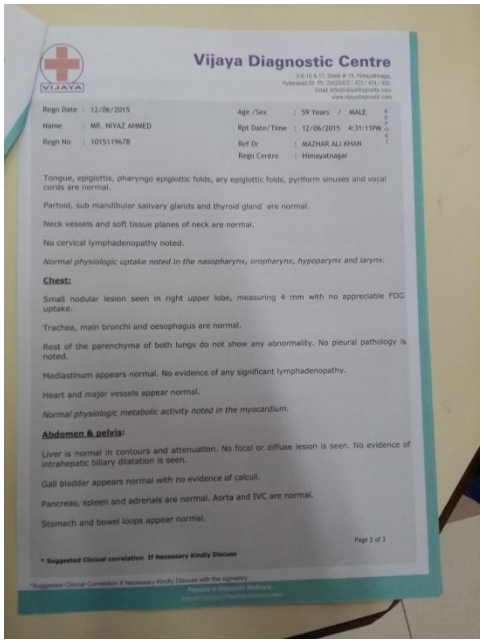
PREOPERATIVE IMAGE LATERAL VIEW

figure 4



3D CT RECONSTRUCTION IMAGE OF LEFT GREAT TOE

Figure 5



Vijaya Diagnostic Centre

Regn Date : 12/06/2015
Name : MR. NIYAZ AHMED
Regn No : 1015119678
Age /Sex : 59 Years / MALE
Rpt Date/Time : 12/06/2015 4:31:11PM
Ref Dr : MAZHAR ALI KHAN
Regn Centre : Himayatnagar

Tongue, epiglottis, pharyngo epiglottic folds, ary epiglottic folds, pyriform sinuses and vocal cords are normal.

Partoid, sub mandibular salivary glands and thyroid gland are normal.

Neck vessels and soft tissue planes of neck are normal.

No cervical lymphadenopathy noted.

Normal physiologic uptake noted in the nasopharynx, oropharynx, hypoparynx and larynx.

Chest:

Small nodular lesion seen in right upper lobe, measuring 4 mm with no appreciable FDG uptake.

Trachea, main bronchi and oesophagus are normal.

Rest of the parenchyma of both lungs do not show any abnormality. No pleural pathology is noted.

Mediastinum appears normal. No evidence of any significant lymphadenopathy.

Heart and major vessels appear normal.

Normal physiologic metabolic activity noted in the myocardium.

Abdomen & pelvis:

Liver is normal in contours and attenuation. No focal or diffuse lesion is seen. No evidence of intrahepatic biliary dilatation is seen.

Gall bladder appears normal with no evidence of calculi.

Pancreas, spleen and adrenals are normal. Aorta and IVC are normal.

Stomach and bowel loops appear normal.

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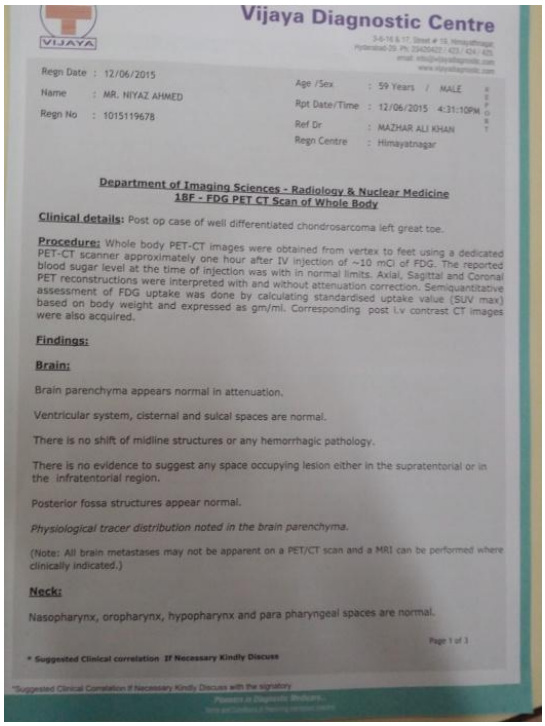
* Suggested Clinical correlation If Necessary Kindly Discuss



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Department of Imaging Sciences - Radiology & Nuclear Medicine
18F - FDG PET CT Scan of Whole Body

Clinical details: Post op case of well differentiated chondrosarcoma left great toe.

Procedure: Whole body PET-CT images were obtained from vertex to feet using a dedicated PET-CT scanner approximately one hour after IV injection of ~10 mCi of FDG. The reported blood sugar level at the time of injection was with in normal limits. Axial, Sagittal and Coronal PET reconstructions were interpreted with and without attenuation correction. Semiquantitative assessment of FDG uptake was done by calculating standardised uptake value (SUV max) based on body weight and expressed as gm/ml. Corresponding post I.v contrast CT images were also acquired.

Findings:

Brain:

Brain parenchyma appears normal in attenuation.

Ventricular system, cisternal and sulcal spaces are normal.

There is no shift of midline structures or any hemorrhagic pathology.

There is no evidence to suggest any space occupying lesion either in the supratentorial or in the infratentorial region.

Posterior fossa structures appear normal.

Physiological tracer distribution noted in the brain parenchyma.

(Note: All brain metastases may not be apparent on a PET/CT scan and a MRI can be performed where clinically indicated.)

Neck:

Nasopharynx, oropharynx, hypopharynx and para pharyngeal spaces are normal.

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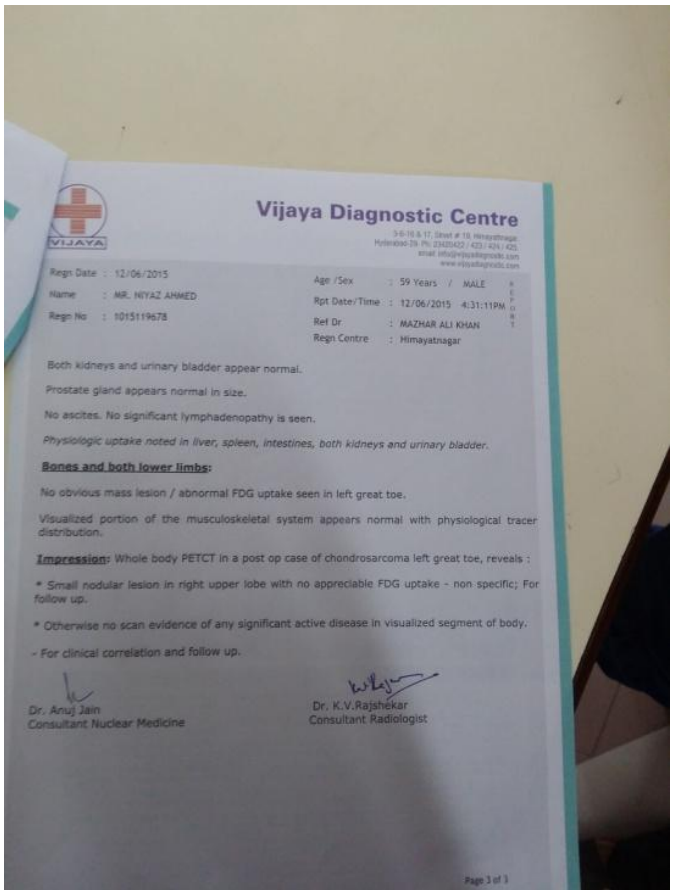
* Suggested Clinical correlation If Necessary Kindly Discuss



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Both kidneys and urinary bladder appear normal.

Prostate gland appears normal in size.

No ascites. No significant lymphadenopathy is seen.

Physiologic uptake noted in liver, spleen, intestines, both kidneys and urinary bladder.

Bones and both lower limbs:

No obvious mass lesion / abnormal FDG uptake seen in left great toe.

Visualized portion of the musculoskeletal system appears normal with physiological tracer distribution.

Impression: Whole body PETCT in a post op case of chondrosarcoma left great toe, reveals :

* Small nodular lesion in right upper lobe with no appreciable FDG uptake - non specific; For follow up.

* Otherwise no scan evidence of any significant active disease in visualized segment of body.

- For clinical correlation and follow up.

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PET SCAN OF WHOLE BODY

DISCUSSION

Chondrosarcoma is a malignant bone tumor containing tumor cells that produce cartilage. This tumor may form de novo as a primary lesion or from malignant transformation of pre-existing beningn condition or cartilage lesion. Ogose *et al*. [4] reviewed 163 Chondrosarcoma located in the phalangeal, (meta) carpal, and (meta) tarsal bones of the hands (n=88) and feet (n=75) and suggested that these tumors have the potential to be fatal. Chondrosarcoma of the calcaneus and the talus were more likely to metastasize. [4] Kinoshita *et al*. reviewed 83 cases of bone and soft tissue tumors of the foot. They found 33 benign tumors, one primary Chondrosarcoma and 2 metastatic bone tumors. [5] For the only malignant bone tumor (Chondrosarcoma of left talus) below-knee amputation was performed but the patient (52-year old man) died because of pulmonary metastasis. [6] Patil *et al*. studied 12 Chondrosarcoma of the bones of feet, of which 4 tumors affected the tarsal bones and the rest involved the short tubular bones. The mean age of the patients was 52.3 years (range 17--83 years) and men were predominantly affected. [6]

Chondrosarcoma are graded according to the system of Evans *et al*. [7] Histologic parameters for grading include cellularity (high/moderate/low), binucleated cells (<1/1--5/>5 per high power field), cellular distribution (regular/irregular), nuclear pleomorphism (low/moderate/high), bone formation (absent/focal/diffuse), differentiation (percentage chondroid, mucoid and myxoid differentiation), calcification (absent/focal/diffuse) and cortical destruction (absent/present/unobservable). [8] In a series of 35 cases of phalangeal Chondrosarcoma, Bovee *et al*. reported 8 grade 1, 26 grade 2, and 1 grade 3 Chondrosarcoma. Median age of phalangeal Chondrosarcoma was 67 years (21--37 years) with a slight predilection for females (21 vs.14). The median duration of the disease was 18 months (range 1-480 months). [2]But the present case was a male patient of age only 37 years with a disease duration of 2 years (24 months). In this case the greatest diameter of the tumor was 3.5 cm which corroborates the median diameter of 3 cm found by Bovee *et al*. [2] Though nuclear pleomorphism, binucleation, and cellularity were not high in the present case, but cortical destruction and soft tissue extension were obvious. These findings are important to differentiate grade 1 Chondrosarcoma from enchondroma, because enchondroma of the hands and feet display greater cellularity and mild nuclear atypia than is seen elsewhere. [2],[4]

Phalangeal Chondrosarcoma occurs far more frequently in the hand compared with the foot and majority of the cases are located in the proximal phalanx. [2] In contrast to Chondrosarcoma located elsewhere, phalangeal Chondrosarcoma appears to have female preference. Furthermore, the median age (67 years) was higher than for Chondrosarcoma in general (grade 1:44 years, grade 2:55 years). [2]

Although for all grades and subtypes of nonmetastatic Chondrosarcoma, complete surgical treatment only offers the chance for cure, the most optimal type of surgical management is still debated. Wide, en bloc excision is the preferred surgical treatment of intermediate and high grade Chondrosarcoma. [9] For the low-grade/grade 1 Chondrosarcoma, some prefer extensive intralesional curettage followed by local adjuvant treatment, for example, phenolization or cryosurgery (liquid nitrogen) and filling the cavity with bone graft. [10] Below-knee amputation was also advocated by some authors. In our case excision of great toe at the metatarso-phalangeal joint was done and 1-year follow-up was uneventful.

CONCLUSION

Phalangeal Chondrosarcoma behaves as locally aggressive lesion and rarely metastasize. Curettage with local adjuvant and adequate follow-up can be tried as the first-line management, when compared to amputation which leads to functional loss.

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