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Case report of sacral telangiectatic osteosarcoma

Dr. Pavan R Jadhav, Dr. Padma Badhe, Dr. Shubham Sathe
MBBS, MD student, Department of Radiology, KEM Hospital
MD Radiology, Prof. at Department of Radiology, KEM Hospital
MBBS, MD student, Department of Radiology, KEM Hospital

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ABSTRACT-
A 32-year-old male patient came with complaints of continuous backache in the lumbosacral region. A plain radiograph of the lumbosacral spine shows well-defined soft tissue opacity in the left pelvis with geographic osteolytic lesions in the lower part of the sacrum involving the S2-S4 vertebra. On CT, a well-defined heterogeneously enhancing mass lesion arises from the sacrum at the S2-S4 level. MRI pelvis shows the heterogenous signal intensity of the soft tissue of the mass lesion with its origin from the sacrum and destruction of the lower part of the sacrum. After biopsy the histopathological report shows presence of aneurysmal blood spaces and numerous osteoclastic giant cells within highly atypical malignant cells.
Keywords- sacral, telangiectatic

I. CASE PRESENTATION :

A 32 year old male patient came with complaints of continuous backache in the lumbosacral region since 2 months. There is associated tingling numbness in both lower limbs. Patient also has history of urinary retention since 2 weeks. A foley's catheter is inserted for the same. This is associated with significant loss of weight in the last 2 months. On clinical examination, the abdomen of the patient is soft and non-tender. Radiological investigations like radiograph of lumbosacral spine, ultrasound of abdomen and pelvis and contrast enhanced CT of abdomen and pelvis are advised to look for the cause of above symptoms.

A plain radiograph of lumbosacral spine is taken in AP and lateral view.(figure 1a and 1b) It shows an approximately 3x2cm sized geographic osteolytic lesion in the lower part of sacrum involving S2-S4 vertebra in the midline with a wide zone of transition superiorly. There is no evidence of surrounding sclerosis or matrix mineralisation. There is a well defined soft tissue opacity seen in the left pelvis which is displacing the bowel loops to the right side. Rest of the bones are normal. Both sacro-iliac joints and hip joints are normal. A contrast enhanced CT scan is advised for further evaluation.

On CT, there is a well defined heterogeneously enhancing mass lesion seen arising from the sacrum at S2-S4 level measuring 14.2x11.3x15.3cm (figure 2d). There are few hypoattenuating areas within the mass lesions suggestive of fluid-filled cavities. There are few foci of matrix mineralisation within the soft tissue component of the tumour suggestive of osteoid formation.

The mass is causing destruction of the cortex of the sacrum(figure 2b and 2c) and extending anteriorly into the pre-sacral region with a mass effect on rectum and urinary bladder. The fat planes with rectum are effaced but maintained with urinary bladder. The lesion is seen to extend posteriorly into the sacral canal causing osteolytic destruction of sacral body. MR imaging of the pelvis is done for further evaluation.

A Multiplanar multiecho MRI of the pelvis is done for further evaluation of the lesion. T1 and T2 non-fat saturated and fat-saturated images show the heterogenous signal intensity of the soft tissue of the mass lesion with its origin from the sacrum. The lesion is overall hyperintense on T2. There is the destruction of the lower part of the sacrum. There are few hyperintensities in T1 and T2 suggestive of sites of haemorrhage. The fat planes with the rectum are lost, whereas with the bladder, they are maintained (figure 3a,3b,3c and 3d). Sagittal, coronal and axial images of post-gadolinium enhanced MR show heterogenous enhancement of the mass with few unenhanced areas of haemorrhage and necrosis (figure 3e,3f and 3g).

Presacral mass biopsy was advised for a definitive diagnosis. Under all aseptic precautions, with written informed consent, a CT guided biopsy was performed under local anaesthesia from posterolateral region and samples were sent for

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routine microscopic and histopathological analysis (figure 4). The histopathological report shows presence of aneurysmal blood spaces and numerous osteoclastic giant cells within highly atypical malignant cells. This is diagnosed as telangiectatic osteosarcoma.

II. DISCUSSION:

Telangiectatic osteosarcoma is a subtype of osteosarcoma which constitutes for about 2.5% to 12% of all osteosarcomas (1). It originates from transformed osteoblasts or stem cells that derive from mesenchymal tissue(2). A majority of the tumour consists of blood filled cavities, and hence it is often a close differential of aneurysmal bone cyst. however, the septa surrounding the blood filled spaces show nodular enhancement with the presence of malignant cells that produce osteoid(3). Clinical features include local tenderness or pain or a soft tissue mass(2).

These osteosarcomas often occur in the metaphyseal region of long bones. The most frequently affected site is the distal femur(2). Other sites that are involved are the proximal tibia, proximal femur, fibula, mid femur, mid humerus and mandible. Telangiectatic osteosarcoma of the spine is an exceedingly rare entity. It accounts for 0.08% of all primary osteosarcomas(4). The aggressive osteolytic nature of this tumour is the radiographic hallmark. There could be a few islands of osteoid formation within the tumour. This tumour has a poorer prognosis as compared to other types of osteosarcomas (2). The preferred treatment modality for this tumour is pre-operative neo-adjuvant chemotherapy followed by surgical resection of the tumour (5).

An approach to pre-sacral masses:-

- A wide variety of benign and malignant conditions arise from various elements of pre-sacral region.
- The involvement of sacrum(destructive or re-modelling) and the presence of soft tissue component may help in narrowing the differentials
- Demographic features are also important. Congenital and developmental tumors occur in younger patients, and tumors like chondrosarcomas occur in older patients.
- Specific imaging features aid in the diagnosis.

Differentials of pre-sacral masses:-

Based on the origin of tumor, the following are the differentials of pre-sacrsal masses which are usually encountered at imaging:

1. Osteochondral -
   - Benign- Osteoma, simple bone cyst, aneursmal bone cyst, giant cell tumor
   - Malignant- Ewing sarcoma, osteosarcoma, chondrosarcoma

2. Neurogenic –
   - Benign- Neurofibroma, ependymoma, neuroblastoma, schwannoma, dural ectasia, anterior sacral meningocele
   - Malignant- Neurofibrosarcoma, chordoma, malignant schwannoma

3. Mesenchymal-
   - Benign- Hemangioma, fibroma or fibrosis, myelolipoma, solitary fibrous tumor, Castleman disease
   - Malignant- Soft-tissue sarcoma, lymphoma, gastrointestinal stromal tumor

4. Congenital or developmental-
   - Benign- Retrorectal cystic hamartoma, rectal duplication cyst, epidermoid cyst, dermoid cyst
   - Malignant- Teratocarcinoma, teratoma, yolk sac tumor
5. Others- metastatic disease, desmoplastic round cell tumor, inflammatory, infectious.

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Figures:

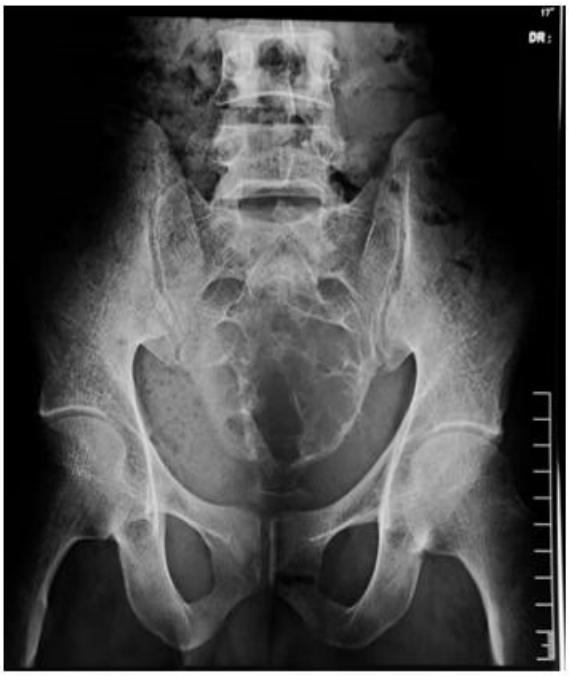

Figure 1a

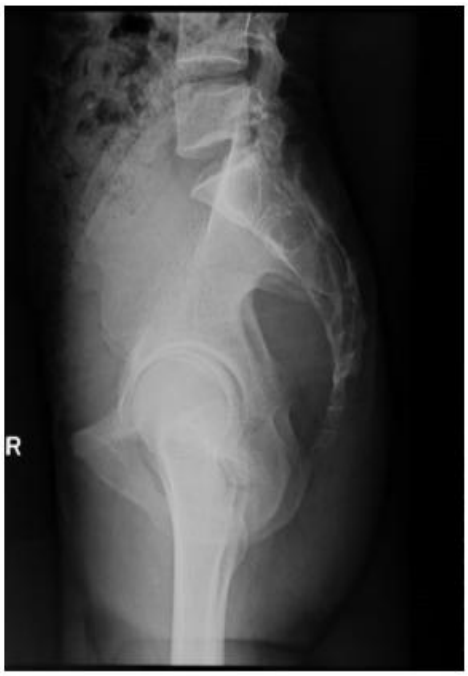

Figure 1b

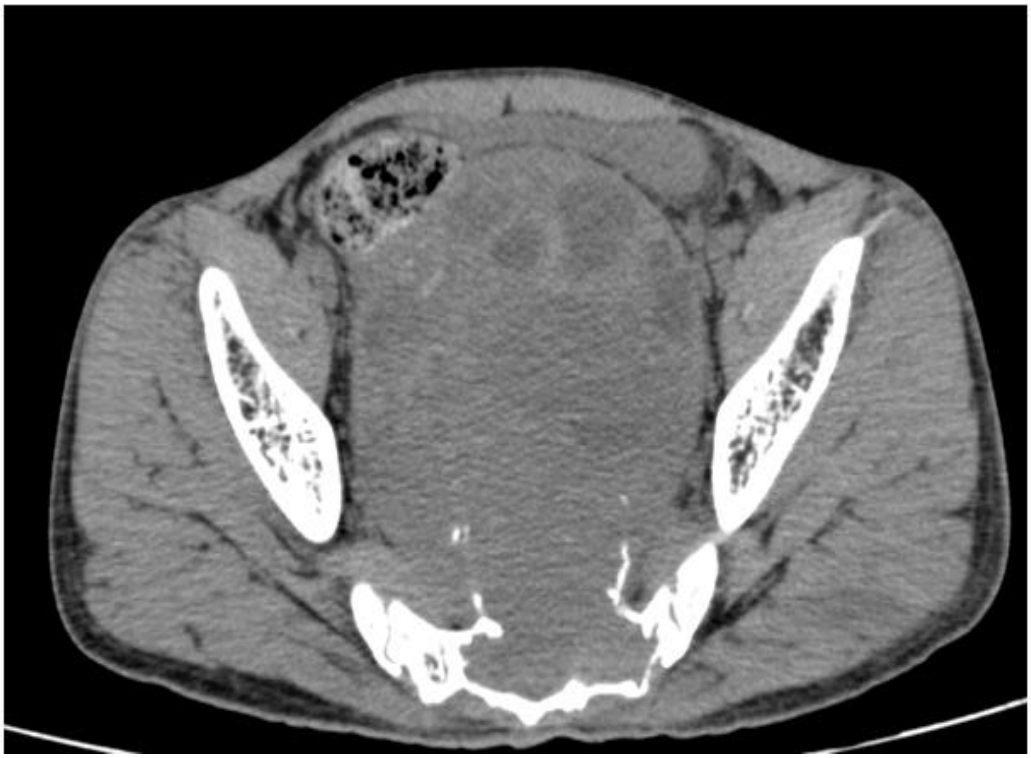

Figure 2a, Plain CT.

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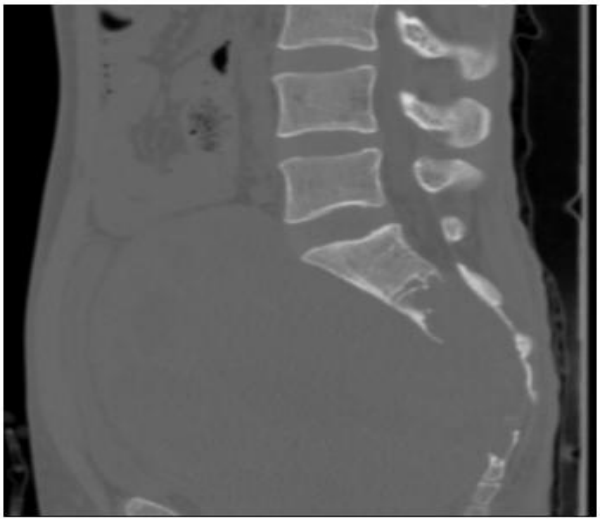

Figure 2b

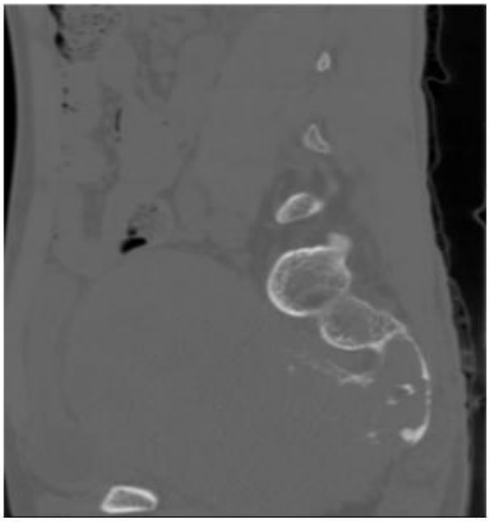

Figure 2c

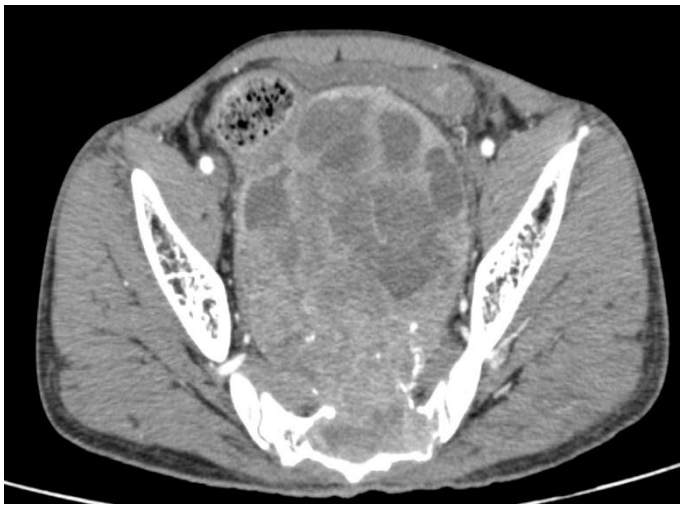

Figure 2d. Post-contrast.

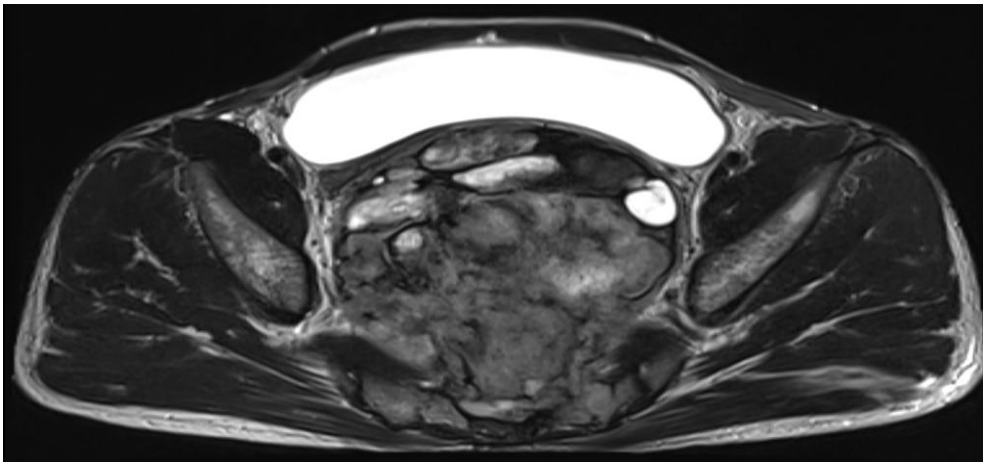

Figure 3a. T2 non-fat sat axial.

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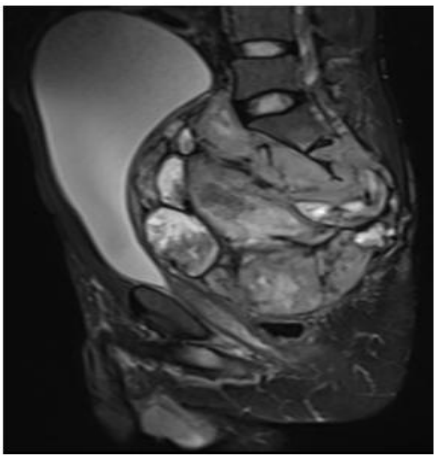

Figure 3b.T2 non-fatsat sagittal

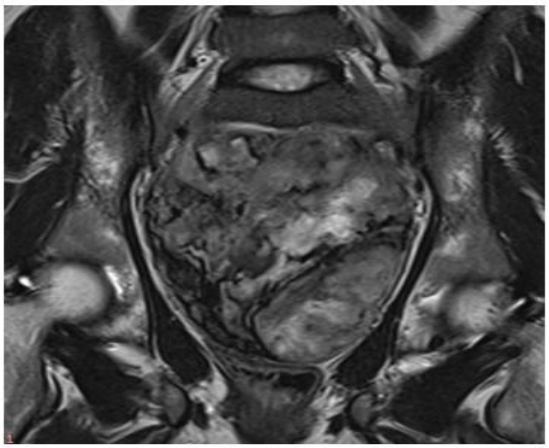

Figure 3c.T2 non-fatsat coronal

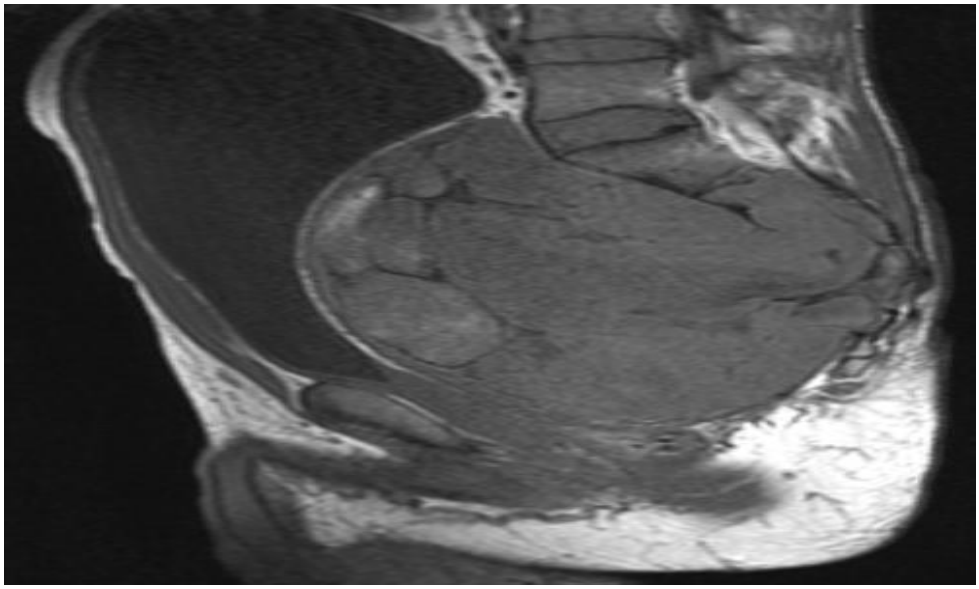

Figure 3d. T1 fat-sat sagittal, pre-contrast.

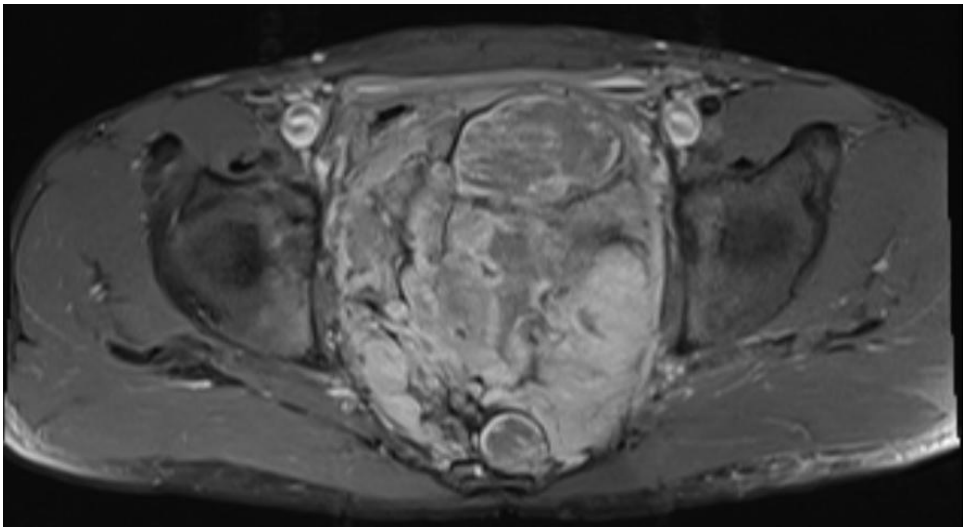

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Figure 3e. T1 post contrast axial.

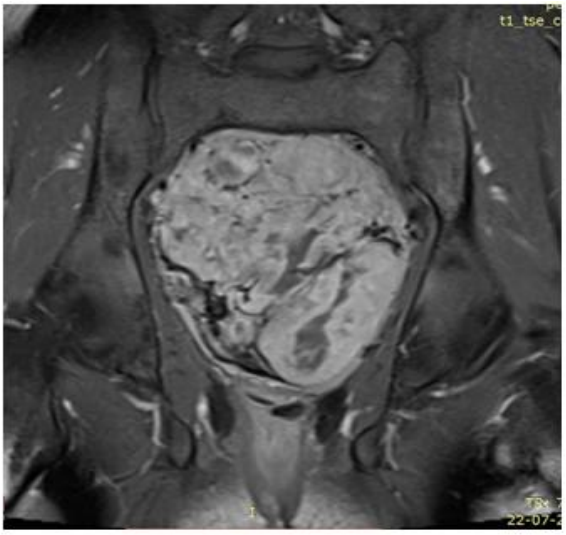

Figure 3f. T1 post contrast coronal.

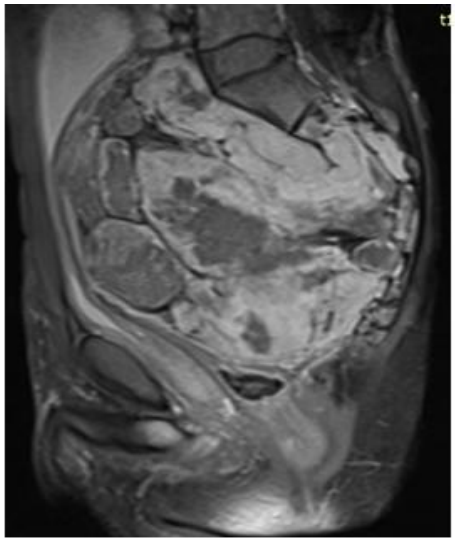

Figure 3g.T1 post contrast sagittal

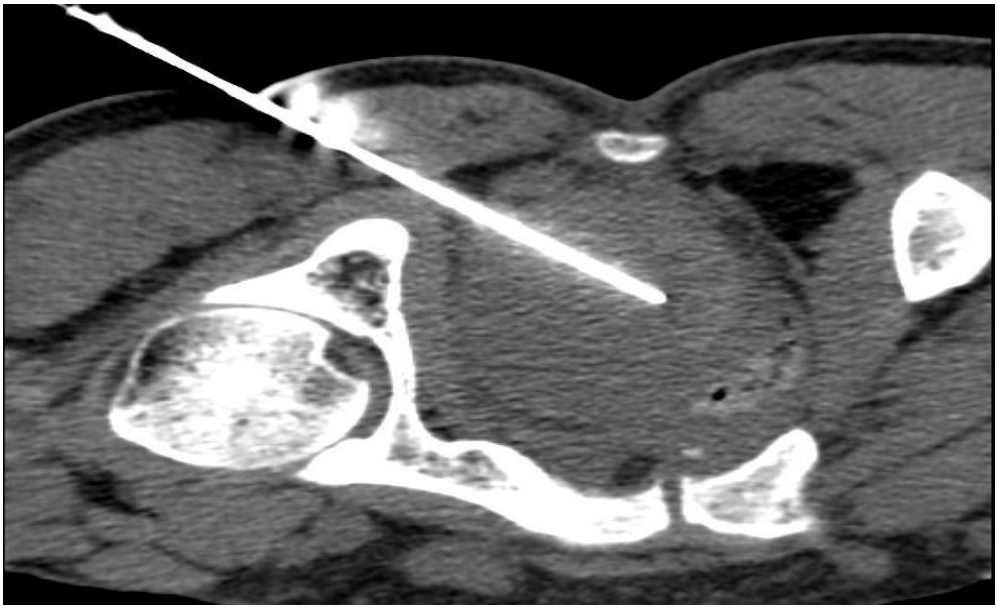

Figure 4. CT guided biopsy