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A Case Report on Pathological Neck of Femur Fracture due to Metastasis Treated by Total Hip Replacement

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Abstract: ***Femoral neck fractures pose a significant burden to the healthcare system in developed and developing countries, with the annual incidence expected to increase in the coming years. A small minority of patients sustain femoral neck fractures because of underlying pathological lesions. Pathological fractures may be caused by any bone lesion (benign, primary malignant or metastatic), but metastatic bone tumours and multiple myeloma are far more prevalent than other primary bony malignancies in the elderly population. There is also a steady decrease in mortality rate of 1.5% per year in patients with cancer and, as the population's life expectancy increases, there is an increased prevalence of bony metastases with subsequent risk of pathological fractures. Breast, thyroid, kidney, lung and prostate primary malignancies have a predilection for bony metastases, though any primary malignancy can metastasise to bone. We had a case of 54 yr old male diagnosed as pathological neck of femur fracture and post op biopsy suggested secondary metastasis.***

Keywords: femoral neck fractures, healthcare burden, pathological fractures, bone metastases, cancer prevalence

1. Case Details

A 54 year old male Patient came to our OPD with chief complaints Pain in left hip for 2 months associated with Difficulty in walking and weight bearing in left lower limb for 2 months patient was apparently normal before 2 months back then he developed pain in his left hip which was sudden in onset and gradual in progression. The pain was dull aching in nature, non-radiating and associated with difficulty in walking. Pain aggravated on physical activity and lying down, relieved on sitting. Known Case of Systemic hypertension for 6 months (on regular treatment). He had a past history pain in low back and left hip 2 months back. Initially patient went to outside hospital where he was advised MRI and found to have anterolisthesis of L5-S1. He was treated with Intravenous steroid injection for 1 week and followed by oral steroids for 2 weeks. No previous surgical history. We ruled out negative history such as recent trauma, fever or constitutional symptoms, early morning stiffness and multiple joint pain, Loss of appetite and weight, diurnal variation and no prolonged drug intake. He is neither an alcoholic nor a smoker.

Examination and Investigations

Local examination of left hip shows no diffuse Swelling, Tenderness over Anterior and Posterior Joint line, Range of Left hip movement was restricted and painful, 2 cm true shortening present in left lower limb. Blood investigations shows elevated ESR of 112mm/hr, CRP of 8.3mg/dl, and ALP of 147IU/L. Usg abdomen taken to rule out abdominal malignancy but did not show any significant abnormality. Prostate Specific antigen blood test done but it was normal (1.2ng/mL)

Pre-Operative Xray

Also advised for MRI hip and PET CT scan, but patient was not affordable. Clearance got from Medicine, Pulmonology, and Anaesthesia and planned for surgery.

MRI Screening shows altered intensities involving left femoral head likely osteonecrosis.

Pet Scan Done:

Name	MR.SRINIVASAN G	Patient ID	AS_VPL_PT_10457
Accession No	10457_243177_01	Age/Gender	53Y / Male
Referred By	Dr.SREE BALAJI MEDICAL COLLEGE HOSPITAL	Date	24-Feb-2024

WHOLE BODY [^{18}F]FDG PET CT SCAN

PET CT IMPRESSION:

- Multiple FDG avid sclerotic lesions in body of D5, D12, L5, S1, posterior elements of D5 and D11 vertebrae, right ilium, shaft of left femur.
- Multiple FDG avid enlarged right and left paratracheal, subcarinal, para-aortic, bilateral hilar lymph nodes - metastatic.
- Few subcentimetric non FDG avid nodules in bilateral lung parenchyma – indeterminate – for follow up.
- No other metabolically active lesion elsewhere in the body to suggest obvious site of primary.

COMMENTS:

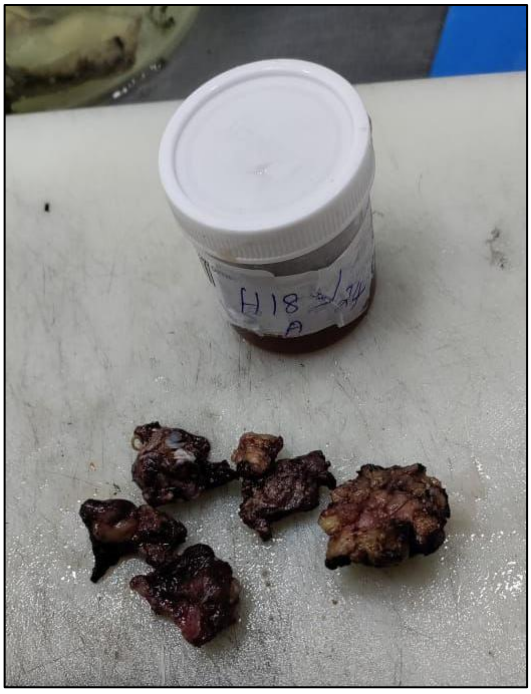
Possible D/Ds:

- Metastasis with unknown primary
- Multiple myeloma
- Suggested IHC correlation

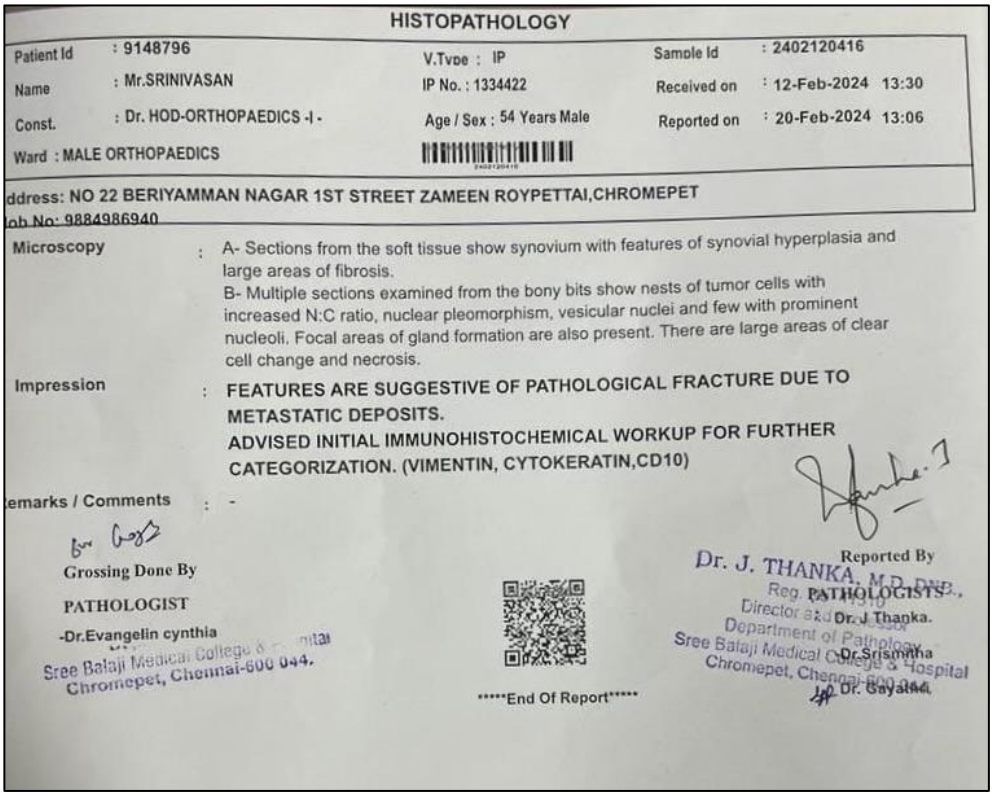
This report is a professional opinion from a panel of doctors comprising Dr. Aarthi, Dr. Archana Rao authorized by the undersigned.

Surgical Plan:

Anaesthesia-Spinal with epidural
Position-Left lateral position
Approach-Southern moore approach
15cm Incision made centering GT extending proximally lateral and posterior to PSIS and distally along the shaft of femur
Skin, Subcutaneous tissue and tensor fascia lata incised
Fibre of gluteus maximus splitted and trochanteric bursa incised
Short external rotators cut near their attachment site, Capsulotomy done
Head of femur removed using corkscrew and found to be 51mm
Acetabular reaming done and cup of size 52mm fixed with 2 Posterosuperior screws and found to be stable
Femur canal serial rasping done
Trial implant done and found to be satisfactory
Final Stem along with head relocated into the cup and range of movements checked and found to be satisfactory
Wound closed in layers
Sterile dressing done



Biopsy Sent for Histopathological examination:



HISTOPATHOLOGY

Patient Id : 9148796 | V.Type : IP | Sample Id : 2402120416
Name : Mr.SRINIVASAN | IP No. : 1334422 | Received on : 12-Feb-2024 13:30
Const. : Dr. HOD-ORTHOPAEDICS -I - | Age / Sex : 54 Years Male | Reported on : 20-Feb-2024 13:06
Ward : MALE ORTHOPAEDICS

ddress: NO 22 BERIYAMMAN NAGAR 1ST STREET ZAMEEN ROYPETTAI,CHROMEPET
ob No: 9884986940

Microscopy : A- Sections from the soft tissue show synovium with features of synovial hyperplasia and large areas of fibrosis.
B- Multiple sections examined from the bony bits show nests of tumor cells with increased N:C ratio, nuclear pleomorphism, vesicular nuclei and few with prominent nucleoli. Focal areas of gland formation are also present. There are large areas of clear cell change and necrosis.

Impression : FEATURES ARE SUGGESTIVE OF PATHOLOGICAL FRACTURE DUE TO METASTATIC DEPOSITS.
ADVISED INITIAL IMMUNOHISTOCHEMICAL WORKUP FOR FURTHER CATEGORIZATION. (VIMENTIN, CYTOKERATIN,CD10)

emarks / Comments : -

Grossing Done By
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*****End Of Report*****

2. Conclusion

Treating femur neck metastasis with hip replacement offers significant benefits in terms of pain relief and improved mobility, which can greatly enhance the quality of life for patients. This surgical approach addresses the debilitating pain and functional impairment caused by metastatic lesions in the femur neck, allowing patients to regain independence and perform daily activities with greater ease. Although hip replacement is not a curative treatment for cancer, it plays a crucial role in palliative care. By effectively managing symptoms, it helps patients maintain a better quality of life during their cancer journey. The decision to proceed with hip replacement should be made by a multidisciplinary team, taking into account the patient's overall health, the extent of cancer progression, and life expectancy. This collaborative approach ensures that the benefits of the surgery outweigh the risks. In conclusion, hip replacement is a valuable palliative treatment option for patients with femur neck metastasis, providing substantial pain relief and functional improvement, thereby enhancing the quality of life and allowing for better management of the condition.

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