

**CLINICAL SOCIETY MEETING
CASE PRESENTATION
ROLE OF ORTHOPAEDIC SURGEON
IN PLASMACYTOMA**

**PRESENTOR - DR.VISHNURAJA PGY3 MS ORTHO
GUIDE - PROF. DR. P.V.THIRUMALAI MURUGAN M.S
ORTHO, D.N.B ORTHO**

**DR.GOPI MANOHAR D.N.B ORTHO
DR.PARAMAGURU RAJESH M.S.ORTHO**

- A 60 years old male patient was admitted in **general medicine** ward with complaints of back ache for 2 weeks
- HOPI:
Patient was apparently normal 2 weeks back after which he developed back ache which was gradual in onset, progressive in course, non radiating, continuous in course, with no aggravating and relieving factors



- No h/o trauma
- No h/o weakness of limbs/ numbness in UL/LL
- No h/o bowel/bladder disturbances
- PAST HISTORY:
 - K/C/O SHTN for 3 years on regular medication
 - Not a K/C/O T2DM/ BA/ PTB/ Epilepsy/ Thyroid disorder
 - No h/o any previous surgery

- Patient was taken over by orthopaedic spine unit regarding evaluation of D3 lytic lesion and further management.



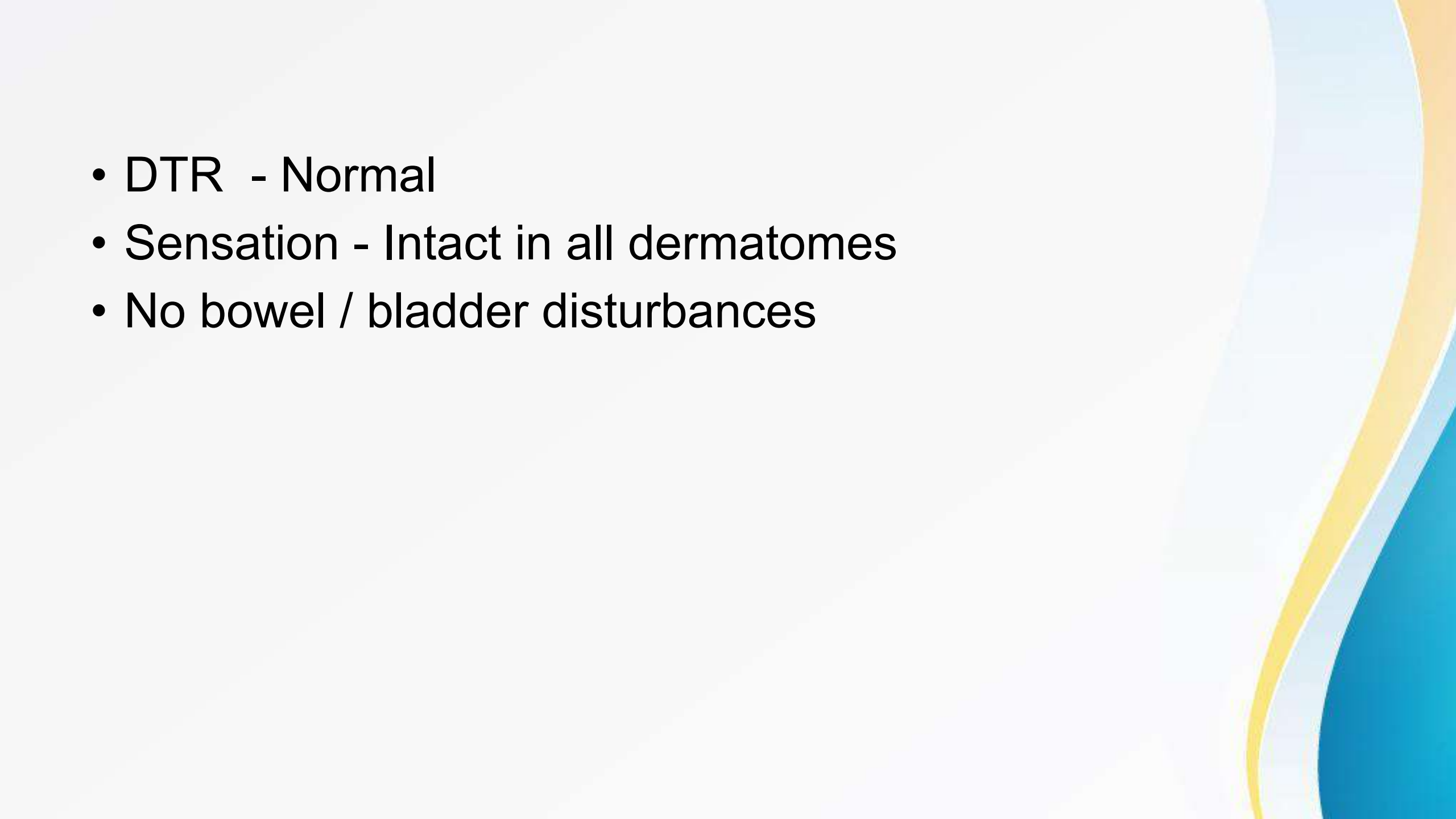
CLINICAL EXAMINATION OF DL SPINE

- Tenderness present over dorsal spine
- Power

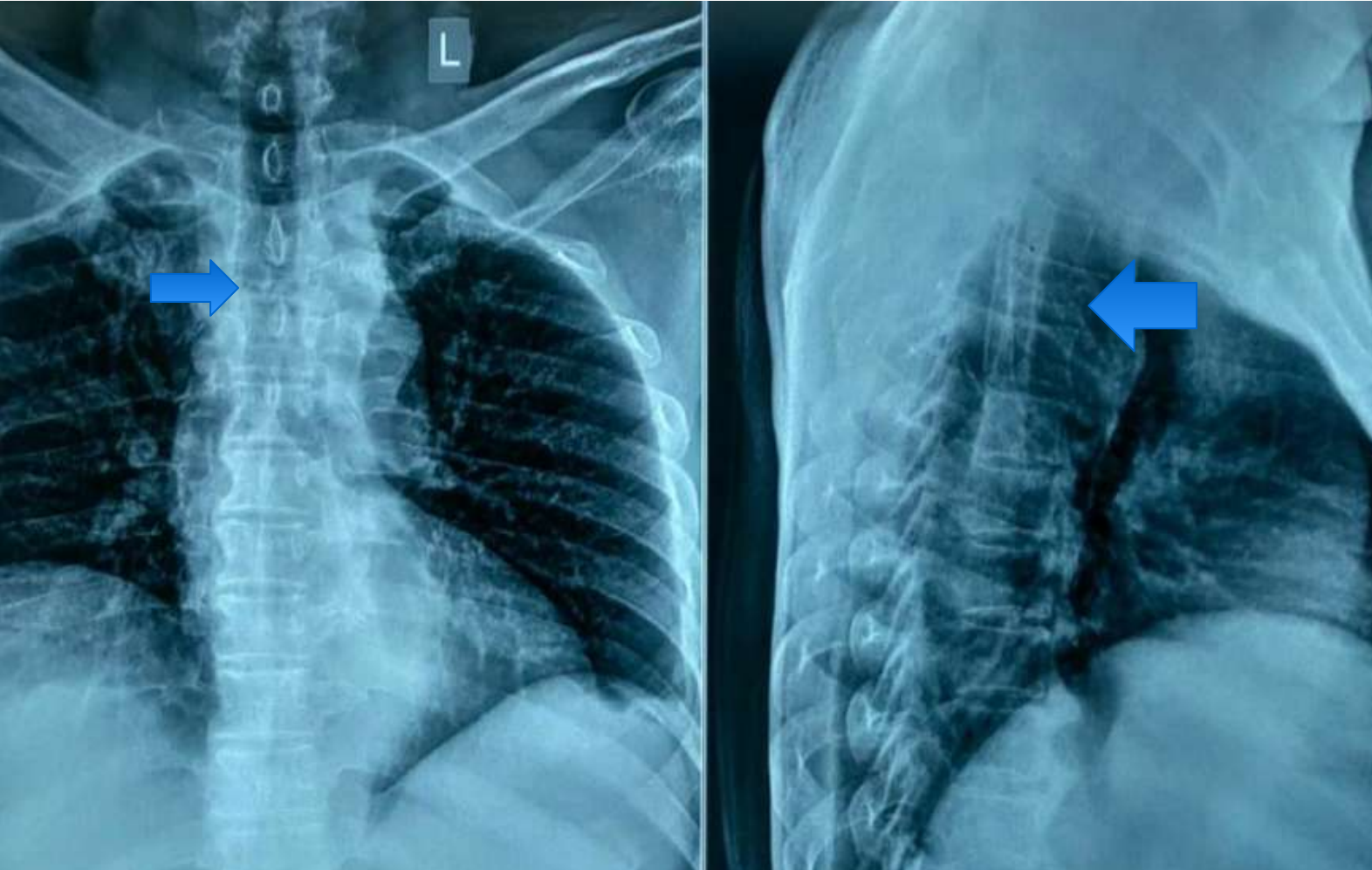
	RIGHT	LEFT
C5-T1	5/5	5/5
L2-S1	5/5	5/5

-Tone

Normal in B/L UL and LL

- DTR - Normal
 - Sensation - Intact in all dermatomes
 - No bowel / bladder disturbances
- 

RADIOGRAPH



X-ray Dorso
Lumbar spine
shows

- **Collapse / wedge
compression of
D3 vertebra**

-Skeletal survey -
nil significant

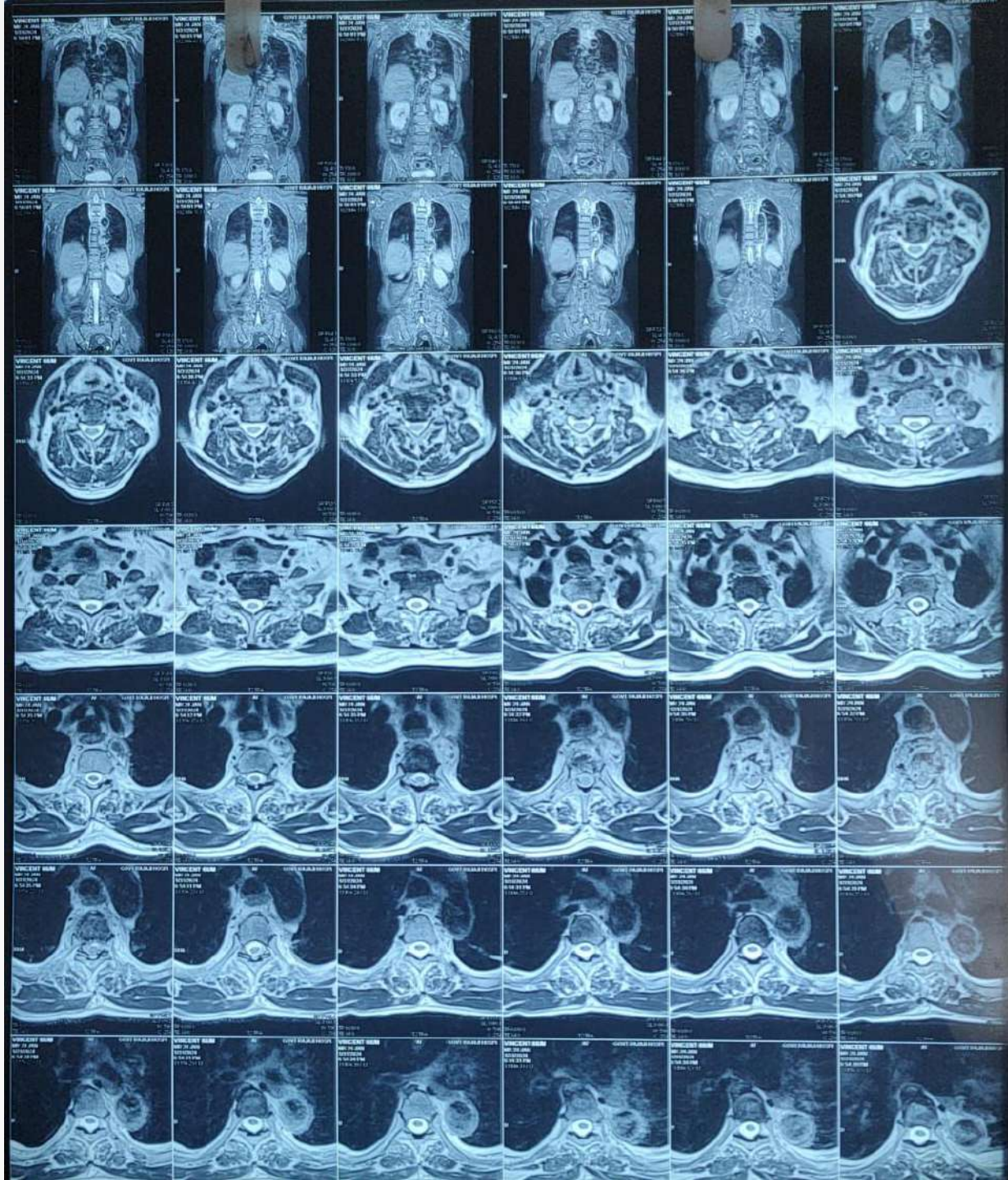
MRI - DORSOLUMBAR SPINE



-Collapse of D3 vertebral body with adjacent pre, para vertebral and epidural soft tissue component noted.

-Epidural component causing moderate spinal canal narrowing

-Post contrast study shows enhancement in the body, pedicle, transverse process and lamina of d3 vertebral body. (suggestive of infective etiology - probably pott's spine)





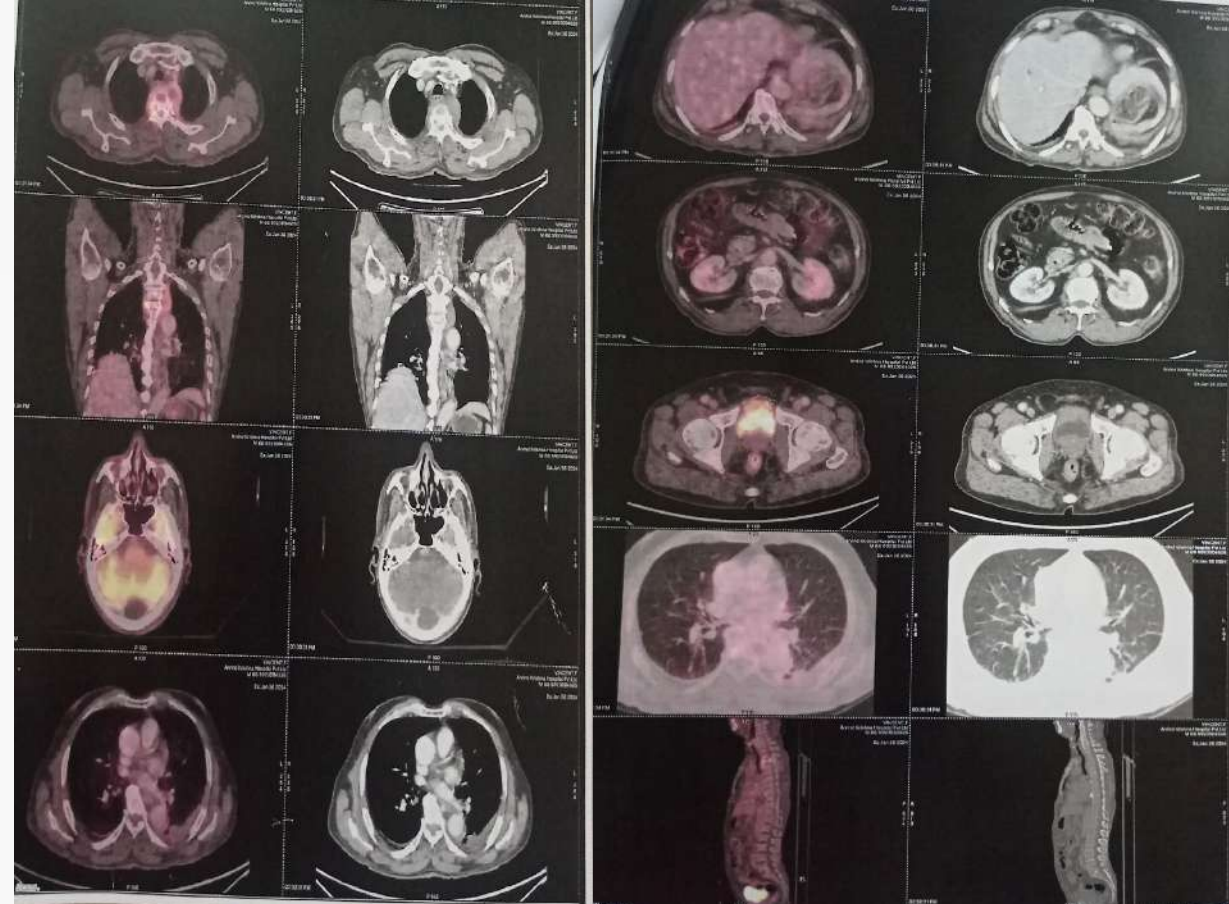
DIFFERENTIAL DIAGNOSIS OF VERTEBRA PLANA

- Osteoporosis
- Trauma
- Spinal tuberculosis
- Vertebral metastases
- Multiple myeloma
- Lymphoma
- Vertebral hemangioma



PET CT

- Metabolically active lytic lesion with soft tissue component noted involving the D3 vertebra
- No evidence of metabolically active disease noted elsewhere to suggest any possible primary site.



BLOOD INVESTIGATIONS

- CBC - Normal
- Blood sugar - 84 mg%
- Blood Urea - 22 mg%
- Serum Creatinine - 1.4 mg%
- Na⁺ - 127 meq/l
- K⁺ - 3.0 meq/l

- Total protein - 6.6 gms/dl
- Albumin - 4.3 gms/dl
- Globulin - 2.3 gms/dl
- S. Calcium - 8.2 mg% ---> 7.7mg%
- S. Phosphorus - 5.4 mg%
- ESR - 25 mm/hr
- PSA - 0.362 ng/ml

PERIPHERAL SMEAR

DEPARTMENT OF PATHOLOGY
MADURAI MEDICAL COLLEGE, MADURAI - 20.

Number: Age: 66
 Name: Vincent Sex: M
 Unit / Ward: 113 OP/IP No.: 5712

REPORT

COMPLETE HEMOGRAM

Hb 13.5 g/dl
 RBC 4.83 MILL CUMM
 Hct 15.1 GMS/DL
 MCV - 84.5 fl
 MCH - 31.3 PS
 MCHC - 37.0 g/dl

PLATELET 2.13 LAKHS/CUMM
 WBC N... L... E... M...
 DIFFERENTIAL
 WBC... MMS/HR
 ESR... MTS... SEC
 CRP... MTS... SEC

RBC'S: Normochromic, normocytes.
 WBC'S: Count normal No atypical cells seen.
 DIFF: N 66% L 20% E 10% M 4% Lymphocytes
 Platelets: Normal in number and morphology.
 No Hemoparasites Seen.

NORMAL STUDY.

Handwritten notes:
 Mild Leucocytosis
 Mild Eosinophilia
 WBC: 1350 cells/cumm

OTHER INVESTIGATIONS

- Urine routine - No sugar / albumin
- Urine bence-jones protien - **Negative**
- Sputum AFB - **Negative**

PROTEIN ELECTROPHORESIS

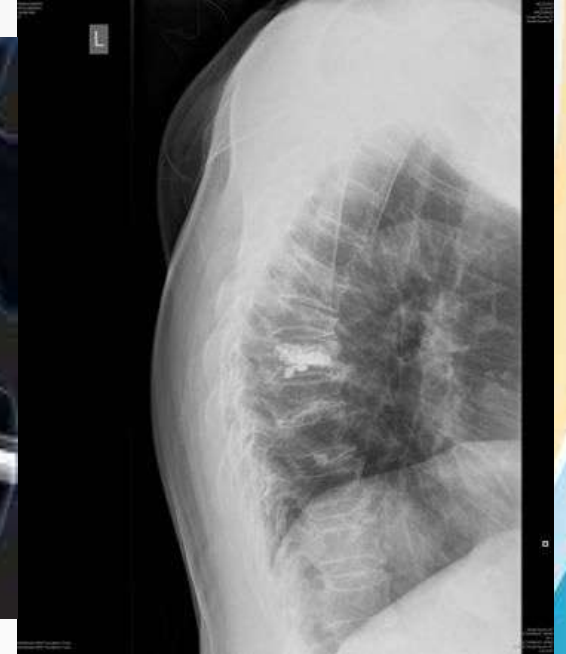
Specimen : BLOOD/SERUM

Method : Electrokinetic separation by Capillary electrophor

TOTAL PROTEIN	6.7	g/dL
ALBUMIN	3.8	g/dL
ALPHA1	0.4	
ALPHA2	0.8	
BETA1	0.5	
BETA2	0.4	
GAMMA	0.8	
"M" BAND	NOT SEEN	
IMPRESSION	THE GRAPH SHOWS INCREASE IN ALPHA 1 AND ALPHA 2 FRACTIONS. M BAND IS NOT SEEN. SUGGESTIVE OF ACUTE INFLAMMATION.	

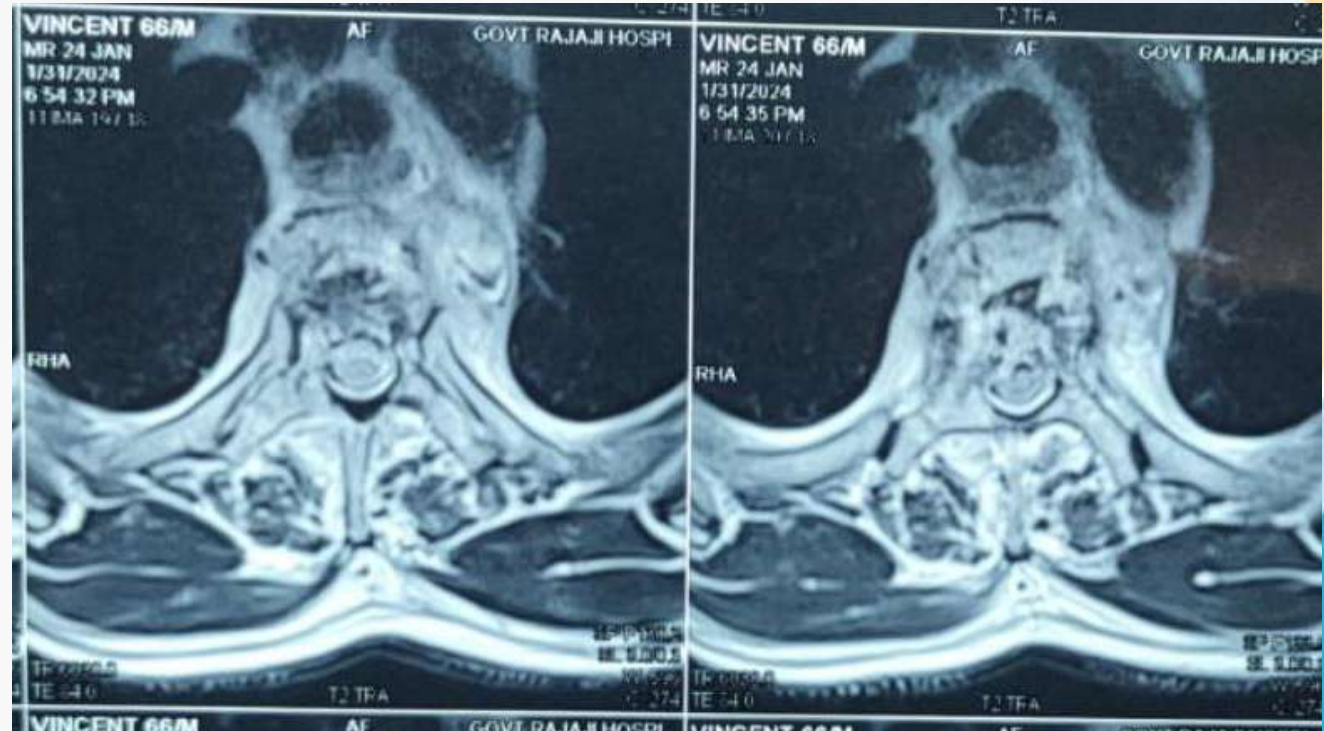
TREATMENT OPTIONS

- CT guided biopsy
- Balloon kyphoplasty
- Vertebroplasty
- Posterior stabilisation by instrumentation



RADIOLOGIST OPINION

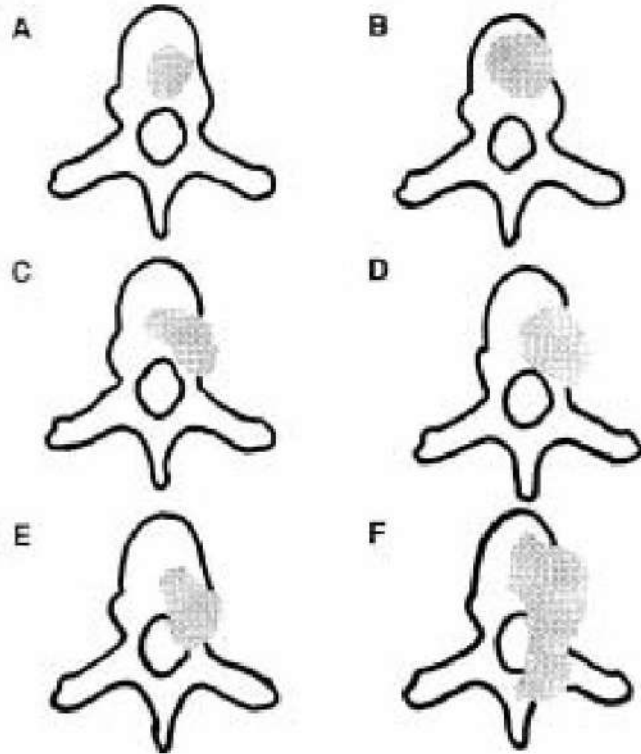
- The CT guided biopsy procedure is technically deferred, in view of difficult approach as the lesion in D3 vertebra and adjacent soft tissue component is small and seen close in proximity to the neurovascular structures.



- Though PET-CT shows hotspot in only D3 vertebra and more in favour of plasmacytoma, other investigations are at odds to the diagnosis.
- Hence patient was planned for definitive procedure for stabilisation of D3 vertebra and open biopsy in a single procedure.

CRITERIA FOR SURGICAL INTERVENTION

TABLE 2
Risk of pathologic vertebral collapse for thoracic vertebrae (adapted from Taneichi et al.¹⁶)



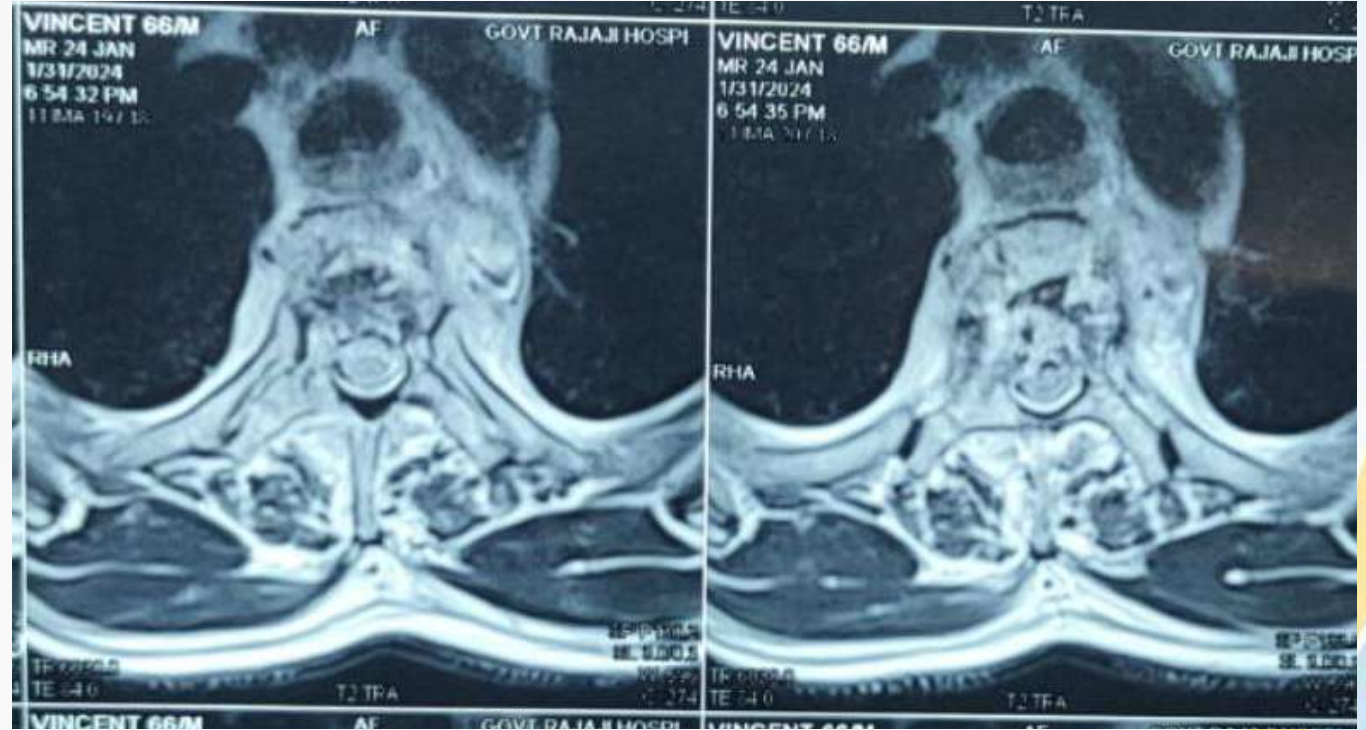
Shaded areas represent osteolytic metastases.

	A	B	C	D	E	F
%TO	30	60	30	60	30	60
Costo-vertebral joint	-	-	+	+	+	+
Pedicles	-	-	-	-	+	+
Posterior elements	-	-	-	-	-	+
Probability of collapse	0.13	0.68	0.57	0.96	0.71	0.98

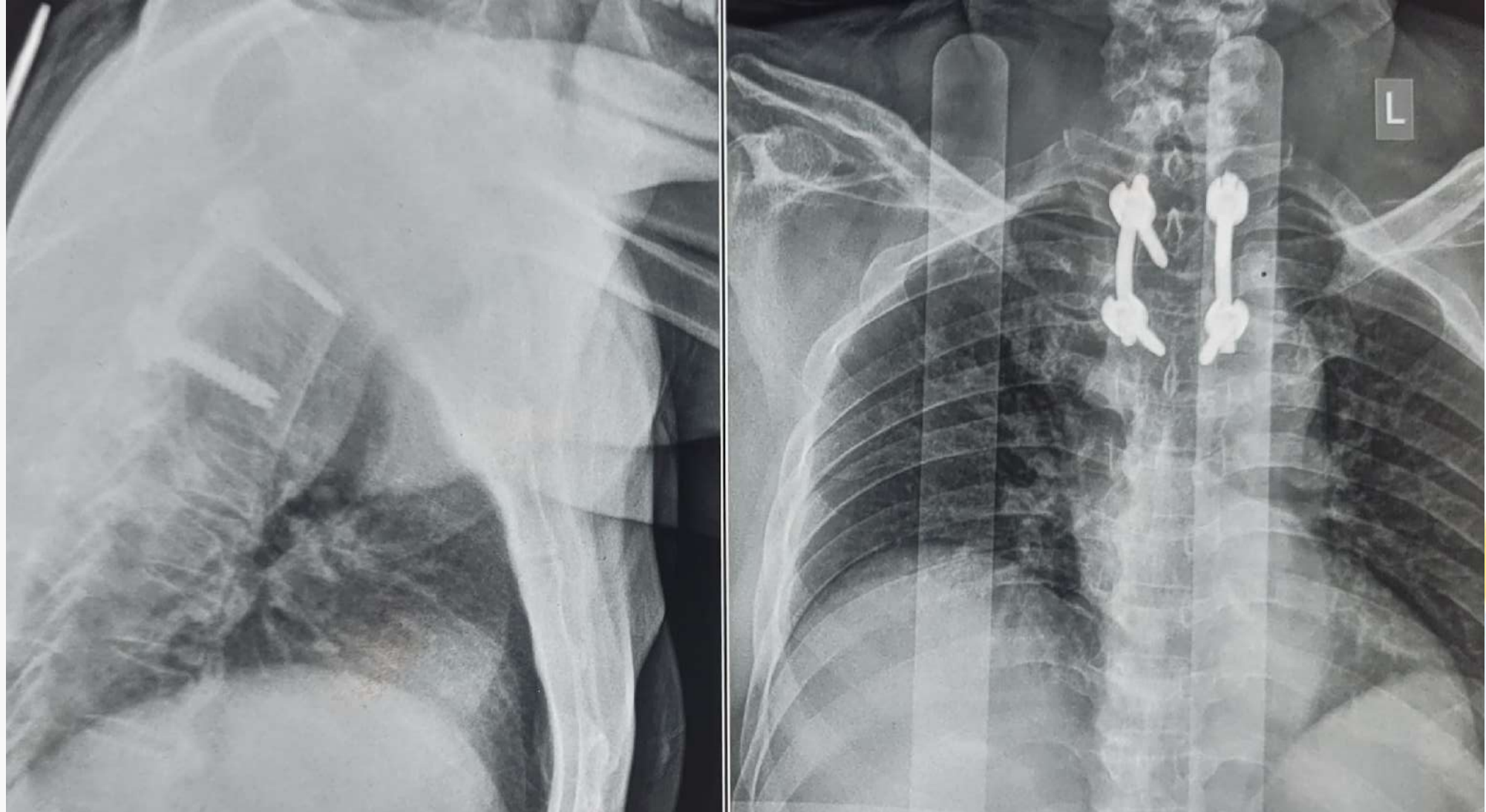
Harrington criteria for surgical indication :

- >50% vertebral body destruction
- Established pathological fractures
- Angular kyphosis
- Neurological deterioration

- In our case, osteolytic lesion involves pedicle and posterior elements and hence
- The probability of progressive vertebral collapse, according to Taneichi, with 90% body involvement and destruction of right pedicle and posterior arch, was 99%
- So he was planned for posterior stabilisation with moss miami system.



POST OP XRAY



BIOPSY REPORT

DEPARTMENT OF PATHOLOGY
MADURAI MEDICAL COLLEGE, MADURAI - 20.

Biopsy Number : 352/24	Age : 66 years
Name : Vincent	Sex : Male
Unit / Ward : Orthopaedics - V unit	OP/IP No. : 5430

REPORT

Clinical details:

D₃ lytic lesion without

Neurological deficit

Macroscopy

Received soft tissue and
in multiple pieces together
2x2x1 cm. Cut surface - Grey
bony tissue
measuring
white.

Microscopy:

Sections studied from biopsy
received show bony trabeculae, skeletal
muscle bundles and marrow particles
composed of hematopoietic cells of
(PTO)

all lineages with increase in plasma
cells with binucleate forms.

Needed Immunohistochemical

studies for further evaluation.

17/2/24

Dr. V. BAGIYALAKSHMI, M.D.,
Register No: 51199
Associate Professor of Pathology
Madurai Medical College
Madurai-625020.

IHC REPORT

DEPARTMENT OF PATHOLOGY
MADURAI MEDICAL COLLEGE, MADURAI -20.

Biopsy Number : 352/24 Age : 66 years
Name : Vincent Sex : Male
Unit / Ward : Orthopaedics - II OP/IP No. : 5430

Additional report: **REPORT**

Clinical details :

D3 lytic lesion

Histopathology report:

Increase in plasma cells.

Immunohistochemistry:

CD138 - strong membranous
positivity in plasma cells constituting
30%.

Suggested tissue flow cytometry for
further evaluation.

27/2/24



Dr. A.G. KRISHNAVENI, M.D
Register No. 57980
Associate Professor of Pathology
Madurai Medical College
Madurai-625020

Patient's pain has been relieved significantly and now patient is being followed up in medical oncology dept for radiotherapy and further management



TAKE HOME MESSAGE

SOLITARY PLASMACYTOMA - CRITERIA

- No M-protein in serum and/or urine
- Single area of bone destruction due to clonal plasma cells
- Bone marrow not consistent with multiple myeloma
- Normal skeletal survey
- No related organ or tissue impairment (no end organ damage other than solitary bone lesion)

THANK YOU ALL

