Case Report

- 50 y/o male
- Came to Dr.陳‘s OPD on 92/11/14
- C.C : sudden onset low back pain for 2 months

OPD

- The pain radiate to the lateral side of left thigh and calf
- He came to LMD first, but the symptoms did not response well to the medication

OPD

- PE :

  the pain was distributed at the left side L5 dermatome.

  but the SLRT was 90 degree bilaterally.

  Muscle power of the left great toe decrease.

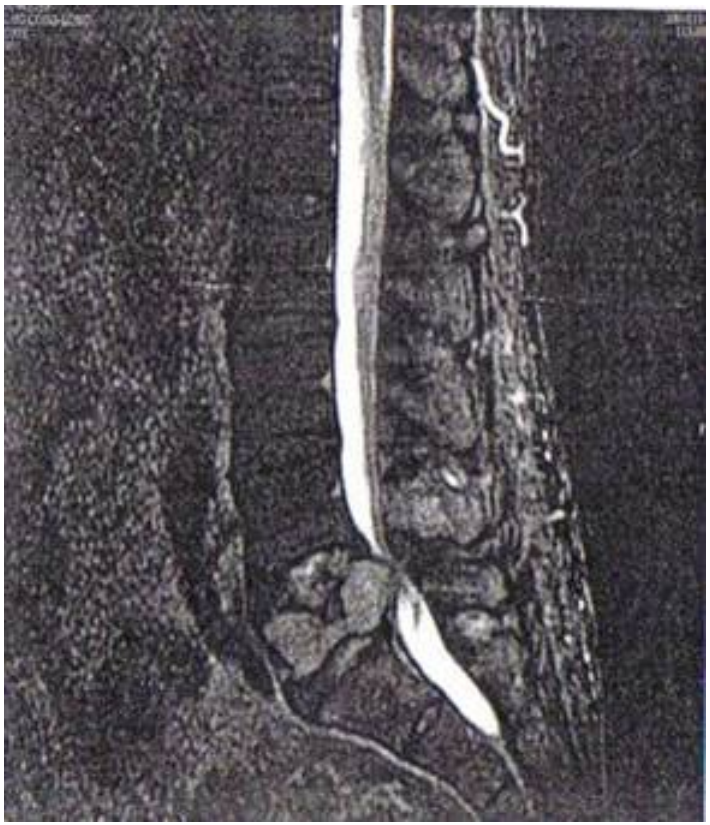
  Faber test R/L : -/+.

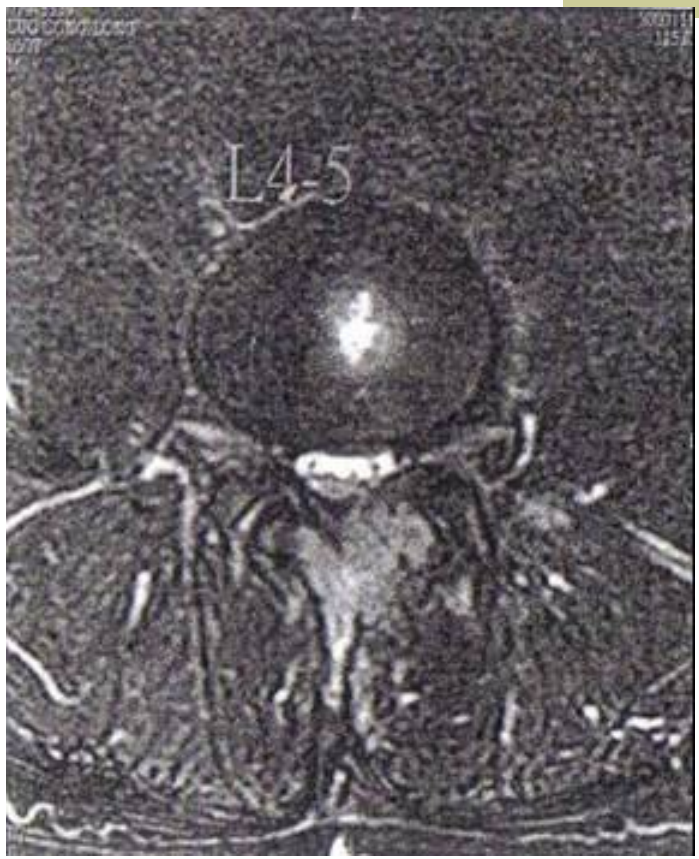
  tenderness over the left gluteal region

X ray spine lateral view

- Degenerative lumber spondylosis with intervertebral space narrowing at L5-S1

MRI





MRI

- Compression fracture of the L5 vertebral body, and bone fragment extension backward with encroachment on the spinal cord
- Bone marrow replacement of L5 vertebral body and the L4 posterior element are noted
- Blockage of the lumber spinal canal at the L5 level
- Bone metastasis should be considered
- One mass lesion at the L5

Admission

- Personal history: smoking for over 10 yrs but quit for 4 yrs, allergy to shrimp
- Past history: HTN for 5 yrs under medical control
- PE: spine tenderness
- Lab: %NEU [40-74%] 79.5
  %LYM [19-48%] 14.7
  GPT [0-40 IU/L] 50

Admission

- Image:

  chest X-ray: trachea deviated to right

  Sono: Fatty metamorphosis, liver

  Multiple cyst, liver

  Stone and polyps, gallbladder

  Bone scan (whole body and spot view of lumber spine) : slightly increased tracer uptake in the lower lumber spine

- Transfer to 萬芳 for operation

Differential Diagnosis

- 1.metastasis
- 2.infection
- 3.osteoporosis
- 4.trauma
- 5.eosinophil granuloma

D/D metastasis

- Important signs on X-ray and CT: lysis and sclerosis
- The collapse may mask the area of bone destruction in the vertebral body
- True destruction of the disc space does not occur
- Radionuclide bone imaging may reveal increased activity around neoplastic tumor deposit because of increased bone turnover

D/D metastasis

- MRI is the best accurate test for demonstrating metastasis
- Tumor tissue has significantly different signal characteristics than normal bone marrow, low signal on T1, high signal on T2
- MRI has the advantage that it can detect any spinal cord or nerve root compression

D/D metastasis

- Metastasis (arrow) causing complete collapse of the vertebral body.
- The adjacent vertebral discs are unaffected

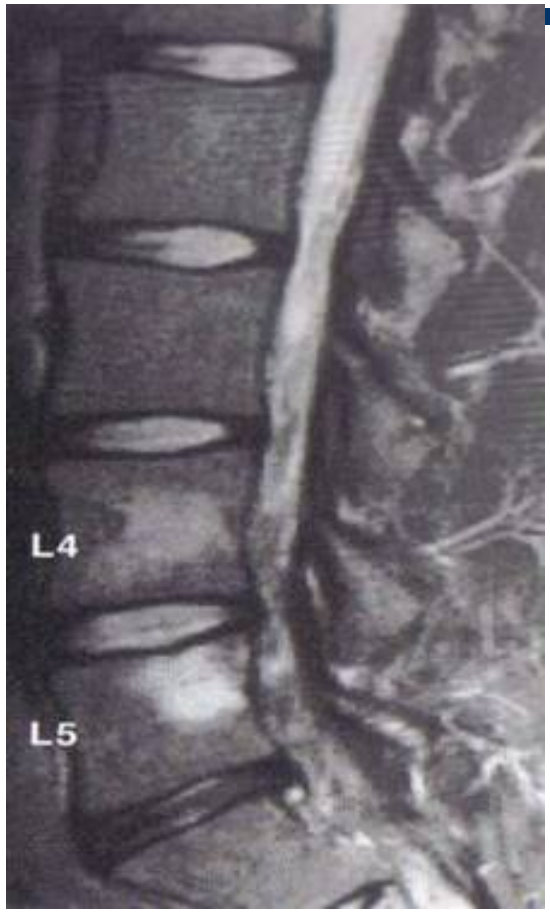
D/D metastasis

- Lateral view of the upper lumber spine
- Abnormal bony architecture and varying degrees of collapse of several of the vertebral bodies

D/D metastasis

- T1 show widespread metastasis appeared as low signal areas
- A particularly large metastasis seen in L2 (curved arrow)
- L4 is collapsed (straight arrow)

D/D metastasis



- Lymphoma
- T2 show high signal areas in L4 and L5

D/D infection

- The hallmark of infection is destruction of the intervertebral disc and adjacent vertebral bodies
- Early in the course of the disease, there is narrowing of the disc space with erosionof the adjoining surface of the vertebrall body
- Later, bone destruction may lead to collapse of the vertebral body, resulting in a sharp angulation known as a gibbus
- A paravertebral abscess is usually present

D/D infection

- CT shows the bone destruction and paravertebral sof t tissue swelling to the advantage but is a poor technique for demonstrating disc space narrowing

- MRI has the advantage that it can demonstrating disc space narrowing, altered signal in the adjacent vertebral body and adjacent soft tissue swelling

D/D infection

- Needle biopsy / aspiration of the infected disc or adjacent vertebral body under X ray or CT control is a very useful technique to confirm the diagnosis and identify the responsible organism
- Bony fusion of the vertebral bodies across the obliterated disc spaces occurs with healing
- Tuberculous paravertebral abscesses may calcify

D/D infection

- The disc space is narrowed and there is destruction of the surfaces of the adjacent vertebral bodies (arrow)

D/D infection

- Tuberculosis of the spine
- Destruction of the vertebral bodies and the intervening discs has occurred with the formation of a sharp angulation (gibbus)
- One vertebral body is almost completely destroyed (arrow)

D/D osteoporosis

- Generalized reduction in bone density
- The disc spaces are normal or even slightly increased in height and the pedicles are intact
- Marrow signal is normal at MRI

D/D osteoporosis

- Forty percent of all women will have at least one by the time they are 80 years old
- 75% of women aged older than 65 years who have scoliosis have at least 1 osteopenic wedge fracture
- In severe cases of osteoporosis :loss of height and a humped back

D/D trauma

- Compression fracture is commonly due to forward flexion of the spine, causing the vertebral body to become wedge shaped
- The superior surface is usually convave
- The discs are normal but may shown on impacted into the fractured bone
- Associated fractures may be seen in the pedicles or neural arch, but the bone and discs are normal

D/D trauma

- CT can be very useful to show the extent of any fractures
- MRI is useful for demonstrating hemorrhage and contusion of the spinal cord in these patient

D/D trauma

- The concave superior surface of the collapsed vertebral body

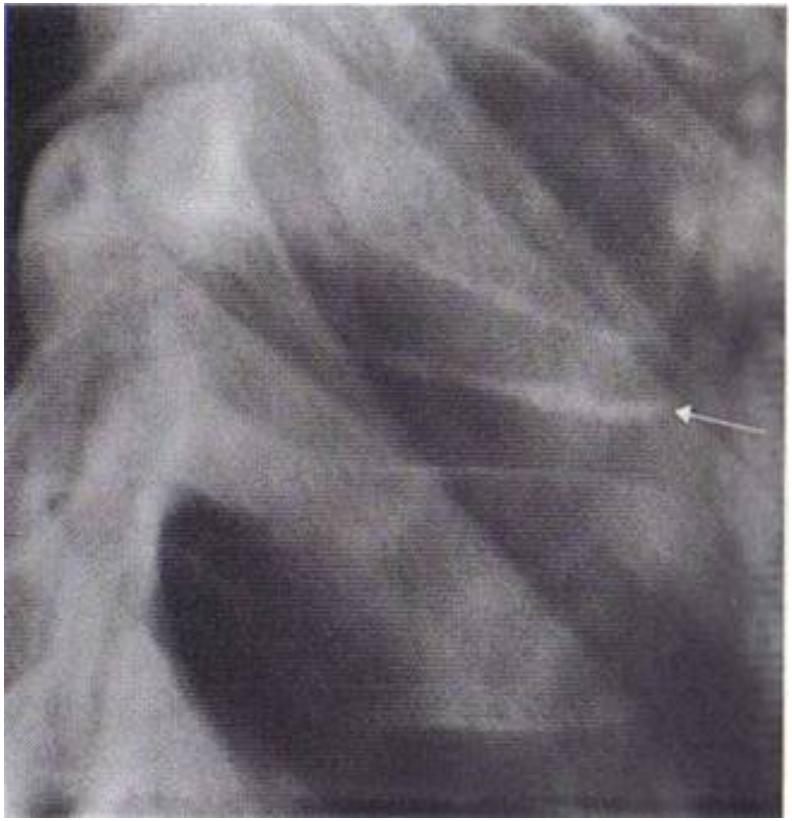
D/D trauma

- MRI of traumatic collapse
- There is no abnormality of the bone marrow of the collapsed vertebra

D/D eosinophil granuloma

- Complete collapse of one or more vertebral bodies may occur in children or young adults with Langerhans histiocytosis (eosinophil granuloma)
- The vertebral body is flattened and sometimes referred to as a vertebra plana
- The adjacent discs are normal and the pedicles are usually preserved

D/D eosinophil granuloma



- In this child the vertebral body is so collapsed that it resembles a thin disc (arrow)

Pre-operation in 萬芳

- CT scan of chest:

  1.left thyroid tumor

  2. Metastastic tumors in lung and spine

- T3: 103.2 ug/dl (70-200)

  T4: 8.61 ug/dl (5.1-13.5)

  TSH: 2.23 uIU/ml (0.27-4.2)

Operation in 萬芳

- The ligamentum flavum and laminae of vertebra, L3~S1 were resected
- Pathological report: metastatic carcinoma favoring metastastic thyroid follicular carcinoma
- Thyroid sonography in 萬芳: multiple goiter
- Cytology in 萬芳: Atypical cellular change

Operation in 北醫

- Then patient transfer to 北醫 for bilateral total thyroidectomy
- Pathological report: (after OP)

  Suspicious follicular variant papillary carcinoma of thyroid involvement at soft tissue

Discussion
Papillary Carcinoma of Thyroid

- Papillary carcinoma is the more common well-differentiated cancer of the thyroid. (70%)
- Papillary/follicular carcinoma must be considered a variant of the papillary thyroid carcinoma (mixed form).
- Papillary carcinoma appears as an irregular solid or cystic mass in a normal thyroid parenchyma.

Thyroid, Papillary Carcinoma

- female-to-male ratio is near 3:1
- 10-15% present with lymph node, lung or bone metastases
- Greater-than-normal levels of T3, T4, TSH may indicate thyroid cancer.
- the serum level of carcinoembryonic antigen (CEA) may be helpful, but not specific

Thyroid, Papillary Carcinoma

- the *ret* shows a paracentric inversion of chromosomes 10 and 11 in 30-35% of the cases
- with a mean age of 49 years and an age range of 15-84 years
- The most common presentation of thyroid cancer is an asymptomatic thyroid mass or a nodule that can be felt in the neck.

Thyroid, Papillary Carcinoma

- Echography :This imaging study must be performed first in any patient with possible thyroid malignancy
- Echography is also useful for localizing lesions when a nodule is difficult to palpate or is deeply seated.
- Echography images can help determine if a lesion is solid or cystic and can help detect the presence of calcifications.

Thyroid, Papillary Carcinoma

- Chest radiograph, CT scan, and MRI are not usually used in the initial workup of a thyroid nodule, except in patients with clear metastatic disease at presentation.
- These tests are second-level diagnostic tools and are useful in preoperative patient assessment.

Compression fracture of vertebral body

- usually occur at the bottom part of the thoracic spine (T11 and T12) and the first vertebra of the lumbar spine (L1)
- too much pressure or bone is too weak

Symptoms

- fracture is caused by trauma, severe pain in your back, legs, and arms. weakness or numbness in these areas if the fracture injures the nerves of the spine

- If the bone collapse is gradual - such as a fracture from bone thinning, the pain will usually be milder. There might not be any pain at all until the bone actually breaks.