

# *Referral pain*

Disease in organs that segmental innervation  
with the spine can cause pain to the spine

## Local signs of disease are absent

Tenderness to palpitation

Paravertebral muscle spasm

Increased pain on spinal motion

Pelvic diseases refer pain to the sacral area

Lower abdominal diseases to the lumbar area

Upper abdominal diseases to the lower thoracic  
spine area

# *Visceral pathology*

Gastrointestinal diseases

Urogenital

Retroperitoneal pathology

vascular

# *Gastrointestinal*

Gastric ulcer

Gastric cancer

Duodenal (ulcer-cancer)

Biliary diseases

Pancreatitis

Diverticulitis

Colon cancer

# *Urogenital*

Pyelonephritis

Renal stone

Chronic prostatitis

Endometriosis

Ovary cysts, neoplasms

Uterus cancer

Uterus prolapse

Menstrual pain

Pregnancy

Low back pain during pregnancy is common

Starts between the fifth and seventh months

The etiology is unclear

Biomechanical, hormonal and vascular factors have been implicated

Most women have resolution of their pain in postpartum

# *Retroperitoneal pathology*

Cancer (sarcoma)

Retroperitoneal hemorrhage(usually in a patient taking anti-coagulant)

Iliopsoas pathology

# *vascular*

expanding of Aortic aneurisms

Rupture in aortic aneurisms

Triad 1-sever tearing pain in the chest or upper back

2 -shock

3-abdominal pain

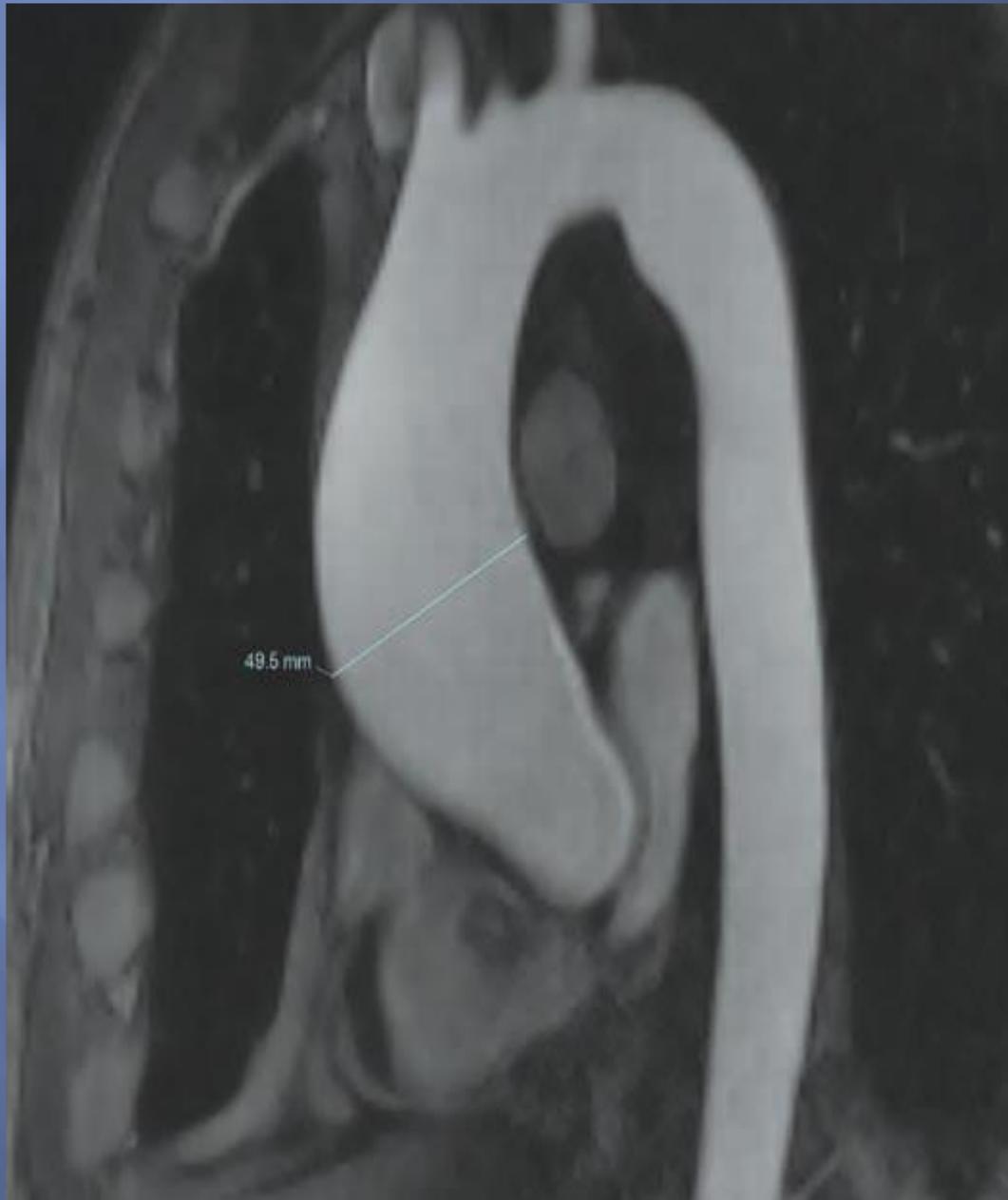
Triad in 20% of rupture in aortic aneurisms

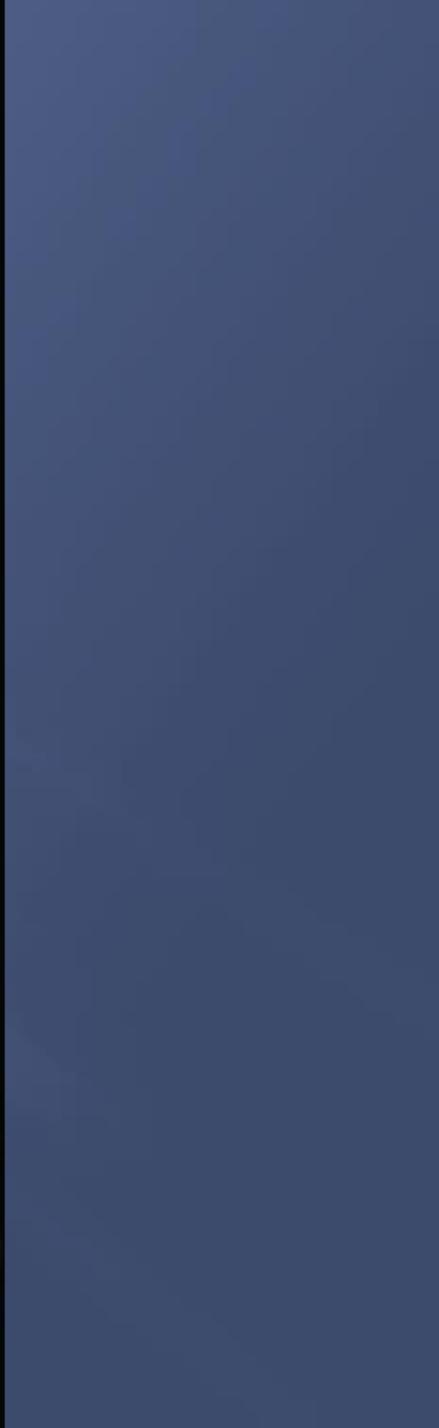
Myocardial infarct

Isolated LBP (only chief complaint)

Pulsatile mass (present in 50%-70% of patients)

Sonography , CT scan, MRI





# *Neoplasm*

Neoplasia accounts for less than 1% of cases of LBP

Benign tumor(local pain and involve the posterior elements of vertebrae)

Malignant tumor(more diffuse pain and systemic symptoms and more typically involve the anterior element of vertebra )

# *Neoplasm*

spine (97%) Most cases result from involvement of the  
by metastatic carcinoma

Vertebral metastases occur in 3%-5% of people with  
cancer

More commonly seen in the thoracic spine (39%)

Most cases result from  
prostate, lung, breast, thyroid, gastrointestinal, kidney,  
colon, uterin, cervix, bladder

# *Spinal cord tumor*

**Extradural tumors**(between bone and the outermost covering of the spinal cord )

Most commonly metastatic in origin

**Intradural – extramedullary**(between the dura and the spinal cord)

Neurofibroma, meningioma

**Intramedullary**(in the spinal cord proper)

Ependymoma

astrocytoma

# *Neoplastic lesion of the lumbosacral spine*

## Benign

- osteoid osteoma
- Osteoblastoma
- Osteochondroma
- Giant cell tumor
- Aneurysmal bone cyst
- hemangioma
- Eosinophilic granuloma
- sacroiliac lipoma

# *Osteoid osteoma*

Benign tumor (7%) occur in the spine  
most frequently in the lumbar area

Typically presents with low back pain

In the second or third decade of life

Functional scoliosis secondary to paravertebral  
spasm

Predominantly involve the posterior elements of  
the spine usually the neural arch

Bone scan, CT scan, MRI can detect

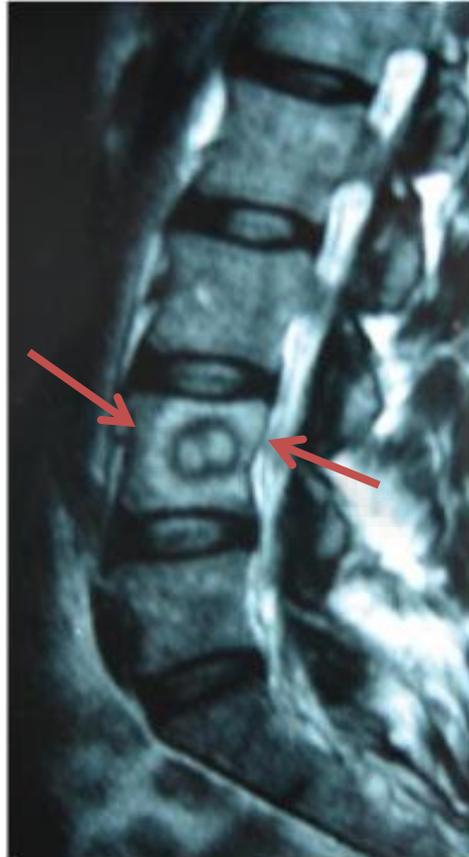
A sclerotic lesion measuring less than 1.5 cm with a lucent nidus is pathognomonic

Treatment

Nsaids

Intolerable pain(surgery)

Spontaneously resolve during the course of several years



**Figure 5** - Magnetic resonance showing a sagittal section through the lumbar column in a T2 sequence, demonstrating the tumor niche and the sclerosis halo.





# *Neoplastic lesion of the lumbosacral spine*

## **Malignant**

Multiple myeloma

Chondrosarcoma

Chordoma

Lymphoma

**Skeletal metastases are 25 times more common than primary tumors**

# *Neoplastic lesion of the lumbosacral spine*

Vertebral body(85-90)

Leptomeningeal carcinomatosis (Rarely)

Lunge cancer

melanoma

Lymphoma

Leukemia

Breast cancer

Spinal cord(rarely)

# *Clinical feather*

Low back pain in 20% of metastatic cancer is primary of cancer presentation

Persistent and progressive pain that is not alleviated by rest  
Often worse in night and recumbency (both benign and malignant tumor)

Radiculopathy

Cauda equina syndrome → cord compression

Paraplegia

Poly radiculopathy → (Leptomeningeal carcinomatosis )

# *Risk factors*

History of cancer

Unexplained weight loss

Failure to improve after 1 month of conservative  
therapy

Age older than 50 years

# Diagnosis

Plain radiographs are less sensitive than other imaging tests

Approximately 50% of trabecular bone must be lost before a lytic lesion is visible

Metastatic lesion

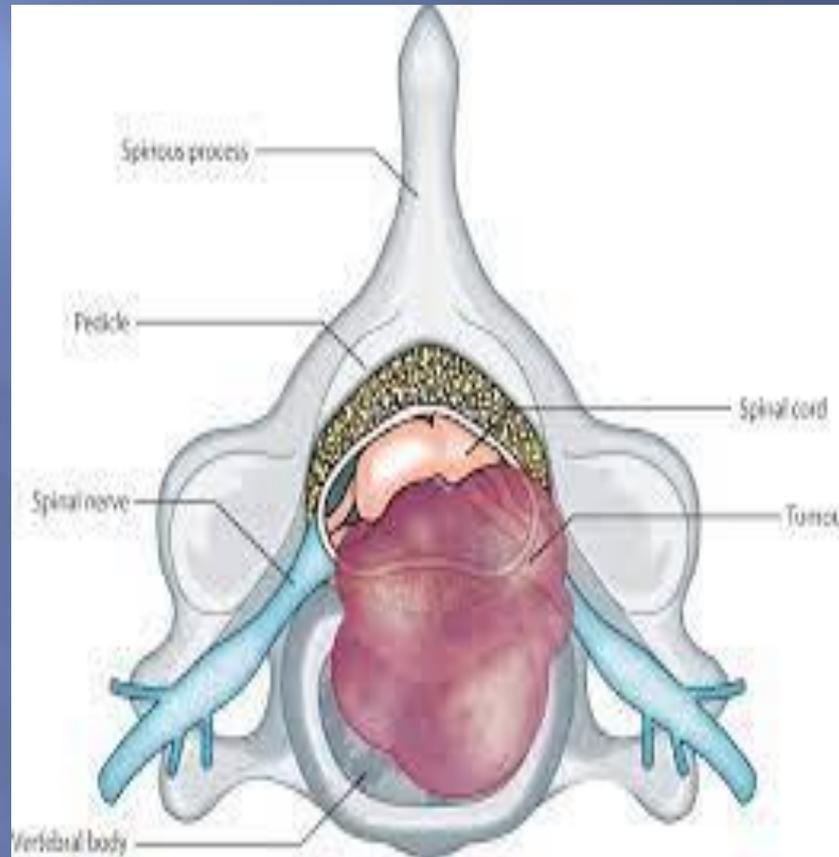
lytic(kidney, thyroid) hypercalcemia

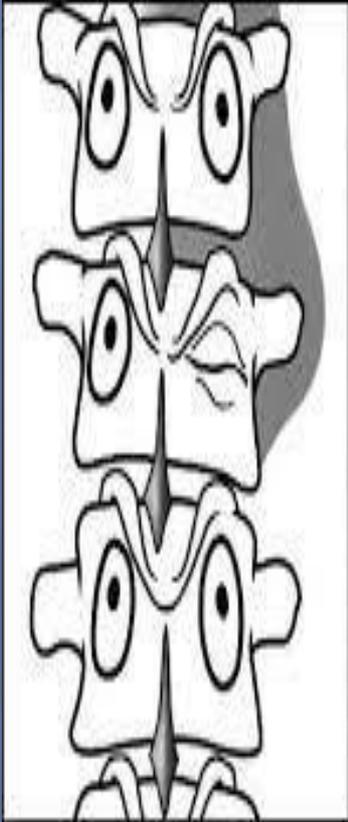
Blastic (colon) ↑ ALK

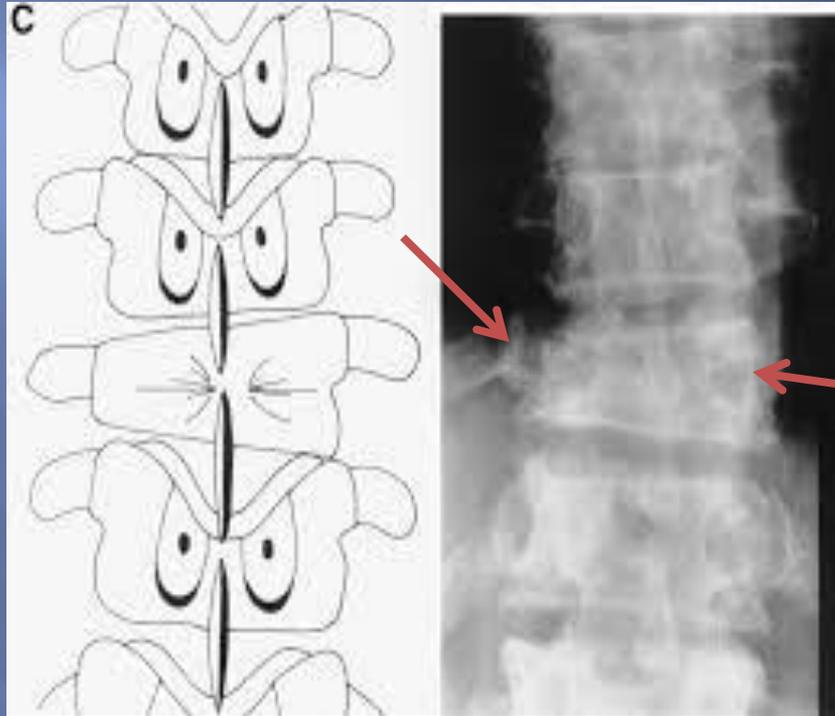
Mixed(breast, lung, bladder)

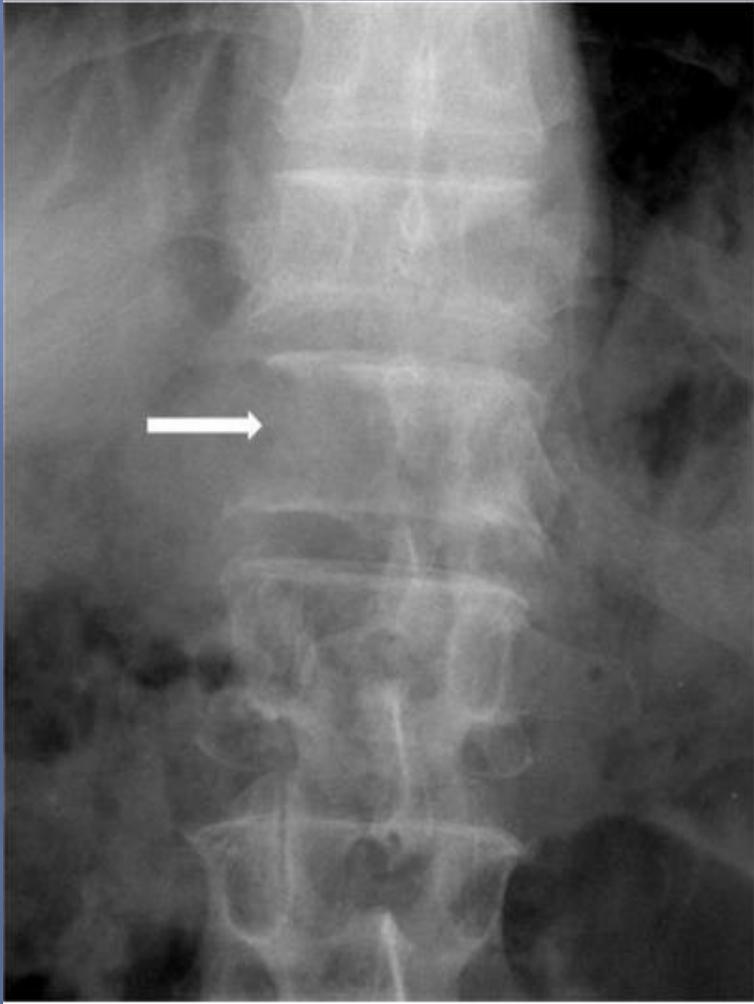
Unlike infections ,the disk space is usually spared.











# *MRI*

The greatest sensitivity and specificity in the evaluation of spinal tumors

Show tumor in the spinal cord, extra osseous extension, and bone marrow replacement

CT scan is more helpful in detecting cortical bone involvement and bone mineralization

Choice



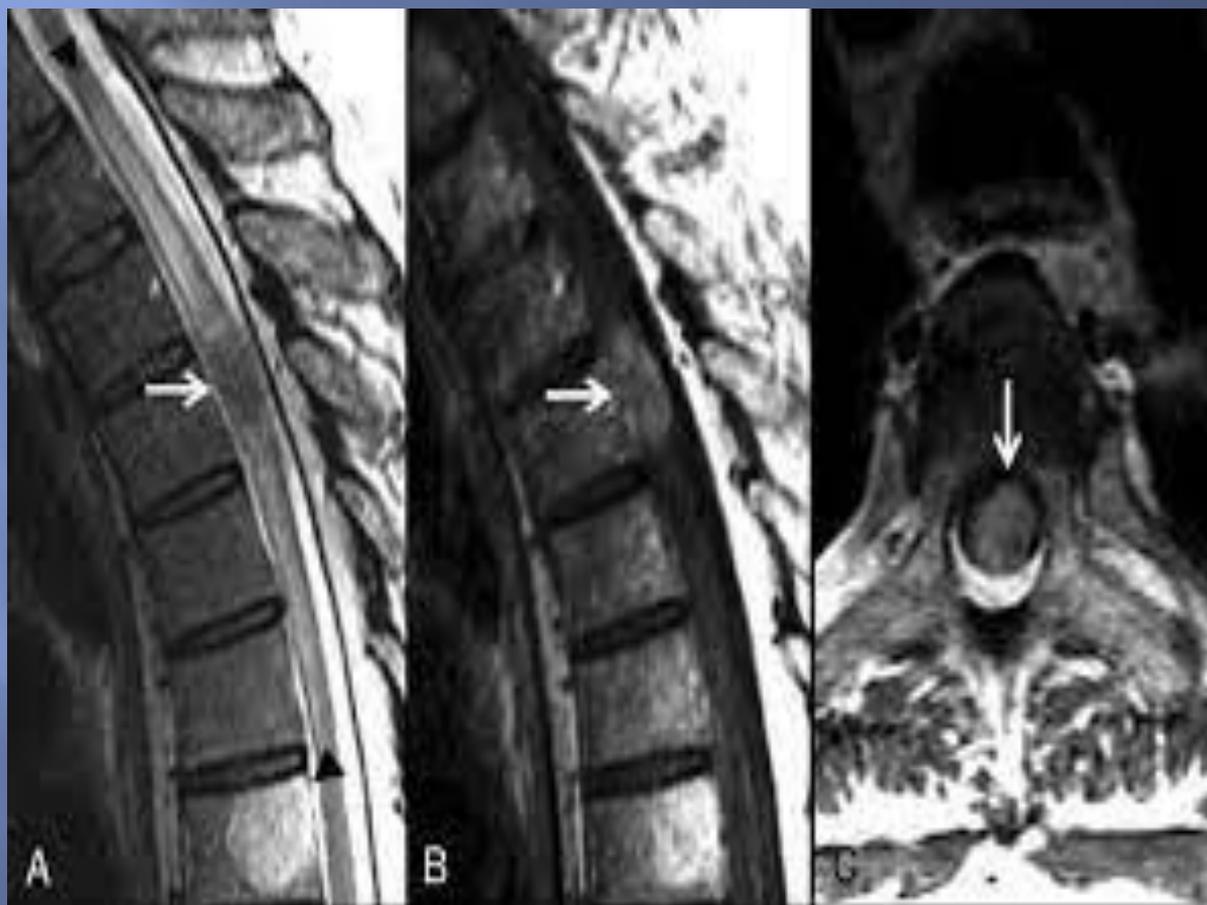
MRI

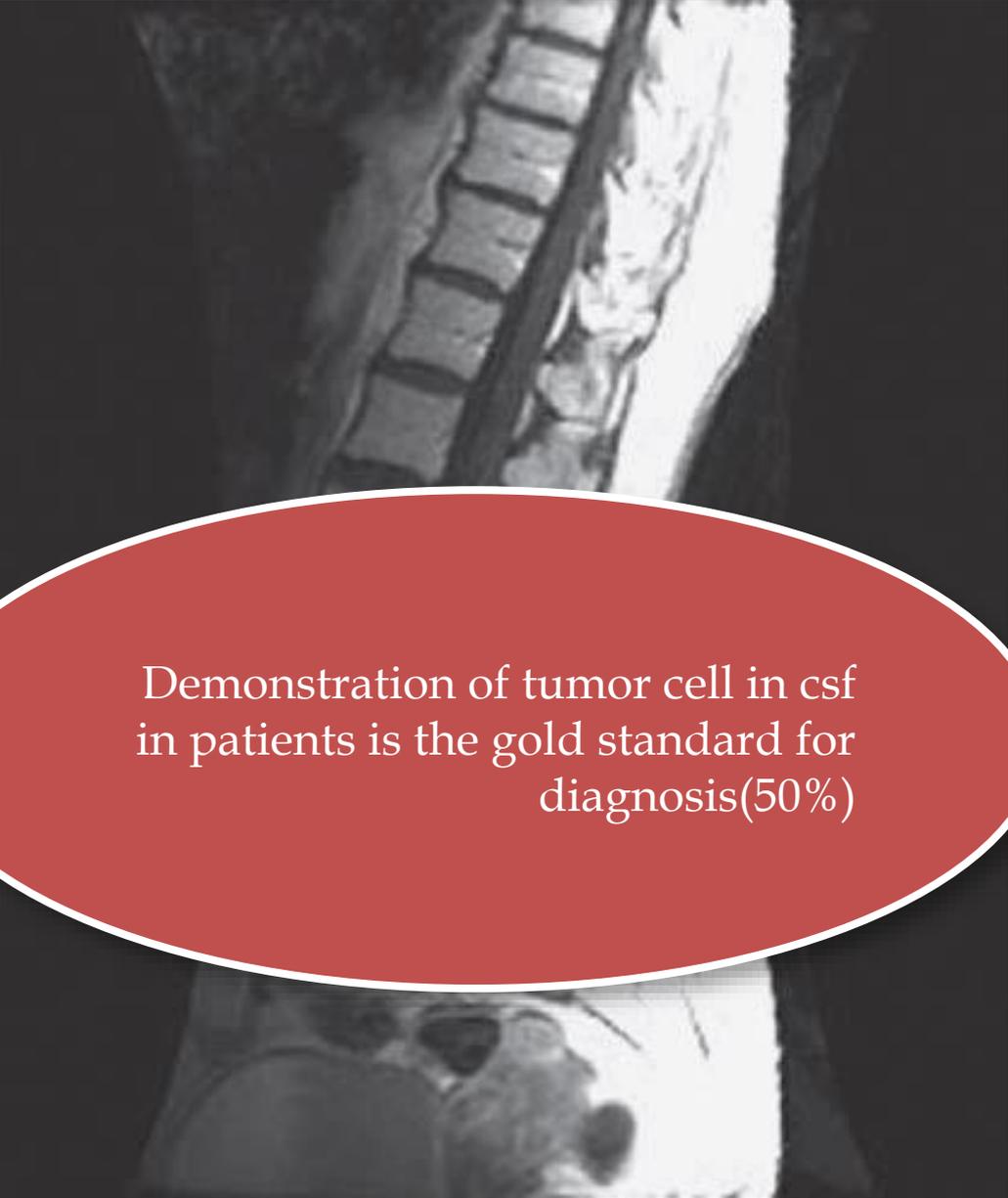




# *Diagnosis*

MRI can be definitive when there are  
Tumor nodules adherent to the cauda equine or  
spinal cord

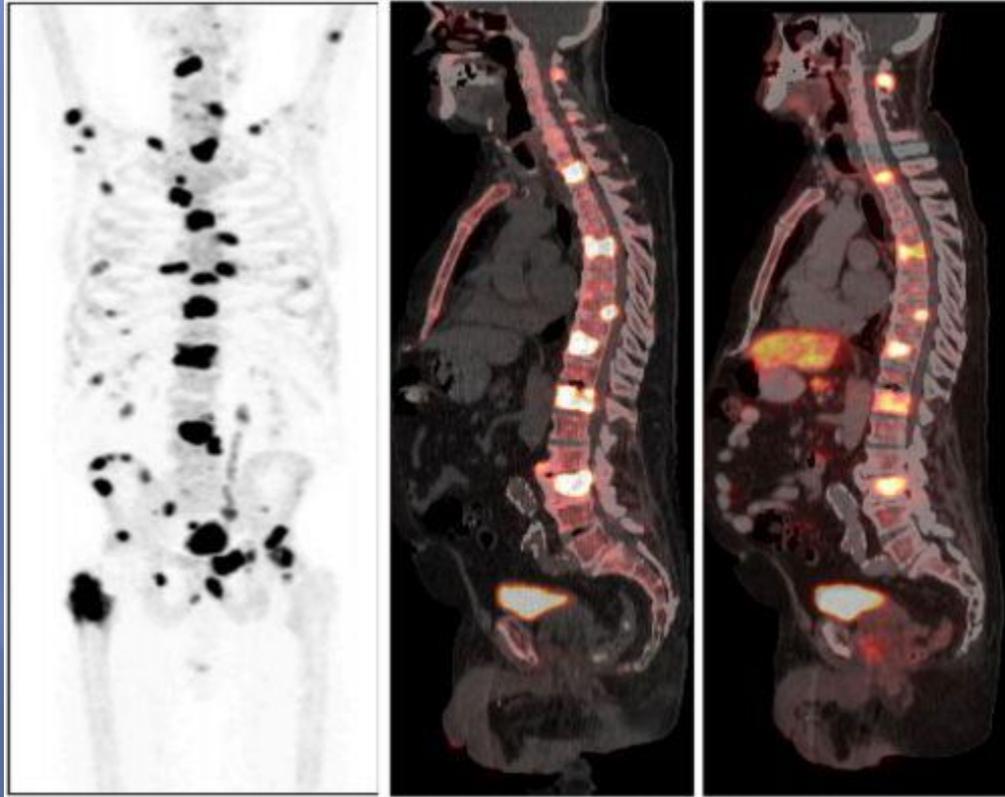


The image is a vertical MRI scan of the spine, showing the vertebrae and the spinal cord. A red oval with a white border is superimposed over the center of the image, containing text. The text reads: "Demonstration of tumor cell in csf in patients is the gold standard for diagnosis(50%)".

Demonstration of tumor cell in csf  
in patients is the gold standard for  
diagnosis(50%)

Bon scan is positive in (85%)

Bone scan will not be detect a purely lytic lesion  
such as multiple myeloma



# *Treatment*

Treatment is palliative

Radiotherapy

Chemotherapy

Intrathecal chemotherapy

Surgery

# *Multiple myeloma*

Is the most common primary malignancy of bone in adult

Typically range in age from 50-70 years

Low back pain is the initial complaint in 35% of patient

The pain is aching and intermittent at onset,

Aggravated by weight bearing

Improved with bed rest

Radicular symptom

Paraplegia (more commonly with solitary plasmacytoma)

Spinal cord compression may occur with vertebral body collapse

Diffuse bone tenderness, fever, purpura

Anemia, leukocytosis, thrombocytopenia,  
elevated ESR, hyperuricemia, elevated creatinine,  
positive coombs test

Increase in serum proteins (abnormal  
immunoglobulins in any of the five classes)

Bence jones protein (production of excess  
immunoglobulin light chain)

# *diagnosis*

Bone marrow aspiration or biopsy reveals an excess number of plasma cell

Plain radiography's demonstrated osteolysis without reactive sclerosis

**MRI is best for identifying**





# *Treatment*

## Chemotherapy

In patients with cord compression decompression laminectomy is indicated, with or without local radiotherapy

# *Miscellaneous*

Epidural lipomatosis

May be in obese patients

Side effect of long-term use of corticosteroid(rarely)

Increase in epidural adipose tissue that causes narrowing of the spinal canal

# *Miscellaneous*

Fibromyalgia and polymyalgia rheumatica are two conditions in which LBP may be a prominent part of the clinical syndrome