Case report :Tuberculous spondylodiscitis

นักศึกษาแพทย์ชั้นปีที่ 6 คณะแพทยศาสตร์ มหาวิทยาลัยธรรมศาสตร์

ภาควิชาศัลยกรรมประสาทและสมอง โรงพยาบาลธรรมศาสตร์เฉลิมพระเกียรติ

1. นางสาวธัชชา กลลดาเรืองไกร 6011670095
2. นางสาวนวลวนัช สาริมาน 6011670129
3. นายเจตพัฒน์ เล็งศิริวัฒน์ 6011670384
4. นายพิรุฬห์ สมสุขสวัสดิ์กุล FEX1048

Patient's profile

- ผู้ป่วยชายไทย อายุ 54 ปี
- ภูมิลำเนา: จังหวัดสระแก้ว
- สิทธิ์การรักษา: ประกันสุขภาพถ้วนหน้า

Chief complaint

- ปวดหลังมานาน 6 months PTA

Present illness:

<u>6 months PTA</u>

มีอาการปวดหลัง ร้าวลงขา 2 ข้าง มีอาการปวดมากเวลายืน เดิน หรือเวลาที่หลังตรง นั่งไม่ได้เพราะปวดมาก อาการปวดจะบรรเทาลงหากคนไข้นอนราบ อาการปวดเป็นมากขึ้นเรื่อยๆ ตอนนี้คนไข้ให้ PS 10/10 ไม่มีอ่อนแรง แต่มีอาการชาที่ขาทั้ง 2 ข้าง ร่วมกับมีอาการชารอบก้น ไม่มีอาการปัสสาวะลำบาก สามารถกลั้นอุจจาระได้ ไม่มีไข้ ไม่มีไอ ไม่มีเบื่ออาหาร

ไม่มีประวัติน้ำหนักลด(คนไข้ไม่ได้สังเกตหรือชั่งน้ำหนัก) ไม่มีประวัติพลัดตกหกล้มหรือยกของหนัก ไปที่คลินิกจังหวัดสระแก้ววินิจฉัยกระดูกทับเส้นประสาทให้ยาแก้ปวดมากินแล้วไม่ดีขึ้น

2 months PTA

refer มาโรงพยาบาลธรรมศาสตร์เฉลิมพระเกียรติ Low back pain with neurogenic claudication, limb pain especially buttock pain, มี progression of claudication, อาการปวดหลังร้าวลงขาแย่ลงแม้ขณะนอน

Past history

- โรคประจำตัว: ความดัน เกาต์ รักษาและรับยาอยู่ที่ รพ.วัฒนานคร จ.สระแก้ว

Current Medication

- Allopurinol (100) 1x2 po pc
- Colchicine (0.6) 1x1 po pc
- Enalapril (5) 1x1 po pc
- Omeprazole (20) 1x1 po ac
- Ethambutol (400) 3x1 po hs
- Isoniazid (100) 3x1 po hs
- Rifampicin (300) 2x1 po hs
- Vitamin B6 (50) 1x1 po pc

Social history

- ปฏิเสธประวัติสูบบุหรี่ ดื่มแอลกอฮอล์ หรือใช้สารเสพติดอื่น ๆ
- ปฏิเสธประวัติการใช้ยาต้ม ยาหม้อ ยาลูกกลอน ยาสมุนไพร หรืออาหารเสริมอื่น ๆ

Family history

- ปฏิเสธประวัติโรคมะเร็งหรือวัณโรคในครอบครัว

Physical examination

V/S: BT 36.8c BP 133/87 mmHg PR 80 bpm RR 20 /min

GA: Alert, Good Consciousness, Well Co-operative

Measurement: BW 73 kg Ht. 165 cm

HEENT: No pale conjunctiva, No jaundice

CVS: Normal S1 S2, no murmur, Capillary refill < 2sec

RS: Clear and Equal on auscultation both lungs

Abd: Soft, not tender, no guarding

Ext: No pitting edema, No rash

Neurological examination

- Mental status: Alert, good consciousness
- Cranial nerve:
    - CN II: pupil 3 mm BE RTLBE, VA 20/20 BE, Fundoscopy no papilledema
    - CN III IV VI: full EOM
    - CN V: normal face sensation
    - CN VII: no facial palsy
    - CN VIII: grossly normal hearing
    - CN IX X: normal
    - CN XI: normal

    - CN XII: no tongue deviation
- Motor power:
    - Elbow flexors V
    - Wrist extensors V
    - Elbow extensors V
    - Finger flexors V
    - Finger abductors V
    - Hip flexors V
    - Knee extensors V
    - Ankle dorsiflexors V
    - Long toe extensors V
    - Ankle plantar flexors V
- Sensory: pain at low back, decrease sensation below L4 dermatome level
- DTR 2+
- Cerebellar examination: no ataxia, normal Finger to nose test
- Stiff neck: Negative
- SLRT: Negative
- Babinski reflex: Negative
- Clonus: Negative
- loose sphincter tone
- full Bladder

Pertinent findings

- Chronic low back pain for 6 months

- Decreased sensation below L4 dermatome

- Loose sphincter tone

- Full Bladder

Problem list

- Chronic Low back pain for 6 months
- Decreased sensation below L4 dermatome

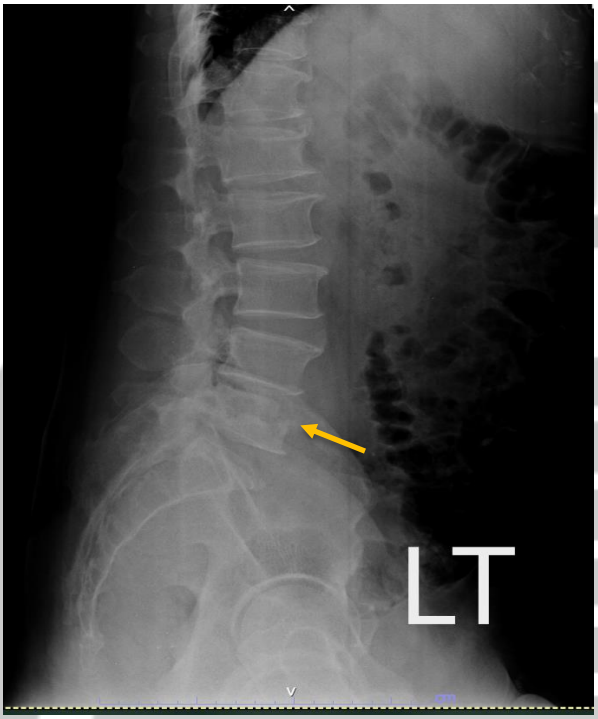
Differential diagnosis

- Spondylitis
- Disc Herniation
- Inflammatory arthritis
- Spine Tumor
- Multiple myeloma
- Muscle sprain

Investigation

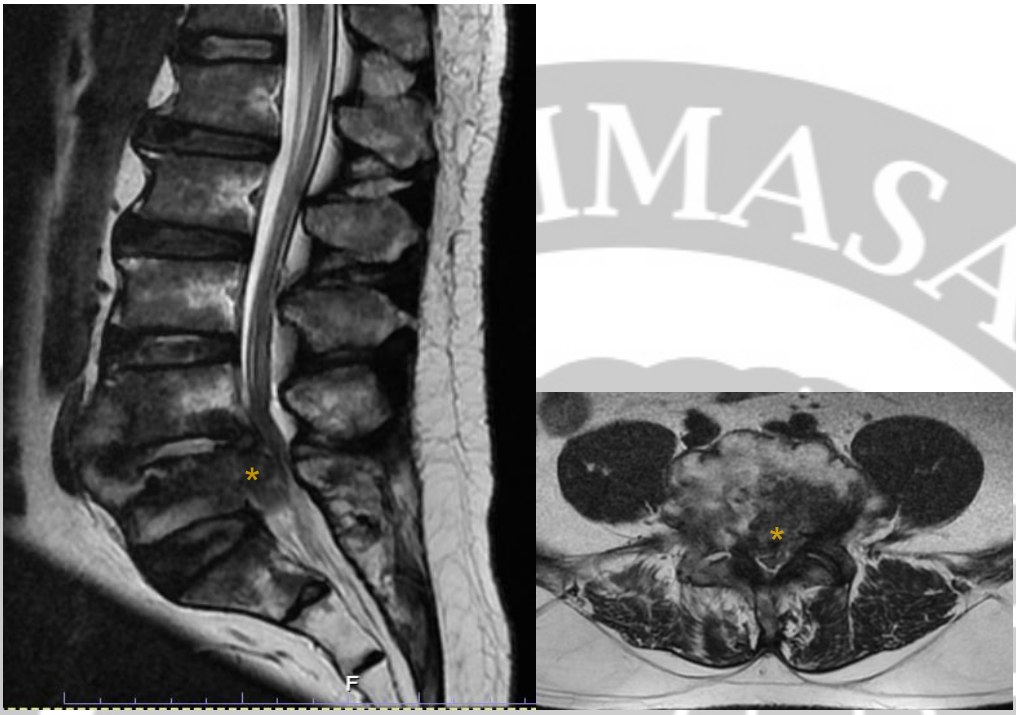
Film L-S spine AP, Lateral

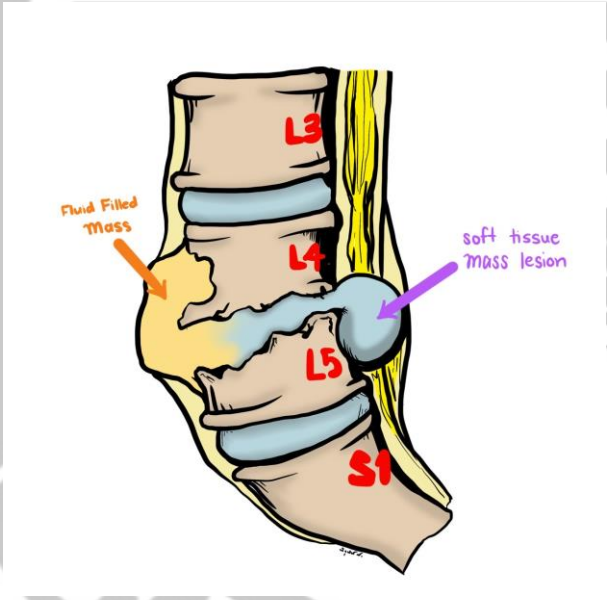
- normal lumbar lordotic curve, no listhesis, abnormal radiolucent line in L5 vertebral body leading to body collapse (Arrow)



MRI L-S spine

- T2 weighted image showing L5 vertebral body collapse with epidural mass extension (asterisk) causing severe spinal canal stenosis at L5 region suspected osteomyelitis with epidural abscess or tumor invasion, No psoas abscess





CBC Hb = 12.7 g/dL MCV = 85.7 fL WBC = 13,636 cells/uL N = 73.61% L = 12.23 %

Plt = 475,000 / uL

BUN = 20 mg/dL **Cr** = 1.02 mg/dL

Electrolytes Na = 140 mmol/L K = 3.8 mmol/L Cl = 106 mmol/L HCO = 23 mmol/L

PT 12.0 secs **PTT** = 32.6 secs

ESR = 105 **CRP** = 91.07

Post-Operative Labs

Pus Gram Stain = numerous PMNs, No microorganism

Pus KOH = No Fungus

Pus Acid Fast Stain = POSITIVE for Acid Fast Bacilli 1+

Pus Modified Acid Fast Stain = No Partially Acid Fast Organism Found

Pus Swab Culture = No Growth After 3 days

Tissue Culture = No Growth

Pus 16s rRNA = Not Detected

Pus 18s rRNA = Not Detected

Specimen PCR for MTB and NTM = MTB Positive, NTM Negative

Pus Anaerobic Culture = No Growth After 15 days

Management

TB spondylitis

IRZE 2 months

I Isoniazid(100) 3*1 po hs

R Rifampin(300) 2*1 po hs

Z Pyrazinamide (500) 2.5*1 po hs

E Ethambutol(400) 3*1 po hs

Supportive treatment

Allopurinol (100) 1*1 po pc

Enalapril(5) 1*1 po pc

Omeprazole (20) 1*1 po ac

Vit B6 (50) 1*1 po pc

Refer back รพ. สระแก้ว

Follow up 2 months

Tuberculous spondylodiscitis

Introduction:

Spine tuberculosis is an extrapulmonary form of tuberculosis infection, which is infection of the spine. The disease is popularly known as Pott's spine or Pott's disease which is named after Sir Percival Pott. It is less common in developed nations, most cases have been reported from developing countries, on the other hand, in developed countries it is mostly seen in those immigrants and HIV patients.

Epidemiology:

Tuberculosis mostly affects those in young adults in their most productive years. The risk of developing the disease among the healthy population compared to those with HIV infection are 20-37 times greater. The exact incidence and prevalence of spinal tuberculosis in most parts of the world are not known. Approximately 10 % of the patients with extrapulmonary tuberculosis have skeleton involvement and 5% of all TB patients have spine involvement. The spine is the most common skeletal site affected specifically the thoracic spine is the most common site, followed by hip and knee.

Etiology:

Spinal Tuberculosis is usually caused by M. tuberculosis. The pathogen hematogenously spread from either a pulmonary infection of genitourinary tract infection into the vertebral bodies

Pathophysiology:

Predisposing factors for tuberculosis included poverty, overcrowding, illiteracy, malnutrition, alcoholism, drug abuse, diabetes mellitus, immunosuppressive treatment and HIV infection. Spinal involvement is usually a result of hematogenous spread of M. Tuberculosis into dense vasculature of the cancellous bone of the vertebral body.

Clinical presentation:

Onset of the spinal tuberculosis is typically more insidious than pyogenic infection. Characteristic clinical features of the disease include local pain, local tenderness, stiffness and spasm of muscles, a cold abscess, prominent spinal deformity. The progression of spinal tuberculosis is slow and insidious. The total duration of the illness varies from a few months to a few years. Symptoms of spinal tuberculosis may consist of

- Constitution symptoms
    - Chronic illness
    - Malaise
    - Night sweats
    - Weight loss
- Back pain
    - Are late symptoms that only occur after significant bone destruction and deformities.
    - Most frequent symptom of spinal tuberculosis, the intensity of pain varies from constant mild dull aching to severe disabling. Pain typically localizes to the site of involvement and is common in the thoracic region. The pain may be aggravated by spinal motion, coughing and weight bearing due to spinal instability, nerve root compression or pathological fracture.
- Neurologic deficit
    - Common involvement are thoracic and cervical regions. If left untreated, may progress to complete paraplegia (may occur anytime and during any stage of the vertebral disease) or tetraplegia.
    - Level of spinal cord involvement determines the extent of neurological manifestations
        - Cervical Spine
            - May present with symptoms of cord or root compression.

        - Early signs are pain, weakness, and numbness of the upper and lower extremities and will eventually progress to tetraplegia.
    - Thoracic or Lumbar spine
        - Upper extremities remain normal while lower extremities symptoms progress over time eventually leading to paraplegia.
        - Patients with cauda equina compression due to lumbar and sacral vertebral damage have weakness, numbness, and pain but decreased or absent reflexes among the affected muscle groups. This is in contrast to the hyperreflexia seen with spinal cord compression along with bladder involvement (cauda-equina syndrome)
- Spinal deformities
    - Is a hallmark feature of spinal tuberculosis, Type of deformity depends on location of the tuberculous vertebral lesion
        - Kyphosis: the most common spinal deformity occurs when the lesions involving thoracic vertebrae. Severity depends on the number of vertebrae involved

<u>Diagnosis:</u>

- A history of tuberculosis, a positive skin test (its value declines in endemic areas), and an elevated erythrocyte sedimentation rate (ESR) may be useful in the diagnosis of spinal TB.
- Plain radiography, usually employed as a screen- ing test, characteristically shows a destructive process of the thoracic or lumbar vertebrae with in- volvement of the adjacent disc space which is usually evident later in the course of the disease and is less pronounced than in pyogenic infections.
- Computed tomography (CT) scanning in the axial plane with bone windows can be utilized to define the precise extent of bone involvement and to identify a calcified paraspinal mass, common in TSs but rare in pyogenic abscesses.
- MRI has become the method of choice for diagnosis of TS, due to its capability to provide information about the epidural space and spinal cord.The major MRI findings reported by Maeda et al were osteolytic changes (86%), narrowing of disc space (73%), loss of vertebral body height (69%), erosion of the vertebral endplates (56%).
- Biopsy plays a valuable role in the diagnosis of spinal TB infection.
    - The use of DNA amplification techniques (polymerase chain reaction or PCR) may facilitate rapid and accurate diagnosis of the disease.

- Culturing the organisms is slow and may be inaccurate.Nevertheless, it is still a precious diagnostic method in order to recognize the causative germs.
- Histological examination could reveal epithelioid cell granulomas, granular necrotic background with lymphocytic infiltration and, scattered multinucleated Langhans giant cells; the proportion of suggestive histology is usually high, up to 90% of cases

Treatment:

The World Health Organization (WHO) recommends a category-based treatment for tuberculosis. Spinal tuberculosis falls under category-1 of the WHO treatment category. The category-1 anti-tuberculosis treatment regimen is divided into two phases: an intensive (initial) phase and a continuation phase. In the 2-month intensive phase, antituberculous therapy includes a combination of four first-line drugs: isoniazid, rifampicin, streptomycin, and pyrazinamide. In the continuation phase, two drugs (isoniazid and rifampicin) are given for 4 months. Because of the serious risk of disability and mortality and because of difficulties of assessing treatment response, WHO recommends 9 months of treatment for tuberculosis of bones or joints

Thai clinical practice guideline of Tuberculosis treatment in adult 2018 recommend standard short-course , shown in table 1
Duration of treatment for Bone and joint Tuberculosis is 9-12 months

Table 1 Standard short-course regimen

น้ำหนักก่อนเริ่มการรักษา (กก.)	ขนาดของยา				
	H (มก.)** (4-8 มก./กก./วัน)	R (มก.) (8-12 มก./กก./วัน)	Z (มก.) (20-30 มก./กก./วัน)	E (มก.) (15-20 มก./กก./วัน)	S (มก.)
35*-49	300	450	1,000	800	
50-69	300	600	1,500	1,000	15 มก./กก./วัน (ไม่เกิน 1 กรัมต่อวัน)
> 70*	300	600	2,000	1,200	

* ในกรณีน้ำหนัก < 35 หรือ > 70 กิโลกรัม ให้คำนวณขนาดยาตามน้ำหนักตัว

** Isoniazid สามารถปรับตามน้ำหนักตัว และชนิดของ Acetylator ผู้ป่วย (NAT2 genotype) ได้

References

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