

A Rare Case Report on Pott's Spine with a History of Herpes Zoster

Dr. S.P. Srinivas Nayak¹, Sania Mehveen², Azgari Begum³, SyedaMaimoona Maqsood⁴, LubnaMuzaffar Hussain⁵

¹Assistant professor, Department of Pharmacy Practice, Sultan-ul-Uloom College of pharmacy, Hyderabad, Telangana.

^{2,3,4}(PharmD), Department of Pharmacy Practice, Sultan-ul-Uloom College of Pharmacy, JNTUH, Hyderabad, Telangana.

Date of Submission: 15-09-2020

Date of Acceptance: 26-09-2020

ABSTRACT: BACKGROUND: Pott's Disease is a rare infectious disease of the spine combination of osteomyelitis and arthritis which involves multiple vertebrae and approximately 1-2% of total tuberculosis cases are attributable to Pott's disease.

CASE PRESENTATION: A 55 year old male patient was brought to the hospital with complaints of radiating lower back pain, numbness of both lower limbs. His physical findings displayed no neurological deficits but the patient appears to have an abnormal gait, afebrile, with GCS rating of E4V5M3 indicating abnormal motor flexion.

CONCLUSION: Pott's disease and continue to be a serious problem when diagnosis is delayed or presentation of the patient is in advanced stages of the disease. D12-L1 laminectomy for disc debridement and anterior epidural de-compression was performed and pharmacotherapy is individualized and based on the resolution of active symptoms and the clinical stability of the patient Isoniazid and rifampin as core drugs administered during the whole course of therapy.

KEY WORDS: Pott's disease, spinal tuberculosis, Herpes Zoster Virus, Anti-tuberculosis drug therapy.

I. BACKGROUND:

Pott's Disease(PD) is a rare infectious disease of the spine which is typically caused by an extraspinal infection known as tuberculosis spondylitis, PD is a combination of osteomyelitis and arthritis which involves multiple vertebrae and approximately 1-2% of total tuberculosis cases are attributable to PD [1] The typical site of involvement is the anterior aspect of the vertebral body adjacent to the subchondral plate and occurs most frequently in the lower thoracic vertebrae. A possible effect of this disease is vertebral collapse

and when this occurs anteriorly, anterior wedging results, leading to kyphotic deformity of the spine.[1][2][3] Other possible effects can include compression fractures, spinal deformities and neurological insults, including paraplegia. [1][4] In 2005, there were 8.8 million new patients with tuberculosis (TB) all over the world, and of these, 7.4 million were in Asia and sub-Saharan Africa.[5]

The 'varicella zoster virus' (VZV), which is distributed worldwide, is a neurodermotropic virus that remains dormant in the sensory ganglion and, on reactivation, causes Herpes Zoster(HZ).[6] HZ is also known as shingles, which is derived from the Latin cingulum, meaning 'girdle'. This is because a common presentation of HZ involves a unilateral rash that can wrap around the waist or torso like a girdle. The name zoster is derived from classical Greek, referring to a belt like binding (known as a zoster) used by warriors to secure armour.[7] Reactivation of VZV may occur spontaneously or when host defences are compromised. Predisposing factors for VZV reactivation can be increased age, physical trauma (including dental procedures), psychological stress, malignancy, radiation therapy and immune compromised states including transplant recipients, steroid therapy and HIV infection.[6] It is very rare to see a patient with pott's disease and HZ and a very challenging task for the experts to manage such conditions.

1. THE CASE PRESENTATION:

A 55 year old male patient with 65kgs was brought to the hospital with complaints of radiating lower back pain (for a month), numbness of both lower limbs and had difficulty in standing and Upon examination the Physical findings found were

moderate built, abnormal gait, pain noted in lower back, non-responsive to patellar reflex assessment.

- General: GCS E4V5M3.
- HEENT: normal.
- CNS: Conscious and oriented. No neurological deficits.
- CVS: S1, S2 (+), EF 60%, no murmurs noted.
- RS: BLAE (+). No signs of wheezing or crackles.
- GIT: soft, non-distended.

VITALS:

- Blood Pressure : 120/70 mmHg
- Respiratory Rate: 22 breaths/minute
- PR: 86 beats/minute
- Temperature: 98.3⁰F

- Oxygen saturation(SpO2): 98%

PATIENT DEMOGRAPHICS

- Allergies: No allergies noted.
- Medical history: Type-2 Diabetes mellitus, Herpes zoster (1 year ago), Septic right epididymo-orchitis (1 year ago), Right knee septic arthritis (6 months ago).
- Medication history: Tablet (Metformin 500mg and Glimipride 1mg) BD, T. Zovirax 400mg BD, Cap. Zestovit BD/PC.
- Social history: non-smoker and non-alcoholic
- Family history: father (71 years) alive and suffering with type-2 Diabetes Milletus, Hypertension, mother died in an accident.

LABORATORY DATA:

Lab test	Obtained result	Normal value	Inference
Haemoglobin	10.4 g/Dl	13-17 g/dL	Anaemia
RBCs	3.71 mill/cumm	4.5-5.5 mill/cumm	Microcytic hypochromic anaemia
WBCs	11200 cell/cumm	4500-10000 cells/cumm	Leukocytosis
Platelets	2.58 lakh/cumm	1.5-4.1 lakh /cumm	Normal
Neutrophils	86%	40-80 %	Neutrophilia
Lymphocytes	52%	20-40%	Lymphocytosis
Monocytes	02%	02-10%	Normal
Eosinophils	04%	01-06%	Normal
ESR	45 mm/hr	<20 mm/hr	Elevated
CRP	66.03 mg/L	<8 mg/L	Active inflammation
CD3	1749 cells/μL	457-3926 cells/μL	Normal
CD4	869 cells/μL	448-1611 cells/μL	Normal
BUN	08 mg/Dl	07-20 mg/dL	Normal
S. creatinine	1.2 mg/Dl	0.6-1.2 mg/dL	Normal
T. Bilirubin	0.4 mg/Dl	<1.2 mg/dL	Normal
SGOT (AST)	16 U/L	5-40 U/L	Normal
SGPT (ALT)	09 U/L	10-56 U/L	Normal
S. Albumin	3.3 g/dL	3.5-5.2 g/dL	Normal
S. Globulin	2.9 g/dL	02-3.5 g/dL	Normal
FBS	136 mg/dL	<126 mg/dl	Hyperglycaemia
S. Sodium	138 mEq/L	135-145 mEq/L	Normal
S. Potassium	3.8 mEq/L	3.5-5.1 mEq/L	Normal
S. Chloride	103 mEq/L	98-108 mEq/L	Normal

BIOPSY REPORT:

The section studied showed granulation tissue, necrotic material and inflammatory infiltration with plenty of neutrophils, lymphocytes and plasma cells at foci of cartilage. Gross examination revealed multiple grey-white to grey-brown soft tissue bits of 2x2 cm.

Bacterial Culture Sensitivity Test:

The causative pathogen was isolated and identified as Pseudomonas Aeruginosa grown in culture after 48 hours of aerobic incubation.

FINAL DIAGNOSIS:

Pott's disease (tuberculous spondylitis) associated with Dorsal 12 – Lumbar 1(D12-L1) epidural soft tissue compression.

PLAN OF ACTION: Surgical management: D12-L1 laminectomy for disc debridement and anterior epidural de-compression was performed.

PHARMACOLOGICAL DRUG THERAPY(PRE-OPERATION)

S.No	Formulation	Brand name	Generic name	Dose	Route	Frequency
1.	Tab.	-	Ethambutol	1200 mg	PO	OD
2.	Tab.	Pyrazina	Pyrazinamide	1500 mg	PO	OD
3.	Tab.	Pantop	Pantoprazole	40 mg	PO	BD
4.	Tab.	Benadon	Pyridoxine hydrochloride	40 mg	PO	OD (10 D)
5.	Cap.	Becozinc	Zinc, vit B6, vit B12, vit C	1 tab	PO	OD
6.	Inj.	MeAxon +	Mecobalamin, niacinamide, folic acid	1 cc	IM	Once /15 D
7.	Tab.	Gluconorm SR	Metformin	500mg	PO	OD
8.	Tab.	Gabapin NT	Gabapentin + nortryptiline	400 mg + 10mg	PO	OD
9.	Tab.	Domstal	Domperidone	10 mg	PO	OD
10.	Inj.	Zofer	Ondansetron	4 mg	IV	SOS
11.	Tab.	Clonotril	Clonazepam	2 mg	PO	SOS
12.	Tab.	Sporolac DS	Lactic acid bacillus	1 tab	PO	TID

PHARMACOLOGICAL DRUG THERAPY(POST-OPERATION):

S.No	Formulation	Brand name	Generic name	Dose	Route	Frequency
1.	Inj.	Lactagard	cefoperazone + sulbactam	1500 mg	IV	BID
2.	Inj.	-	Amikacin sulphate	750 mg	IV	OD
3.	Inj.	-	Paracetamol	1gm	IV	TID
4.	Inj.	Dynapar AQ	Diclofenac sodium	75 mg	IV	BD
5.	Inj.	-	NS/RL	100 ml	IV	Every hour
6.	Syrup	Hemfer	Ferrous glycine sulphate, folic acid, cyanocobalamin, zinc sulphate, D-biotin	2 tbsp	PO	BID
7.	Tab.	Gabapin NT	Gabapentin + nortryptiline	400 mg +10mg	PO	OD
8.	Tab.	R-cinex	Rifampin + isoniazid	600 mg + 300mg	PO	OD
9.	Tab.	-	Ethambutol	1200 mg	PO	OD
10.	Tab.	Pyrazina	Pyrazinamide	1500 mg	PO	OD

II. CASE DISCUSSION:

A 55 year old male patient was brought to the hospital with complaints of radiating lower back pain (for a month), numbness of both lower limbs and had difficulty in standing. The condition is characterized by softening and collapse of the vertebrae, often resulting in a hunchback curvature of the spine. Affected persons complain of pain on movement and tend to assume a protective, stiff position. The course of the disease is slow, lasting months or years.[8]Upon examination the Physical findings found were moderate built, abnormal gait,

pain noted in lower back, non-responsive to patellar reflex assessment. His physical findings displayed no neurological deficits but the patient appears to have an abnormal gait, afebrile, with Glasgow Coma Scale(GCS) rating of E4V5M3 indicating abnormal motor flexion. The condition is named after an English surgeon, Sir Percivall Pott, who described it in a monograph published in 1779. The infection begins in the body of the vertebra (the most common site of bone tuberculosis) and spreads slowly to contiguous structures. Occasionally the spinal

nerves are affected, and paralysis may result.[9]Upon respiratory system examination, BLAE was positive. No signs of wheezing or crackles. Other systems like CVS, CNS, and GIT indicated no abnormalities. Biopsy report revealed granulation tissue, necrotic material and inflammatory infiltration with plenty of neutrophils, lymphocytes and plasma cells at foci of cartilage. Gross examination revealed multiple grey-white to grey-brown soft tissue bits of 2x2 cm. Bacterial culture sensitivity test showed the causative pathogen was isolated and identified as *Pseudomonas Aeruginosa* grown in culture after 48 hours of aerobic incubation.

Final diagnosis done was Pott's disease (tuberculous spondylitis) associated with D12-L1 epidural soft tissue compression. The duration of therapy is individualized and based on the resolution of active symptoms and the clinical stability of the patient. Isoniazid and rifampin as core drugs administered during the whole course of therapy. Additional drugs such as pyrazinamide, ethambutol and supportive drugs for stabilization was given along with D12-L1 laminectomy for disc debridement and anterior epidural de-compression surgery was performed.

III. CONCLUSION:

Pott's disease is the most dangerous form of musculoskeletal tuberculosis because it can cause bone destruction, deformity, and paraplegia. Current treatment modalities are highly effective against PD if the disorder is not complicated by severe deformity or established neurologic deficit. Deformity and motor deficit are the most serious consequences of Pott's disease and continue to be a serious problem when diagnosis is delayed or presentation of the patient is in advanced stages of the disease. Operative decompression can greatly increase the recovery rate, offering a means of treatment when medical therapy does not bring rapid improvement.

LIST OF ABBREVIATIONS:

BLAE: Bilateral Air Entry
PD: Pott's Disease.
HZ: Herpes Zoster
EF: Ejection Fraction
BD: Twice a day
GCS: Glasgow Coma Scale
CNS : Central Nervous System
CVS : Cardiovascular System
SpO₂: Oxygen saturation.

E4V5M3: Spontaneous eye response, normal conversation, decorticate posture.

RS: Respiratory System

GIT: Gastrointestinal tract

HEENT: Head, Eyes, Ears, Nose and Throat.

D12-L1: Dorsal 12 -Lumbar 1

HIV: Human Immunodeficiency Virus.

VZV: Varicella Zoster Virus

PC: After meals.

REFERENCES:

- [1]. Hidalgo JA, Cunha BA. Medscape Reference. WebMD. Updated 2011 Dec 5. Accessed 2012 Mar 28. Available from: <http://emedicine.medscape.com/article/226141-overview#a0104>.
- [2]. Cherian A, Thomas SV. Central nervous system tuberculosis. *Afr Health Sci*. 2011(1):116-127.
- [3]. Benzagmout M, Boujraf S, Chakour K, Chaoui M. Pott's disease in children. *Surgical Neurology International*. 2011; 2(1). 1-5.
- [4]. Goodman CC, Snyder TES. *Differential Diagnosis for Physical Therapists: Screening for Referral*. 4th ed. St. Louis, MO: Saunders Elsevier; 2007:345.
- [5]. H, Yamane K, Nishi T, Nanjo Y, Teshima R. Recent trends in spinal infections: retrospective analysis of patients treated during the past 50 years. *International Orthopaedics*. 2010; 34(3): 395-399.
- [6]. Vineet DA, Mithra R, Baskaran P, et al. Oro-facial herpes zoster: a case report with a detailed review of literature. *Oral Maxillofac Pathol J* 2013;4:346-54.
- [7]. Roxas M. Herpes zoster, postherpetic neuralgia. Diagnosis and therapeutic considerations. *Altern Med Rev* 2006;11:102-13.
- [8]. Pott disease. *britannica.com*, Available from: <https://www.britannica.com/science/Pott-disease>
- [9]. Rajasekaran, Dilip Chand Raja Soundararajan, Rishi MugeshKanna. et al, Spinal Tuberculosis: Current Concepts, *Global Spine Journal* 2018, Vol. 8(4S) 96S-108S.