

**[CASE REPORT]****Early Physiotherapy Intervention in Case of Infective Spondylitis with Para Spinal and Epidural Abscess: A Case Report.**Shastri Kshipra R.<sup>1</sup>, Ganvir Shyam D.<sup>2</sup><sup>1</sup>2nd Yr. PG Student, <sup>2</sup>Prof. & Principal. D.V.V.P.F's College of Physiotherapy. Ahmednagar.**ABSTRACT :**

**Background-** Infectious spondylitis is an unusual but severe cause of low back pain. Epidural and paraspinal abscesses are atypical diseases with a high risk of morbidity and mortality that are frequently discovered later in the course of the disease. Method – A 52-year-old male had a complaint of fever and pain in his back and was unable to move his bilateral lower limb. He has been given early rehabilitation six days a week for eight weeks. PRT and MWM were given 3 times per week for 2 weeks. The result showed significant improvement in ROM, strength, ASIA, and FIM score. Conclusion - Early diagnosis and physiotherapy intervention is the key to an optimal outcome in case of infective spondylitis with epidural and paraspinal abscess.

**Key Words-** *infective spondylitis, Epidural abscess, paraspinal abscess, physiotherapy, rehabilitation*

**Introduction**

Infectious spondylitis is an unusual but severe cause of low back pain.<sup>[1]</sup> In the general population, 0.7% of patients with back pain have metastasis, and only 0.01% are due to infectious spondylitis.<sup>[1]</sup> The vertebral body and intervertebral disc are affected by infectious spondylitis, thought to be caused by a particular organism.<sup>[2]</sup> Vertebral Osteomyelitis is more common in the lumbar region, followed by thoracic and cervical spine (less than 10%)<sup>[3]</sup> Due to the nonspecific clinical picture, insidious onset of symptoms, and frequent delays in diagnosis, this infection is typically challenging to diagnose. Moreover, the outcome over time may be debilitating; hence, early physiotherapy intervention helps to prevent disability.<sup>[2]</sup> As spondylitis progresses, vertebrae are destroyed, and inflammation extends to the epidural and paraspinal spaces. The most detrimental consequence of infectious spondylitis is neurologic deficits, which develop in approximately one-third of cases.<sup>[4]</sup>

Epidural and paraspinal abscesses are atypical diseases with a high risk of morbidity and mortality that are frequently discovered later in the course of the disease. Diabetes, the human immunodeficiency

virus, intravenous drug misuse, and a prior history of spinal surgery or injection are predisposing risk factors.<sup>[5]</sup>

**Case description**

A 52-year-old male had a complaint of fever and pain in his back and was unable to move his bilateral lower limb. The sudden onset of pain increased when the patient was lying down and decreased when he was in an erect position. So, he visited the orthopedic department of the Territory Care Hospital on 12/12/22, where a complete evaluation and investigations were done, and he was advised for surgery. The patient underwent debridement on 15/12/22 for the same. After surgery, he was recommended for post-op physiotherapy rehabilitation. The patient came to the Physiotherapy Department on a stretcher with a complaint of inability to move his bilateral lower extremity since 8 days. He experienced difficulty in performing ADLs such as bed transfer, sitting, standing, and walking. The patient also has a past history of Diabetes mellitus for the last 5 years and a history of tobacco chewing for the last 7 years.

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**Clinical findings**

**Motor Assessment:** A complete evaluation of motor and sensory compliance was done. The American Spinal Injury Association (ASIA) Impairment Scale was utilized to assess motor function.

**Reflex:** Patellar and ankle tendon reflexes were absent, i.e., grade-0

**Gait:** The patient could not stand and walk; his gait was functional before this incident, indoors and outdoors, without any assistive device.

**Functional assessment:** The patient required maximum assistance in basic ADLs (eating, bathing, transferring, and toileting) and Instrumental ADLs (transportation and handling medication), as assessed using FIM.

**Table No:1**

Outcome measure	Pre	Post	Difference
<b>ARM</b>			
Hip flexion	0	0-95	95
Hip abduction	0	0-45	45
Hip extension	0	0-20	20
Knee flexion	0	0-112	112
Knee extension	0	112-0	112
Ankle dorsiflexion	0	0-20	20
Ankle plantar flexion	0	0-30	30
<b>MMT</b>			
Hip flexors	Grade- 0	Grade- 3	Grade-2
Hip abductors	Grade- 0	Grade-2	Grade-2
Hip extensor	Grade- 0	Grade- 3	Grade- 3
Knee flexors	Grade- 0	Grade -3	Grade -3
Knee extensors	Grade- 0	Grade-3	Grade-3
Ankle dorsiflexion	Grade- 0	Grade-3	Grade-3
Ankle plantarflexion	Grade- 0	Grade-3	Grade-3

**Table No:2**

Outcome measure	Admission	Discharge
<b>ASIA</b>		
Sensory	112	112
<b>Motor</b>		
UL	50	50
LL	5	35
<b>FIM</b>		
Motor	35	82
Cognition	35	35

**Diagnosis**

The diagnosis of spinal spondylitis is made from microscopic or bacteriological examination and culture of the infected tissue in combination with corresponding changes in clinical manifestations; radiological findings include MRI and show an impression of infective spondylitis of posterior element of T4 and vertebral bodies with posterior epidural and paraspinal abscesses, blood and tissue cultures and histopathological findings.<sup>[3]</sup>

**Therapeutic intervention**

The patient was managed using a multidisciplinary

team of doctors, nurses, and physiotherapists to obtain a favourable prognosis. The patient had physical therapy sessions six days a week for eight weeks. Interventions in physical therapy were developed based on functional desired outcomes, with the primary goals being to improve the patient's quality of life and prevent further complications.

**Treatment protocol**

**Description**

**Week 1-4**

The patient was admitted to orthopedic IPD and was

referred to the physiotherapy department on post-day 4. His family member was educated about the condition and was explained about the complete rehabilitation program based on the patient's condition. Bed positioning, passive joint movements for bilateral lower limbs, and breathing exercises were incorporated into the treatment.

Isometric exercises are initiated during the early postoperative period for sacrospinal muscle groups and all lower extremity muscles. Gluteal muscles are contracted and relaxed bilaterally, and isometric contraction of the pelvic muscle group is provided.

The patient is mobilized within the bed by turning from one side to the other.

#### **Week 5-6**

Feet are raised straightly, and hip flexors and lumbar extensors are contracted by raising the bilateral quadriceps muscles about 20 cm. The corset assists the patient to sit on the bed. The patient is assisted in walking by a cane or walker. The balance and gait exercise assets in parallel bars. Mobilization is repeated up to 2 times daily. The patient is left to rest after the onset of signs of fatigue.

Active strengthening exercises should also be performed for all upper extremity joints.

#### **Week 7-8**

Lying down, sitting, and standing exercises include active and resistive exercises. After the patient is discharged, a home exercise program is given and followed up regularly. Exercises performed during the subacute and chronic stages include hand and wrist joint exercises, full abduction, extension, and flexion exercises for abdominal, Sacro spinal, iliopsoas, gluteus maximus, gluteus minimus, hamstring, and quadriceps muscles, and resistive exercises for oblique abdominal muscles are recommended to be performed at home.



## **Discussion**

Spinal infection (SI) is an infectious disease affecting the vertebral body, intervertebral disc, and adjacent paraspinal tissue, representing 2-7% of all musculoskeletal infections.<sup>[6]</sup> Spinal infection poses a demanding diagnostic and treatment problem for which a multidisciplinary approach is necessary. Most patients with spinal infections diagnosed in early stages can be successfully managed conservatively with antibiotics, bed rest, and spinal braces. In cases of gross or pending instability, progressive neurological deficits, failure of conservative treatment, spinal abscess formation, severe symptoms indicating sepsis, and failure of previous conservative treatment, surgical treatment is required. In either case, close monitoring of the patients with spinal infection with serial neurological examinations and imaging studies is necessary.<sup>[7]</sup> Once neurological deficits are present, immediate treatment must be implemented to prevent deterioration that can result in paralysis.<sup>[8]</sup>

In this study, after eight weeks of interventions, the patient had improved significantly, and by the end of the ninth and further weeks of rehabilitation, more gains were anticipated. Early, planned, evidence- and protocol-based rehabilitation has been demonstrated to be helpful in symptom reduction, promoting functional independence, and enhancing capacity for daily living tasks.

Several risk factors for infective spondylitis, out of which diabetes mellitus is a condition with the highest incidence in the older population in our study, were comparable to those found in prior research.<sup>[2]</sup> Although Spinal epidural abscesses are a rare pathology, there is an increasing incidence in older patients due to a high number of comorbidities and risk factors in this subpopulation.

The most common level of infection for the patients was the thoracic region.<sup>[9]</sup>

Studies have consistently demonstrated that relative to postoperative outcomes after spinal instrumentation, a baseline neurological deficit strongly predicts patient satisfaction and time to functional independence.

Our findings suggest that early rehabilitative intervention was associated with superior postoperative clinical outcomes. This finding resonates with earlier evidence of the similarity of conservative medical management in the general

patient population.

### **Conclusion**

Early diagnosis and physiotherapy intervention is the key to an optimal outcome for infective spondylitis with paraspinal and epidural abscesses.

### **Informed consent**

informed consent of the patient is taken.

### **Acknowledgement**

We thank the participants who all contributed samples to the study.

### **Conflict of Interest**

The authors declare that there are no conflicts of interest.

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