

# Epidural Stimulation Surgery / T6, Pakistan

Patient Case Report  
#ES180023

## Patient Overview

**Age:** 38

**Sex:** Male

**Nationality:** Pakistani

**Diagnosis on Admission:** Spinal Cord Injury, T6 Complete

**Treatment Received:** Epidural Stimulation Surgery, Medtronic Restore Advance 16-electrode MRI Compatible Device. hAFSCs120 million.

**Date of Admission:** 13/04/2018

**Date of Discharge:** 29/05/2018

## Patient's Condition on Admission

Patient sustained a T6 spinal cord injury from a gunshot in 1999. Patient's MRI scan showed T6 fracture-dislocation with partial spinal cord transection and severe myelomalacia. Patient has minimal Motor or Sensory functions below the injury level and suffers from neurogenic bladder and bowel. Patient experiences some spasms and spasticity but does not suffer from neuropathic pain. Patient is independent in his daily activities.

## Previous Therapies and Treatments

Patient has been receiving physiotherapy five times per week, one hour per session.

## Treatment Received

After a Spinal MRI scan, an EMG and comprehensive blood work, the patient underwent Laminectomy and implantation of the Epidural Stimulation device on April 14, 2018. The surgery was completed without significant adverse events and no serious complications were reported during the postoperative hospital stay. Device Mapping and therapy were carried out after surgery for 35 days, the patient was discharged.

## Device Mapping and Therapy

Post-Surgical Care	Total Sessions	Sessions Per Week	Time (Hr) Per Session
Mapping	106	23	1
Physical Therapy	39	9	1
Occupational Therapy	-	-	-

## Cytotherapy

Type	Amount	Delivery Method	Number of Applications
hAFSCs	40 Million	IV Injection	1
hAFSCs	80 Million	Lumbar Puncture Injection	2



# Symptoms Improvement Post-Surgery

Abilities & Symptoms	Motor & Sensory Function (below injury level, before ES surgery)	Improvement Observed (35 days after admission)
<b>Motor Function</b>		
Standing with support	Not Possible	Yes
Stepping with support	Not Possible	Yes
Gross motor Skills	Not Present	Yes
Fine Motor skills	Not Applicable	Not Applicable
Balance	Poor	Yes
Coordination	No	Yes
Muscle Mass	Low	Yes
Stamina	Low	Yes
Fatigue	Present	Yes
Spasms	Present	Yes
Spasticity	Present	Yes
<b>Sensory Function</b>		
Neuropathic pain	Not Applicable	Not Applicable
Bladder Function	No	No
Bowel Function	No	No
Sweating Ability	No	No

Improvements are monitored in 15 targeted areas: 11 Motor areas and 4 Sensory areas. However, the number of targeted areas may vary depending on patient's condition prior to admission. If patient does not experience symptoms in certain Motor/Sensory functions, or is not impaired in a specific targeted area prior to surgery, it is excluded from the report (Not Applicable). If there is progress in any given area -- either mild, moderate, or significant -- it is measured and reported as positive ("Yes"). No improvement, the existence of pain or spasms, or an inability to perform a measured function is reported as "No".

### Motor Functions



### Sensory Functions



### Overall Functions



## Results Interpretation

Patient is paraplegic and has normal upper body functions, therefore Fine Motor Skills were excluded from this report. Motor Function improved in 10 out of the 10 targeted areas when the Epidural Stimulation device was switched on.

Patient does not suffer from neuropathic pain therefore in this case it is considered "Not Applicable". Patient has not experienced any improvements in the other Sensory Function areas, but more feedback will be collected after 3 months to note any improvements made by Cytotherapy. Overall, improvements were recorded in 10 out of 13 targeted Motor and Sensory Function areas.

## Treatment Summary

After Epidural Stimulation surgery, patient received 106 Mapping sessions and 39 physical therapy sessions. Patient also received 120 million hAFSCs: 40 million via one IV injection and 80 million via two lumbar puncture injections. All three applications went well without adverse effects and no short-term or acute complications have been reported.

Patient's Gross Motor Skills improved significantly, especially in ankle, hip, and knee flexion. Patient also had very good knee extension (kicking out to full extension), however pushing out was not full range.

Patient has good static sitting balance and fair dynamic sitting balance, but static standing balance remains poor. Muscle mass and endurance were improved upon discharge.

Patient was able to stand at the parallel bar, but requires assistance in locking his knees and hips. He is able to bear weight equally on both legs and has fair trunk control.

Patient is able to lift his legs up to take assisted steps using a walking frame and did not require assistance in foot placement during stepping exercises. Patient has good coordination while taking steps, but did require assistance in locking his knees and hip when stepping.

There was no noticeable improvement to his neurogenic bladder and bowel. Patient received cytotherapy, therefore we expect to see results in these areas within 3 months time. After 35 days, patient was discharged and will continue physiotherapy back home.



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