

# USE OF SMART GLASSES AND REMOTE SUPPORT PLATFORM TO SUPERVISE CERVICAL SPINAL CORD STIMULATOR IMPLANT: A CASE REPORT. (#218)

Black S. Radoš I. Budrova D. Omrcen I. Hnatesen D.

## Introduction

In our pain management center (Osijek, Croatia), most spinal cord stimulation (SCS) systems since 2017 have been implanted for Persistent Spinal Pain Syndrome type 2 (PSPS2). Until now, we did not have experience in the specific technique for implanting cervical SCS leads to treat neuropathic pain in the upper extremities. We report a case where we used smart glasses and a remote platform to benefit from live supervision of an experienced clinician during the implantation of cervical SCS.

## Materials / Methods

After a tragic accident 2012, the patient sustained left brachial plexus injury with resulting very severe daily left arm pain. Using smart glasses and a remote support platform, Prof Rados (implanter) performed the implant procedure whilst having a live connection with Dr Sheila Black (proctor) from Leeds Teaching Hospitals NHS Trust (UK), who had many years of experience in implanting SCS electrodes in the cervical spine. The implanter wore smart glasses, allowing the proctor to see all that he was doing during the procedure. At the same time, she could see all the intra-operative C-arm X-ray images and videos. From his end, the implanter could communicate in real-time with the proctor, and could follow graphic guidance directly transmitted to the screen of his smart glasses.

## Results

The tip of the electrode was successfully placed at the upper edge level of the third cervical vertebra, para medially on the left side. After on-table mapping, paresthesia covered the shoulder girdle on the left side. The proctor advised to place the electrode more laterally, after which paresthesia coverage was achieved in the left arm where the patient had pain. Using intra-operative pictures she received of the surgical site and patient's anatomical landmarks, the proctor used drawing tools of the remote platform to mark the areas where to insert the electrode and where to place the permanent battery.

## Discussion

Proctorship educational activities to support implantation procedures requires experts to travel to the institution, which may be expensive, time-consuming and challenging. With new technologies like smart glasses and remote platforms, high-quality proctorship can be offered in real-time to the implanting clinician by the expert in a remote and convenient manner. Thanks to her guidance in real-time, Dr Black from her hospital in UK helped us to successfully implant a cervical SCS in Croatia, significantly reducing the procedure's costs.

## Conclusions

Using smart glasses and remote support platform is a valuable, safe and efficient option for expert assistance in performing SCS.

## **Learning Objectives**

Adoption of new forms of supervision in SCS implant procedure.