

NEW SURGICAL TECHNIQUE TO IMPLANT INTERSTIM LEAD GUIDE BY THREE DIMENSIONAL MULTISLICE COMPUTER TOMOGRAPHY

Synopsis of Video

This video shows the surgical technique to implant InterStim lead guide by three dimensional multislice computer tomography.

Hypothesis / aims of study

The implant of lead to sacral nerve stimulation (SNS) is guided by conventional fluoroscopy. However, the intent of the conventional fluoroscopy was not meant to see the S3 foramen, but rather help the surgeon to identify a specific region to start percutaneous access of S3 foramen. Consequently, the three dimensional multislice computer tomography (3D-MSCT) might be a better tool to implant the lead, because it provides a high quality image with real time assessment of procedure.

The aim of this video was show the surgical approach to implant the lead in the S3 foramen guide by 3D-MSCT.

Study design, materials and methods

Four patient with idiopatic detrusor overactivity (DO), refractory to others conservatives treatments, underwent implant of lead to sacral nerve stimulation guided by 3D-MSCT.

In a radiology suite, the patient is placed ventrally into the tomography to obtain the initial images.

After acquisition of the dynamic pelvic image, a laser is projected showing the exact place to insert the needle (Fig 1).

The 3D-MSCT has the advantage of visualizing in real time images during the percutaneous access, showing the needle reaching S3 foramen. These images might be viewed in different perspectives making the procedure more accurate than conventional fluoroscopy. An electric stimulus is done with an external generator to verify the correct position of needle. If the needle is located in the right place, it will result in plantar flexion of great toes.

The needle is changed by dilator over guide wire. All the steps are performed guided by 3D-MSCT to assure the exact position of dilator limit in the internal face of S3 foramen. The lead is passed through the introducer sheath until the proximal electrode enters the foramen. At this moment, new images should be obtained to assure that the electrodes are well positioned and a new electric stimulation is provided to test Electrodes 0 to 3, while the patient is observed for responses.

With the lead held in place the introducer sheath is retracted until the visual marker band on the lead is aligned with the introducer sheath handle under 3D-MSCT guidance.

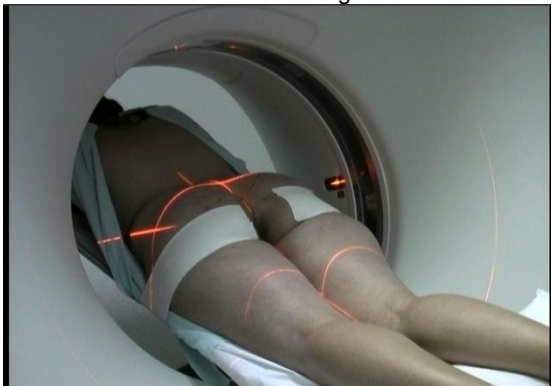


Figure 1 - The laser show the exact place to insert the needle.

Results

The time spent in the insertion of the needle and localization of S3 foramen was 34 seconds. The patient complained of low intensity of pain during the procedure. The total time spent to perform the lead implantation was 30 minutes. There were no complications.

Interpretation of results

This new technique of lead implantation guided by 3D-MSCT has a potential to improve the lead durability and might avoid explant due to lack of efficacy, because the procedure is done more accurately. Malfunction of the lead may result of inadequately location during the surgery done with fluoroscopy that provides low quality bidimensional images.

Concluding message

This technique of lead implantation to sacral nerve stimulation with three dimensional multislice computer tomography has the potential to lower the time of implantation, improve the durability and avoid malfunction of the lead. This procedure is more accurate than conventional fluoroscopy.

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| Specify source of funding or grant | none |
| Is this a clinical trial? | No |
| What were the subjects in the study? | HUMAN |
| Was this study approved by an ethics committee? | Yes |
| Specify Name of Ethics Committee | Ethical Committee of Universidade Estadual de Campinas |
| Was the Declaration of Helsinki followed? | Yes |
| Was informed consent obtained from the patients? | Yes |