SPS-L Kit. Surgical instruments and devices for Spinal Stenosis operation.

Executive summary

A research team from the Medicine School of the University of Barcelona composed of (i) Neuroanatomists with wide experience on generation of 3D models from human anatomy and (ii) Neurosurgeons experts on surgical approach routes, are developing novel surgical instruments for an improved, faster and safer approach to solve Spinal Stenosis (SS) and some other pathologies requiring vertebral procedures.

Introduction

SS is the gradual narrowing of the spinal canal due to progressive degenerative changes of the spine. 5 out of every 1000 persons over the age of 50 will suffer from some degree of spinal stenosis and it is the leading reason for spine surgery in persons over 65. Current techniques of Laminoplasty allow decompressing the spinal canal but with a rate of postoperative morbidity due to the deformation and/or elimination of the posterior vertebral unit and leading frequently to postoperative Kyphosis and Chronic pain.

Description

Spinous Process Shortening Laminoplasty (SPS-L) is a novel surgical technique than has been developed by the research group to avoid the most common postoperative complications. SPS-L technique is expected to have good acceptance among surgeons because it will considerably lower the risk of nerve lesion and the time of operation. Moreover, SPS-L has been planned to be useful not only to SS but also to other pathologies with high incidence as spinal cord tumors, abscess and vascular malformations.

Preliminary results on 3D, plastic and cadaveric models have shown that SPS-L is a feasible technique. But actual instruments and devices do not allow reproducing adequately some steps of SPS-L. For that reason the research team is developing a specific set of surgical instruments. This instrumental kit is designed to set up the surgeon with all the required tools to use SPS-L safely in human patients.

In addition, these new instruments can be also useful to improve the approach of other common procedures to hand surgery, peripheral nerves surgery and brain and spine surgery.

Advantages

- Reduction of Laminoplasty postoperative complications.
- Potential application in other Brain and Spine surgical techniques.
- High user acceptance of the procedure (SPS-L).
- Lower risk of nerve lesion.
- Lower time of operation.
- Possibility of full-solution kit for users.
- Addressed to frequent pathologies: spinal stenosis, spinal cord tumors, abscess and vascular malformations.

Current stage of development

SPS-L procedure: validated on 3D, plastic and cadaveric models.
SPS-L Kit instruments and devices: prototype designs are already available. Functional prototypes are required to validate them on cadaveric models and perform biomechanical test. Testing on animal models: available if required.

Goal

The group is looking for a license, but other collaborations may be considered.

Patent

Application in process.

Reference

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