Endoscopic spine surgery

Unilateral bi-portal endoscopic spine surgery (UBE) for the treatment of lumbar spinal diseases has achieved favorable results.

Biportal Endoscopic Spine Surgery

see also Transforaminal lumbar endoscopic discectomy.

Percutaneous endoscopic discectomy.

Percutaneous endoscopic lumbar foraminotomy

Few neurosurgeons practicing today have had training in the field of endoscopic spine surgery during residency or fellowship. Nevertheless, since 1980s individual spine surgeons from around the world have worked to create a subfield of minimally invasive spine surgery that takes the point of visualization away from the surgeon's eye or the lens of a microscope and puts it directly at the point of spine disease.

Full endoscopic spine surgery

Full endoscopic spine surgery

History

The history of endoscopic spine surgery has involved 3 phases: inspiration, invention, and innovation. The inspired early practitioners sought a means of accessing lumbar disc herniations that would be less invasive than traditional open techniques. The early endoscopic surgeons targeted disc pathology through a corridor that would become known eponymously for its originator, Dr. Parviz Kambin. Invention would then be required to make endoscopic discectomy a feasible and then a successful procedure: better working-channel rigid endoscopes, high-definition cameras, drills, trephines, articulated graspers, and other instruments.

With 50 years of groundwork on which to build, the innovators now have the tools and background knowledge to treat a myriad of spine pathologies beyond the herniated lumbar disc for which the technique was intended. The story of endoscopic spine surgery is far from complete, but it demonstrates the interplay of imagination and technology in developing new surgical techniques.

see Foraminoscopy.

Forty-six patients underwent endoscopic procedures for radicular pain or sensorimotor deficit due to a degenerative disorder using a 15mm tubular retractor. Endoscopic video recordings were reviewed with focus on instrument handling and intraoperative complication. At final follow-up the clinical outcome was assessed via a standardized questionnaire including the Oswestry Disability Index (ODI) Neck Disability Index (NDI), Odoms criteria and a personal examination focusing on pain, and

sensorimotor deficits.

RESULTS: Forty out of 46 patients attended a final follow-up (86.9%). The mean follow-up time was 51.8 month (range 15-84 month). At final follow-up, of patients who were operate at the lumbar spine 93.9% and at the cervical spine 85.7% were free of radicular pain, no weakness was documented in 84.9% of cases after lumbar and 85.7% after cervical spine procedure, and according to Odoms criteria clinical success was noted in 84.5% and 100%, respectively. The mean ODI was 9.0% and mean NDI was 11.7%. The dural tear rate was 4.3%, all dural tear were closed endoscopically. The recurrent disc herniation rate was 6.1%.

CONCLUSIONS: Endoscopic decompression using a 15m tubular retractor offers a good view onto the surgical field and a high clinical success rate. The decompression of degenerative pathologies in bimanual technique is not limited by a 15mm tubular retractor [1].

1)
Burkhardt BW, Oertel JM. Endoscopic spinal surgery using a new tubular retractor with 15 mm outer diameter. Br J Neurosurg. 2019 Mar 18:1-8. doi: 10.1080/02688697.2019.1584269. [Epub ahead of print] PubMed PMID: 30882248.