Evolving Minimally Invasive Endoscopic Spine Surgery: A Surgeon's Perspective and Emerging Technical Considerations.

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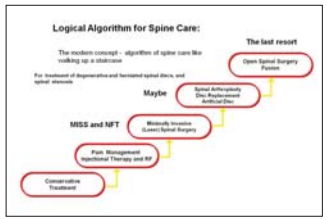
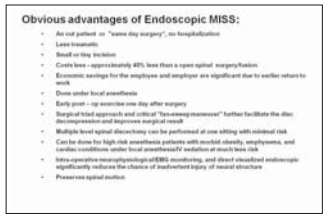
Introduction

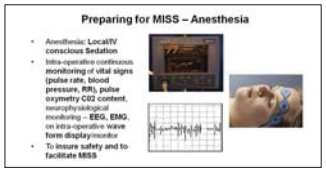
Degenerated lumbar disc and spinal stenosis are common problems requiring decompressive lumbar surgery. Open spinal discectomy is associated with significant morbidity, long-term convalescence, prolonged general anesthesia and wide dissection of tissues that can cause bleeding, scarring and eventual destabilization of spinal segments. The less traumatic endoscopic minimally invasive lumbar microdecompression procedure is free from these potential complications. Therefore the pursuit of minimally invasive spine surgery (MISS) began.

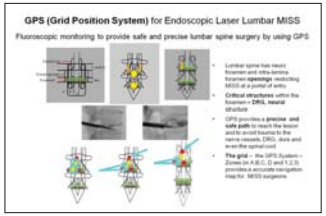


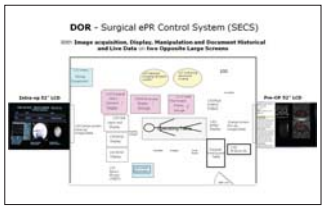


Methods

The endoscopic spine surgical procedure, its surgical indications and its operative techniques including tissue modulation technology (i.e. laser and radiofrequency surgical application) are presented.
It requires seamless connectivity to perform the surgical procedures, "Surgical ePR Control System" (SECS), a new integrated image-data based OR control system has been developed and utilized to facilitate this endoscopic MISS and creates organized control instead of organized chaos.

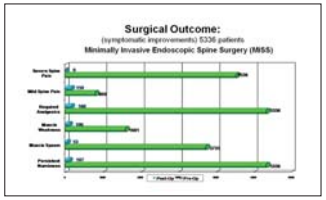


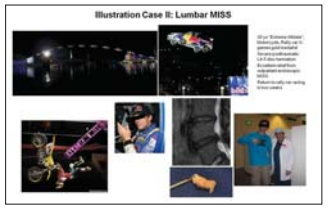




Results

Among a series of 5336 MISS patients (10,255 discs) the surgical result for endoscopic MISS has been extremely gratifying for both the patient and the surgeon. There was no postoperative mortality, and morbidity of less than 1%. The potential risk and potential complications are presented. Endoscopic microdecompression can effectively decompress herniated discs and treat spinal stenosis with foraminoplasty.





Conclusions

Endoscopic microdecompression can effectively decompress herniated discs and spinal stenosis with foraminoplasty for treatment of spinal stenosis. It also provides an excellent and effective access or platform for spine arthroplasty, spinal disk replacement, artificial disk, vertebralplasty, spinal fixation/fusion, disc re-growth technology and perhaps genome therapy. Obviously, this minimally invasive, less traumatic, outpatient endoscopic MISS treatment leads to excellent results, faster recovery, and significant economic savings.

Learning Objectives

1. By the conclusion of this session, participants should be able to describe the evolving minimally invasive endoscopic spine surgery 2. To identify the effective treatment of endoscopic spinal surgery, its surgical indication, and its operative techniques 3. Discuss effective endoscopic decompression of herniated discs and spinal stenosis

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