Sonicmed Ultrasonic Bone Cutter and Drill Minimally invasive System

BEIJING SONICMED TECHNOLOGIES CO. LTD



Sumai Ultrasonic Bone Cutter and Drill Minimally invasive System



Composition of Ultrasonic Bone Cutter and Drill

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Console



Minimally invasive handpiece



Minimally invasive Tip

Product Superiority

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- The tip can facilitate surgical operations under a minimally invasive channel (with a diameter of over 2.8mm).
- A variety of special-shaped cutter heads for minimally invasive surgery offer higher operational precision than traditional tools.
- Effectively protects soft tissues and causes less bleeding.
- Reduce the operation time and help patients recover faster.
- It does not damage the endoscopic lens and the field of view under the microscope is clear.



Adapting to the Needs of the Following Minimally Invasive Surgical Procedures

Minimally invasive channel thoracolumbar surgery

Minimally invasive channel posterior cervical discectomy/foraminoplasty

Minimally Invasive Tubular Posterior Cervical Ossification of Posterior Longitudinal Ligament Resection and Spinal Canal Decompression

Minimally invasive spinal endoscopy for thoracolumbar foraminoplasty/discectomy

Minimally invasive thoracolumbar decompression under spinal endoscopy

Minimally invasive spinal endoscopic lumbar interbody fusion

Other more minimally invasive spinal surgeries

Application of disease description: Discectomy, discectomy ablation, percutaneous nucleus pulpoplasty, discectomy nucleus pulposus removal, Intervertebral foramen enlargement and plasty, intervertebral fusion, ligamentum flavum resection, lateral recess decompression, spinal canal decompression and shaping

Advantages of Foraminoscopic Surgery

- Endoscopic direct vision
- No entry into or passage through the spinal canal, with no intraspinal scarring or adhesion
- Preserves the spinal anatomical structure and maintains spinal stability
- Micro precision technique
- Relieve pain quickly
- Patients can return to normal work and life 3 weeks after surgery, with an extremely high comfort level

Advantages of Unilateral Biportal Endoscopy (UBE)

- Freedom from Instrument Size Limitations Due to Dual Channels.
- High Efficiency of UBE Among Minimally Invasive Spinal Technologies.
- In addition to conventional cases of various types of intervertebral disc herniation, it is particularly suitable for endoscopic minimally invasive treatment of complex cases such as complex intervertebral disc herniation, spinal stenosis, lumbar spondylolisthesis, radiculopathic cervical spondylosis, myelopathic cervical spondylosis, thoracic spinal stenosis, and spinal revision cases. Moreover, its therapeutic effect is comparable to that of open surgery—being more thorough with definite efficacy, while featuring smaller trauma and faster recovery.

Minimally Invasive Tip

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180mm



300mm

180mm

300mm



180mm



300mm

300mm

Tip thickness: 0.8mm, **Diameter :** 2.5mm, Applicable to transforaminal endoscopes with an inner diameter of 2.8mm or more.

Incise depth: 1-2mm(each time proceeding from the superficial to the deep)

Tip specification: 130mm——300mm

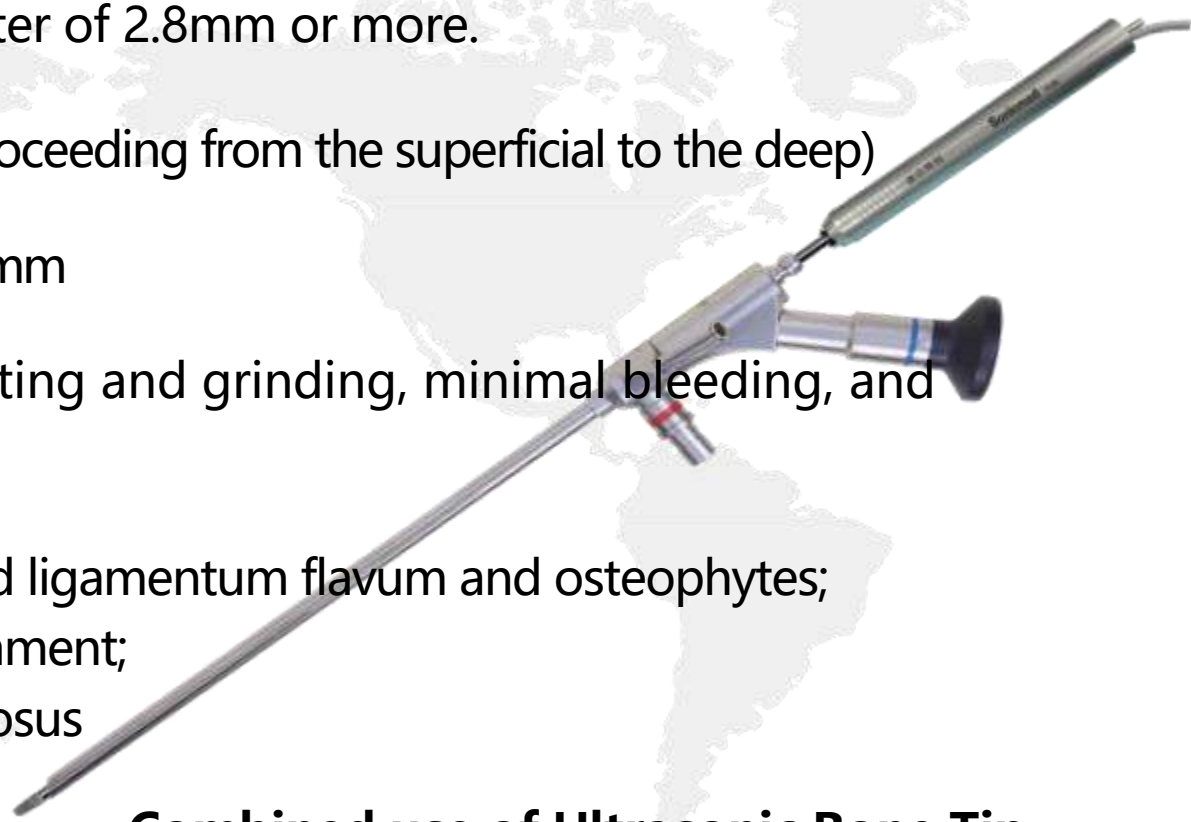
Product feature: Adequate cutting and grinding, minimal bleeding, and clear visual field.

Application:

Suitable for the removal of ossified ligamentum flavum and osteophytes;

Ossified posterior longitudinal ligament;

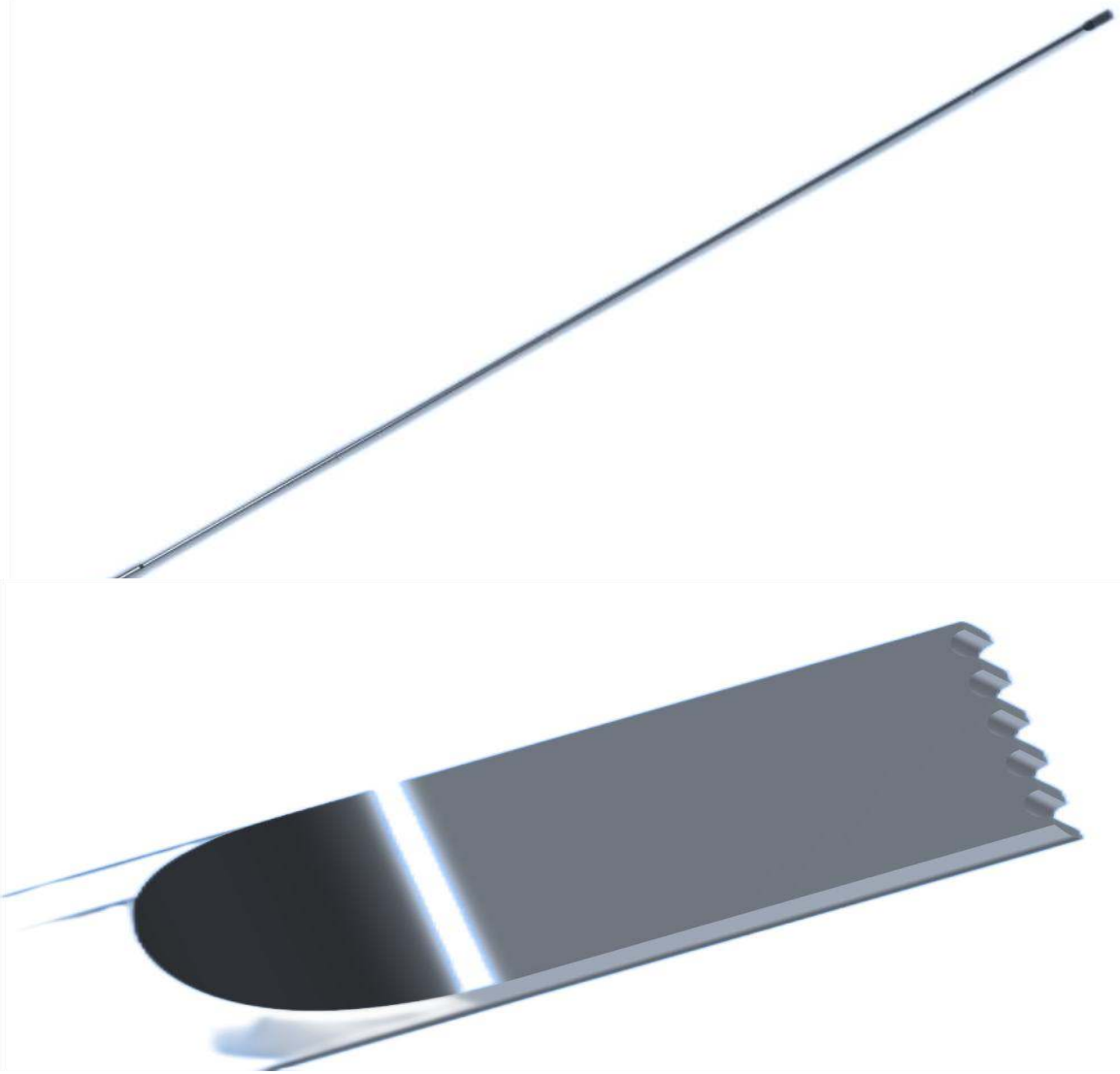
Removal of calcified nucleus pulposus



Combined use of Ultrasonic Bone Tip and Transforaminal Endoscope

Ultrasonic Bone Cutter Tip--Minimally Invasive

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Length：300mm　Thickness: 0.8mm

Applicable Surgeries： Suitable for bone cutting in transforaminal endoscopic surgery.

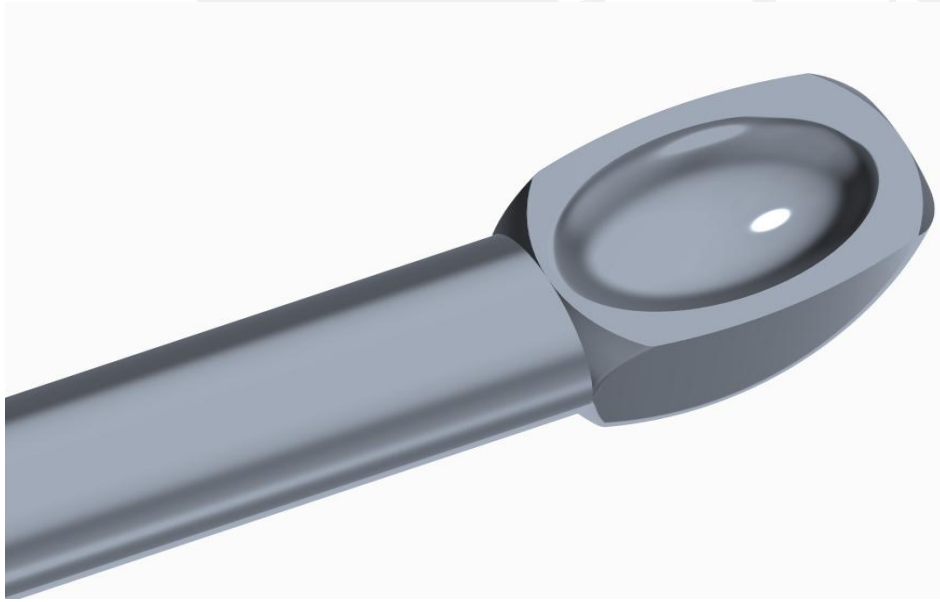
Applicable surgical types: Suitable for minimally invasive spinal decompression and anterior cervical decompression.

Expert Evaluation： The extended Ultrasonic Bone Cutter Tip is used in deep surgeries and anterior approach surgeries. It creates neat grooves, making single-door procedures very convenient and saving surgical time.

Ultrasonic Bone Drill Tip--Minimally Invasive

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Length：130mm/300mm　Diameter:5mm

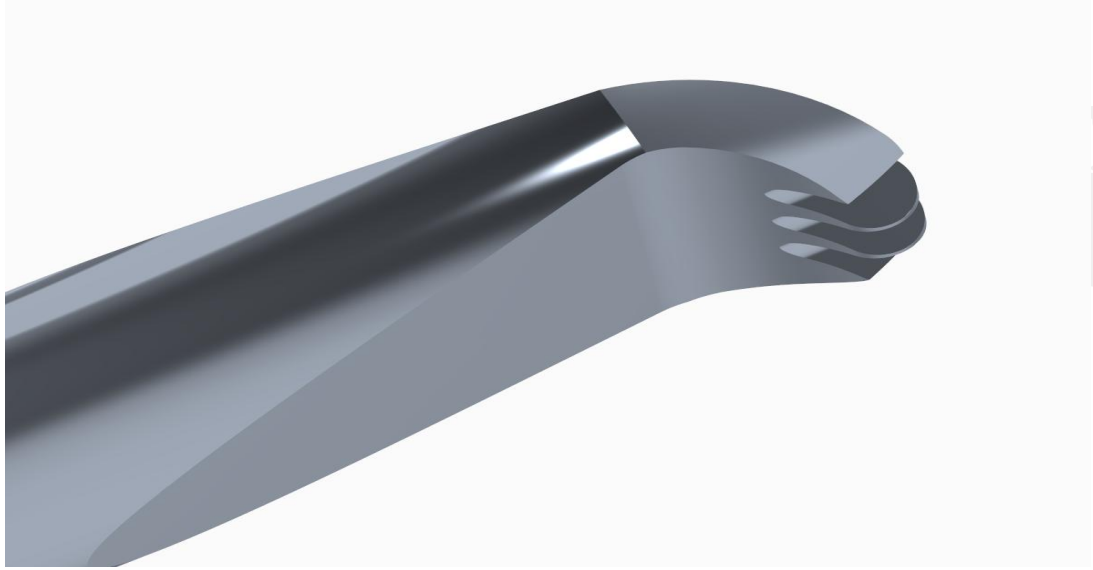
Applicable Surgeries：Deep-layer curettage, bone surface planing, and removal of osteophytes & ossified ligamentum flavum ; Anterior discectomy with interbody fusion; Anterior cervical corpectomy with fusion; Posterior cervical ossified ligamentum flavum (treatment); Thoracic/lumbar posterior decompression with lateral spinal canal curettage; Thoracic/lumbar anterior/lateral approach curettage of posterior vertebral osteophytes; Lumbar posterior decompression with lateral recess curettage and shaping

Expert Evaluation：The extended ultrasonic bone grinder is used in deep surgeries and anterior approach surgeries. It creates neat grooves, which makes single-door procedures very convenient and saves surgical time.

Ultrasonic Bone Cutter Tip--Minimally Invasive

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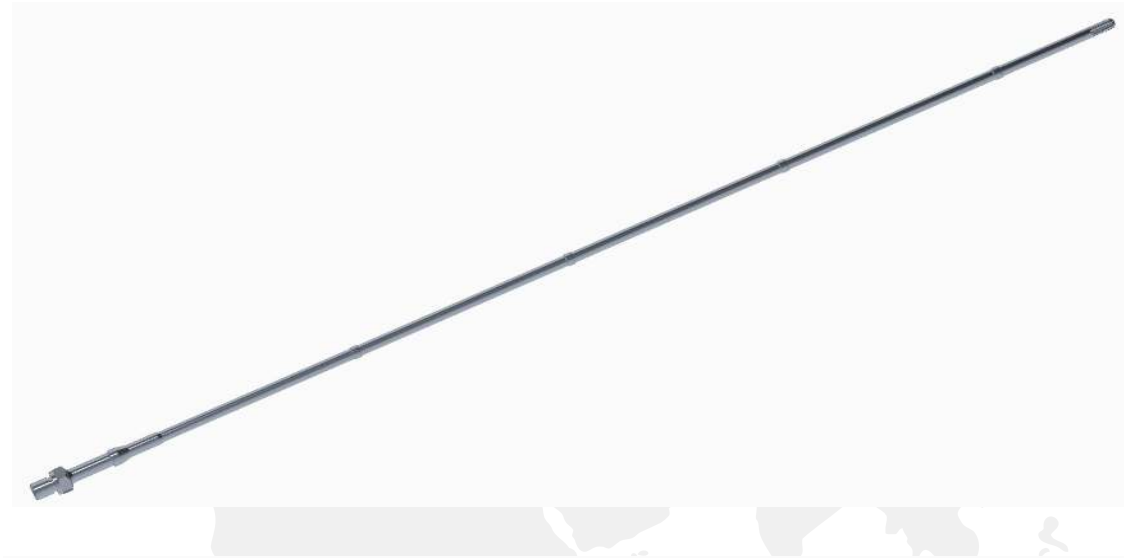
Length: 130/300mm **Thickness:** 5mm

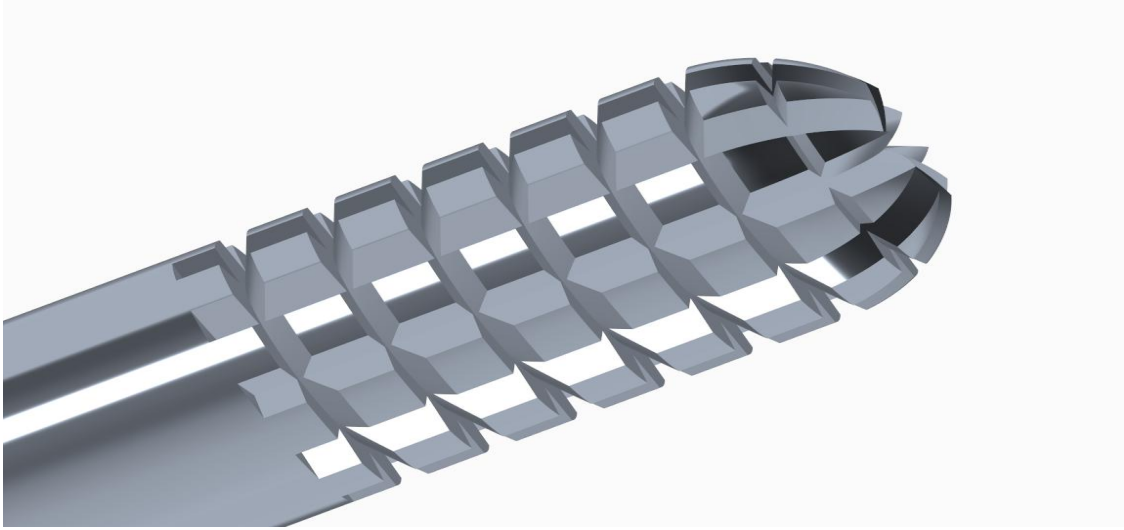
Applicable Surgeries: Anterior cervical curettage of posterior vertebral osteophytes and ossified posterior longitudinal ligament; Thoracic/lumbar posterior/lateral approach: spinal canal lateral wall grinding and windowing; Thoracic/lumbar anterior/lateral approach: curettage of posterior vertebral osteophytes; Lumbar posterior decompression; Lateral recess curettage and shaping.

Expert Evaluation: It is relatively long, enabling superficial-to-deep lifting-type bone surface grinding and cutting, and its head can work in a back-cutting mode. It is used after lamina opening in surgery to treat lamina bone above neurovascular structures.

Ultrasonic Bone Drill Tip--Minimally Invasive

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Length: 140/300mm **Diameter:** 3.5mm

Applicable Surgeries: It is applicable to minimally invasive spinal decompression, anterior cervical decompression, thoracic spinal stenosis, lumbar/thoracic/cervical osteotomy, atlantoaxial dislocation with cervical lamina cable internal fixation, drilling, osteophyte grinding, anterior cervical surgery for bone shaping, grinding of osteophytes on the posterior edge of the vertebral body, and drilling & shaping in posterior cervical surgery.

Expert Evaluation: The extended Ultrasonic Bone Drill Tip allows bone surface grinding from shallow to deep, resulting in neat grooving. This greatly facilitates single-door osteotomy and shortens the surgical time. It can replace bone burrs for clinical surgical applications.

Ultrasonic Bone Cutter Tip--Minimally Invasive

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Length: 280/320mm **Diameter:** 3.5mm

Applicable Surgeries: It is suitable for minimally invasive spinal decompression, anterior cervical approach cervical decompression, lumbar, thoracic and cervical osteotomy for thoracic spinal stenosis, internal fixation of the lamina with cables for cervical annular and axial dislocation, and anterior cervical surgeries such as drilling, osteophyte grinding and bone formation.

Expert Evaluation: The ultrasonic bone cutter tip is an extended tool with a semi-ring saw design, which can more effectively bite the bone and speed up the cutting of toxins.



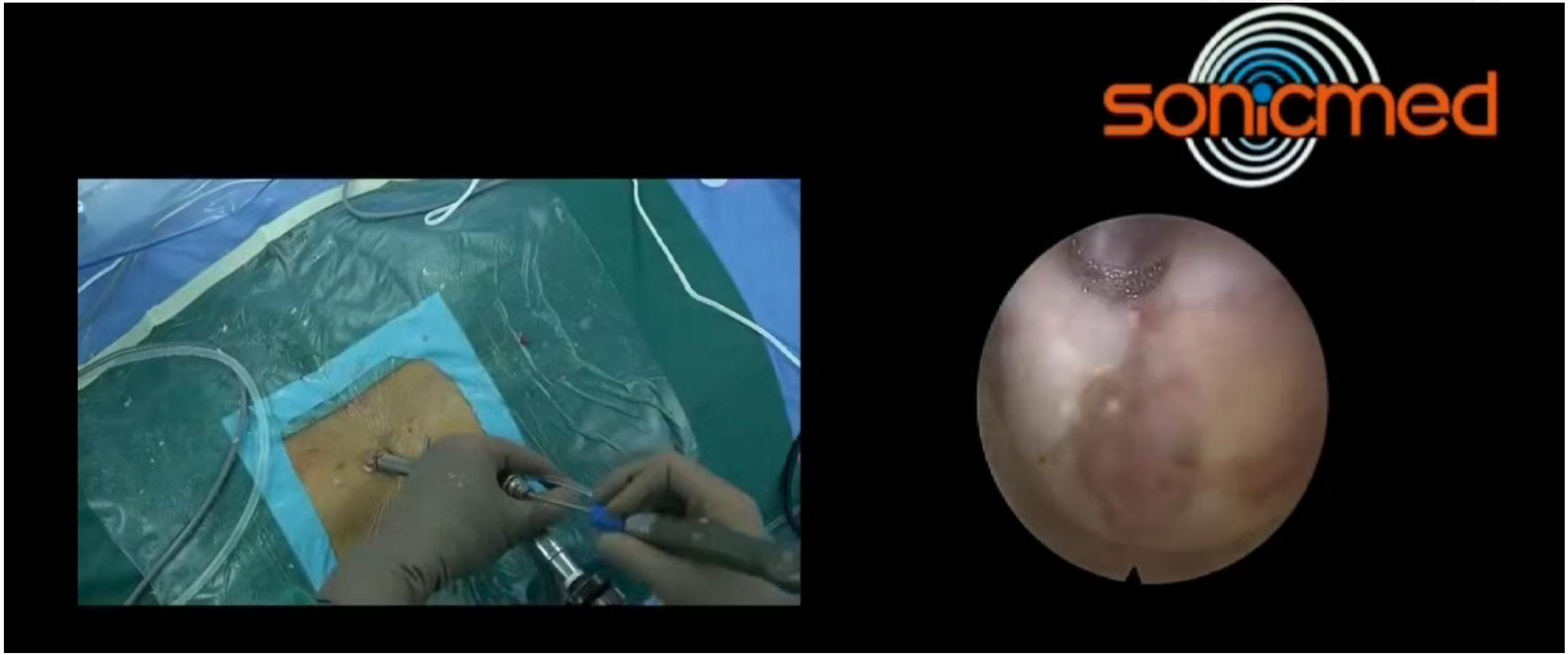
Clinical Cases of Minimally Invasive Spinal Surgery

Clinical Case Endoscopic Unilateral Laminotomy for Bilateral Decompression (ULBD)

People's Hospital of Nanshan District, Shenzhen

Surgical Name: Endoscopic Unilateral Laminotomy for Bilateral Decompression
Access Channel: 6mm Inner Diameter Large-Channel Percutaneous Endoscopic Transforaminal Endoscope
Instruments Used: Sonicmed Minimally Invasive Ultrasonic Bone and Drill, Extended Endoscopic Half-Ring Saw, Extended Customized Sleeve
Surgical Process: First, Ultrasonic Bone Drill Tip was used to attempt bone tissue grinding; then, an ultrasonic Bone Cutter Tip was used for bone tissue cutting to compare the effects.
Expert Evaluation: The Sonicmed Ultrasonic Bone Cutter has obvious advantages over the electric Bone Drill. 1. No slippage, low risk of soft tissue injury, easy control of depth and range, and significantly improved safety; 2. The cutting efficiency of the customized tip is obviously better than that of the bone burr; 3. Very little bleeding and a clear surgical field; the field of view can be quickly restored after stopping energy output. Although ultrasound causes temporary blurring of the field of view, it does not affect the surgical effect due to the osteotome’ s excellent maneuverability and safety.

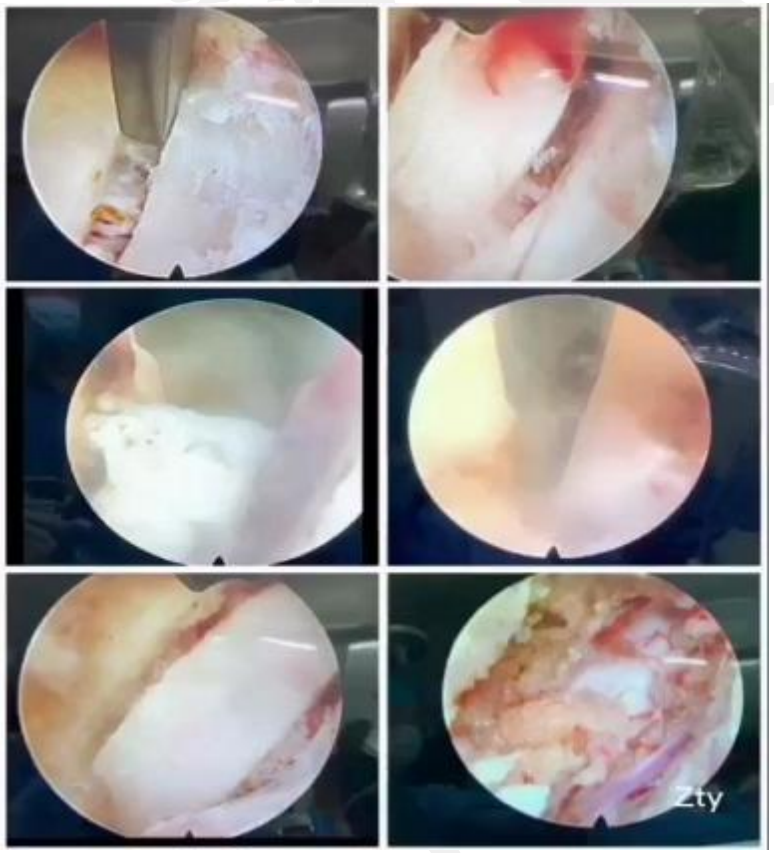
Clinical Case Endoscopic Unilateral Laminotomy for Bilateral Decompression (ULBD)



Clinical Case Endoscopic Transforaminal T7 Spinal Canal Decompression

Director Zhu Tengyue from Beijing Naval General Hospital Supported Complex Endoscopic Surgery in Changyi, Weifang, Shandong

Surgical Name: Endoscopic Transforaminal T7 Spinal Canal Decompression
Surgical Outcome: The Sonicmed Ultrasonic Bone Cutter was used for laminotomy under spinal endoscopy, showing obvious advantages.
Expert Evaluation: Director stated that this surgery is highly risky and complex, and can only be completed using the Sonicmed minimally invasive Ultrasonic Bone Cutter and Drill osteotome.
Suggestions: The total usage time of the tip in this surgery exceeded 1 hour. The minimally invasive module was used with a minimally invasive handpiece, and everything went smoothly during the operation. The director is very satisfied with the Sonicmed Ultrasonic Bone Cutter and Drill.



Clinical Case Percutaneous Endoscopic Transforaminal Discectomy

Director Liu Bailian, Department of Spinal Surgery, Kunming Yan'an Hospital, Yunnan

Surgical Name: Percutaneous Endoscopic Transforaminal Discectomy

Surgical Outcome: An endoscopic ultrasonic osteotome was used to perform posterior thoracic spinal canal decompression and ligamentum flavum resection safely and efficiently. The surgical process was smooth.

Expert Evaluation: My technique was slightly unskilled during the first use, but the device is really good. I believe I will become more proficient in using it in the near future.



Clinical Case Minimally Invasive Posterior Simple Ligamentum Flavum Resection

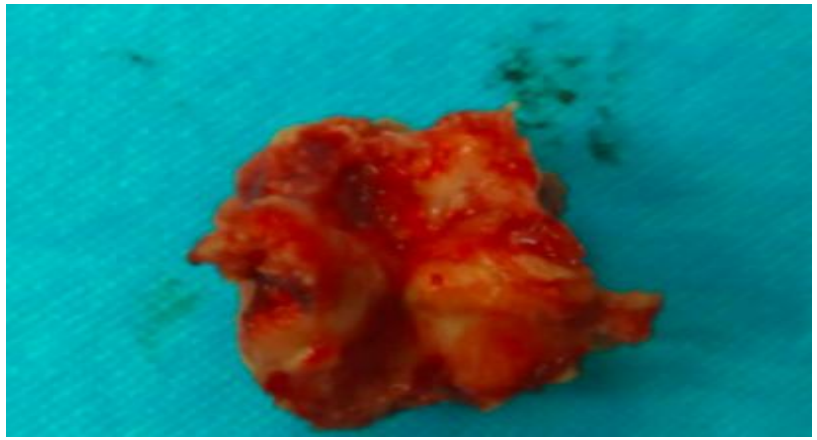
Director Wu Jigong, Characteristic Medical Center of the Strategic Support Force

Surgical Name: Resection of Ossified Ligamentum Flavum

Surgical Outcome: An endoscopic ultrasonic osteotome was used to perform posterior approach resection of the ligamentum flavum. The surgery was safe and efficient.

Expert Evaluation: It was extremely safe with a clear surgical field, fast bone cutting speed and very little intraoperative bleeding.





Clinical Case

Posterior Lumbar Decompression, Bone Grafting and Fusion



Director Liu Zhongjun, Peking University Third Hospital

Surgical Name: Percutaneous Endoscopic Transforaminal Lumbar Decompression, Bone Grafting and Fusion

Surgical Outcome: With the use of an endoscopic ultrasonic osteotome, the surgery resulted in minimal trauma, less bleeding, and rapid recovery. The procedures of lumbar spinal canal enlargement and nerve root release were performed safely and efficiently.

Expert Evaluation: The surgical field was clear, the operation was fast, and much time was saved.





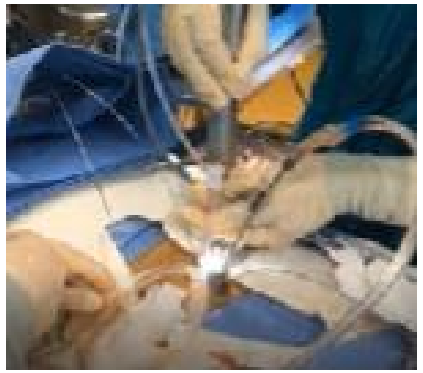
Clinical Case Posterior Lumbar Internal Fixation

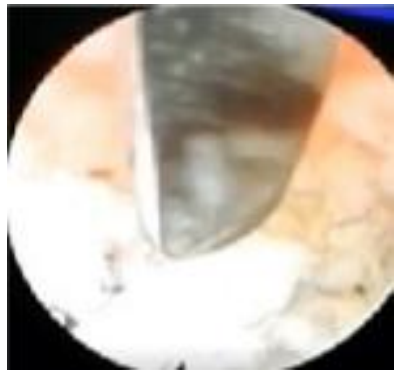
Director Wang Xiaobin, Department of Orthopedics, Beijing Hospital

Surgical Name: Minimally Invasive Posterior Vertebral Internal Fixation & Interbody Fusion.

Surgical Outcome: Given the large incisions and high risks of traditional surgery, an ultrasonic osteotome was used under endoscopy. The surgery resulted in minimal trauma, high safety, and a smooth procedure.

Expert Evaluation: It avoided the risks of traditional surgery, with rapid postoperative recovery and patient satisfaction.









Clinical Case

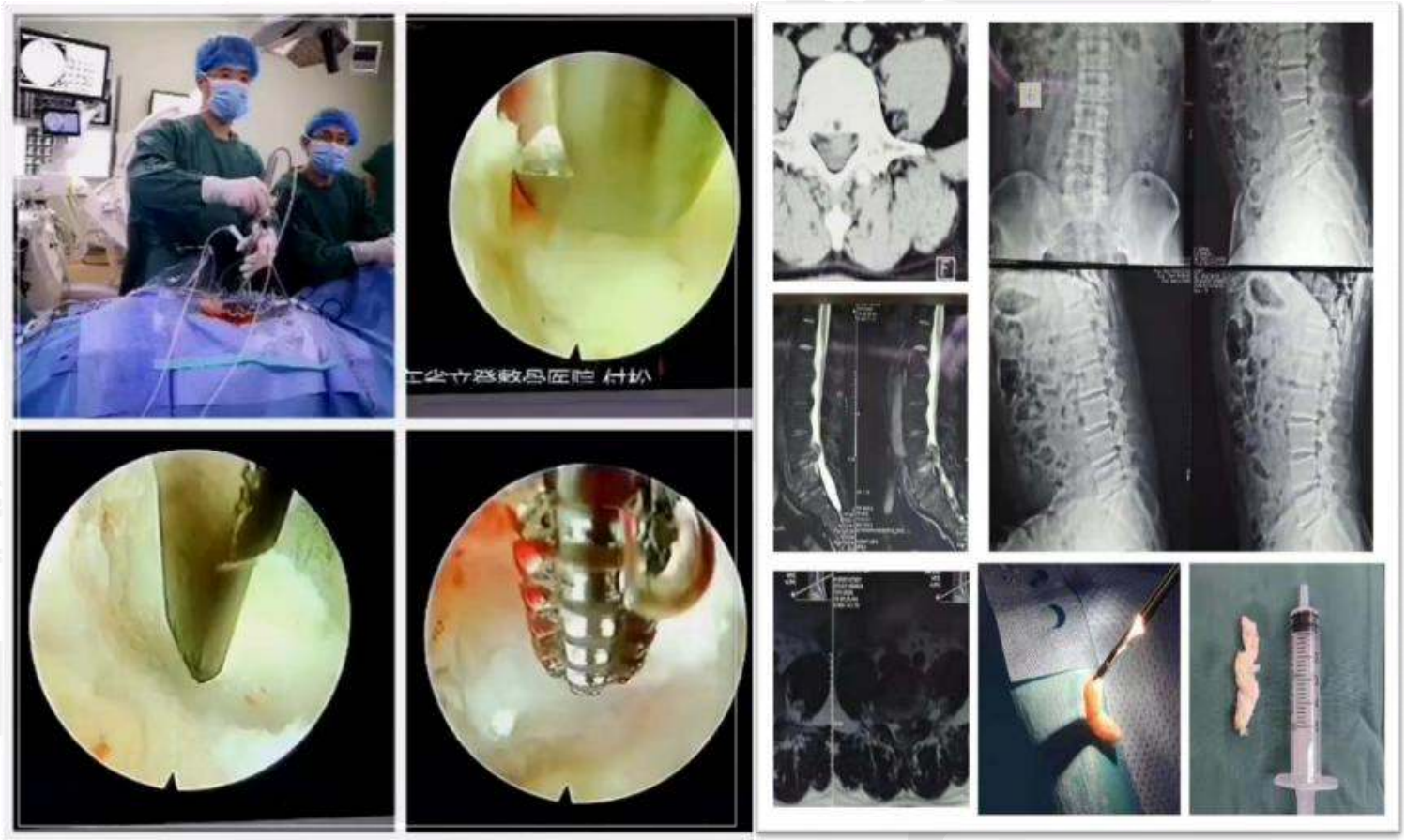
Nucleus Pulposus Exploration, Extraction and Annulus Fibrosus Plasty Under Local Anesthesia and Foraminoscopy

Director Fu Song, Department of Minimally Invasive Spinal Surgery, Shandong Wendeng Orthopedic Hospital

Surgical Name: Percutaneous Endoscopic Nucleus Pulposus Exploration, Excision and Annulus Fibrosus Plasty Under Local Anesthesia

Surgical Outcome: A 45-year-old male patient presented with severe cephalad-dorsal free prolapse of the intervertebral disc at the L4-L5 level, which was successfully removed via the posterior endoscopic transforaminal approach. An endoscopic ultrasonic osteotome was used, and the vertebral lamina was clearly visualized under endoscopy.

Expert Evaluation: The complete removal of the prolapsed tissue was attributed to the adoption of advanced surgical concepts and instruments.



Suggestions: The advantages of the endoscopic ultrasonic osteotome—particularly in cervical and thoracic spine surgeries—are incomparable to those of any power systems or trephines.

Clinical Case

Lumbar Nucleus Pulposus Exploration, Extraction and Annulus Fibrosus Plasty Under Local Anesthesia and Foraminoscopy

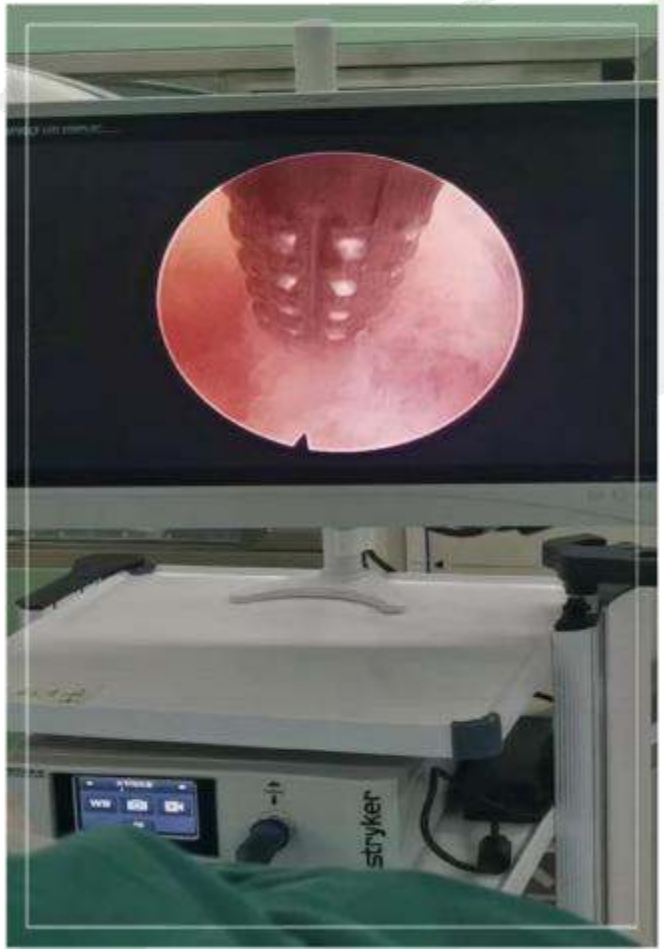






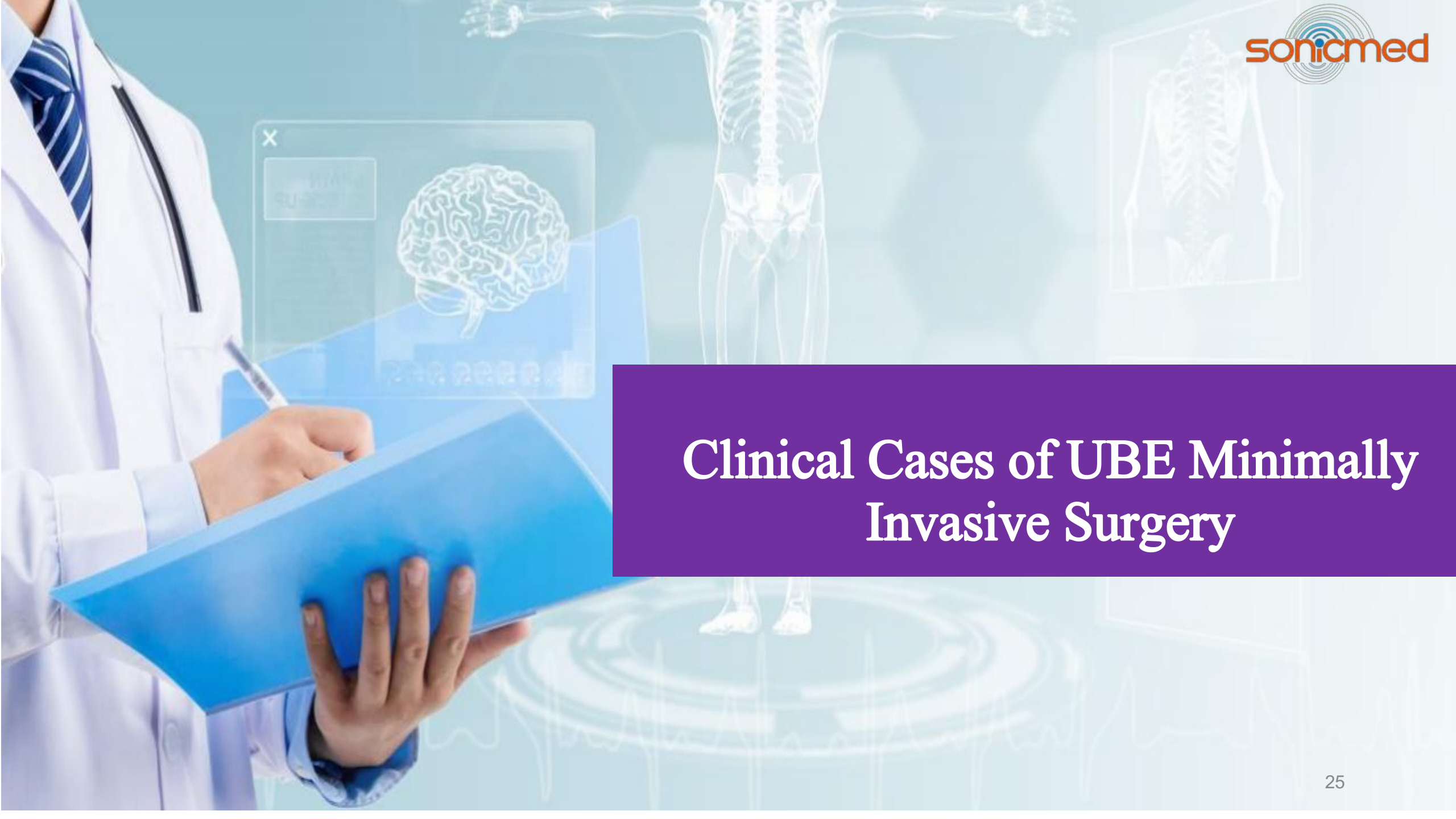
Clinical Case

Cervical Nucleus Pulposus Exploration, Extraction and Annulus Fibrosus Plasty Under Local Anesthesia and Foraminoscopy









Clinical Cases of UBE Minimally Invasive Surgery

Clinical Case UBE Endoscopic Lumbar Lamina Fenestration

Professor Si Haipeng, Qilu Hospital of Shandong University (Qingdao Campus)

Surgical Name: UBE Endoscopic Lumbar Lamina Fenestration.

Surgical Outcome： The intraoperative application effect of the ultrasonic spoon scalpel was excellent. Professor Si was among the first to implement the use of the spoon scalpel under UBE.

Expert Evaluation： The spoon tip is more flexible, efficient, and safer under UBE endoscopy.



Clinical Case

UBE-Assisted Lamina Fenestration, Nucleus Pulposus Extraction and Spinal Canal Decompression Surgery

Director Zhu Tengyue from Beijing Performed Surgery at Linyi County People's Hospital, Dezhou City, Shandong Province

Surgical Name: UBE-Assisted Lamina Fenestration, Nucleus Pulposus Extraction and Spinal Canal Decompression Surgery.

Surgical Outcome： During the surgery, the ultrasonic bone scalpel was used for nearly 1 hour, with 3 bags of normal saline consumed. The surgery was livestreamed, and Professor Zhu explained the procedure while operating.

Expert Evaluation： It cuts bone as easily as cutting tofu, and is extremely safe.

Suggestions: Professor Zhu has used the ultrasonic bone scalpel on multiple occasions and is highly satisfied with it.



Clinical Case UBE-Assisted Cervical Spinal Canal Decompression Surgery

Director Lin Hao, Department of Orthopedics, Wendeng District People's Hospital

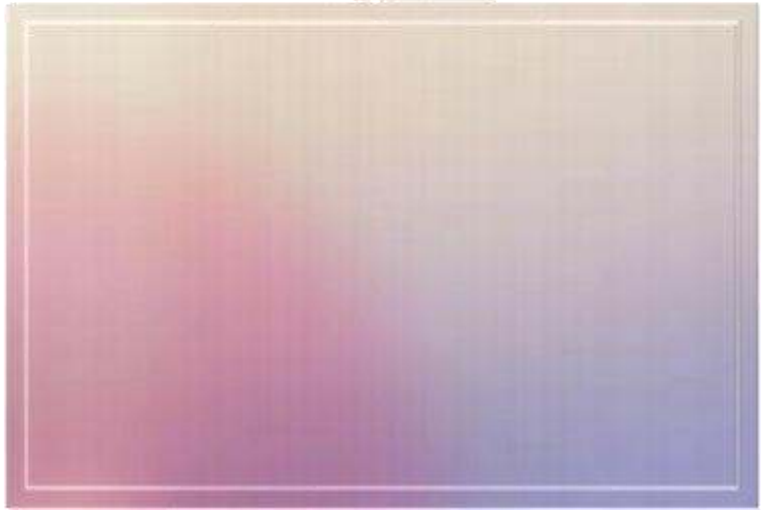
Surgical Name: UBE-Assisted Cervical Spinal Canal Decompression Surgery

Surgical Outcome: Good unilateral lamina decompression was achieved. After surgery, the patient's muscle strength of both upper limbs significantly improved.The patient felt increased strength in both lower limbs during walking and movement. Quality of life was greatly enhanced, with remarkable therapeutic effect.

Expert Evaluation: The application of Sumai Ultrasonic Bone Scalpel in cervical UBE minimally invasive surgery has greatly improved surgical efficiency, making spinal surgery safer, more minimally invasive, and more convenient.








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