

Endoscopic Fusion Surgery - Bombay Spine Clinic

- Endoscopic Lumbar Interbody Fusion (Endo Fusion – UBE)
- Ultra-Minimally Invasive Endoscopic Fusion Surgery for Lumbar Instability, Slip Disc & Spondylolisthesis

What Is This Surgery?

- Endoscopic Lumbar Interbody Fusion using the Unilateral Biportal Endoscopic (UBE) technique is one of the latest advances in minimally invasive spine surgery. It combines the benefits of endoscopic decompression with spinal stabilization and fusion, allowing treatment of conditions where simple nerve decompression alone is not sufficient.
- Unlike conventional open fusion surgery, UBE Endoscopic Fusion is performed through small keyhole incisions using a high-definition endoscopic camera and specialised surgical instruments. The compressed nerves are first decompressed, following which the damaged intervertebral disc is removed and replaced with a specialised interbody cage filled with bone graft to achieve spinal fusion.
- The goals of the surgery are to:
 - Relieve pressure on the spinal nerves
 - Remove the damaged disc
 - Restore disc height
 - Stabilize the spinal segment
 - Correct spinal alignment
 - Relieve back pain and leg pain
 - Achieve long-term spinal fusion
 - Enable early mobilisation with minimal muscle damage
- UBE Endoscopic Fusion is considered an ultra-minimally invasive fusion surgery, offering the advantages of endoscopic visualization together with stable spinal fixation through small incisions.
- Why Is This Surgery Performed?
 - This surgery may be recommended for:
 - Lumbar Spondylolisthesis
 - Lumbar Canal Stenosis with Instability
 - Recurrent Lumbar Disc Herniation
 - Degenerative Disc Disease with Mechanical Back Pain
 - Foraminal Stenosis
 - Segmental Lumbar Instability
 - Revision Lumbar Surgery
 - Degenerative Lumbar Scoliosis (selected cases)

- Common symptoms that may lead to surgery include:
- Persistent low back pain
- Sciatica (pain radiating into the leg)
- Tingling or numbness
- Weakness in the leg
- Difficulty walking
- Back pain worsened by standing or walking
- Mechanical instability-related pain

Symptoms not improving despite conservative treatment

- Unlike decompression surgery alone, fusion is recommended when the affected spinal segment is unstable or expected to become unstable after decompression.
- Who Is A Suitable Candidate?
- You may be a suitable candidate if:
 - ✓ Symptoms persist despite medications and physiotherapy.
 - ✓ Significant back pain is associated with leg pain.
 - ✓ MRI confirms nerve compression.
 - ✓ X-rays demonstrate spinal instability or spondylolisthesis.
 - ✓ Progressive neurological weakness develops.
 - ✓ Previous non-surgical treatment has failed.
 - ✓ Quality of life is significantly affected.
 - ✓ Fusion is required to restore spinal stability.
- How Is The Surgery Performed?
- Step 1
 - The procedure is performed under general anesthesia. The patient is positioned comfortably on a specialised spine operating table.
- Step 2
 - Small skin incisions are made over the affected spinal level. A high-definition endoscopic camera is introduced through one portal while specialised surgical instruments are introduced through another portal.
- Step 3
 - Using continuous saline irrigation and endoscopic magnification, the compressed nerves are carefully decompressed by removing thickened ligaments, bone spurs and damaged disc material.
- Step 4
 - The diseased intervertebral disc is removed, and the disc space is prepared. A specialised fusion cage filled with bone graft or bone substitute is inserted into the disc space to restore disc height and promote fusion. Percutaneous pedicle screws and rods are then inserted through small skin incisions to stabilise the spine.
- Step 5
 - After confirming satisfactory nerve decompression, implant position and spinal alignment, the small skin incisions are closed using cosmetic sutures.

- Most UBE Endoscopic Fusion procedures are completed within 2–4 hours, depending on the complexity and number of levels treated.
- What Are The Advantages?
- Potential benefits include:
 - Small cosmetic incisions
 - Minimal muscle damage
 - Excellent endoscopic magnification
 - Reduced blood loss
 - Less postoperative pain
 - Stable spinal fixation
 - Restoration of disc height
 - Preservation of surrounding muscles
 - Faster mobilisation
 - Shorter hospital stay
 - Earlier return to normal activities
 - Improved spinal alignment
 - High fusion success rates
 - Significant improvement in back pain and sciatica
 - Better long-term quality of life
- Compared with conventional open fusion surgery, UBE Endoscopic Fusion offers effective decompression and stabilisation while minimising tissue injury and facilitating faster recovery in appropriately selected patients.
- What Are The Risks?
- Every surgical procedure carries certain theoretical risks and potential complications. However, every effort is made to minimise these risks through meticulous surgical planning, advanced technology and comprehensive patient optimisation.
- At Bombay Spine Clinic™, UBE Endoscopic Fusion is performed using a high-definition biportal endoscopic system, specialised endoscopic fusion instruments, modern pedicle screw systems and advanced imaging guidance. These technologies allow precise decompression, accurate implant placement and optimal spinal stabilisation while minimising disruption to surrounding muscles and soft tissues.
- Every patient undergoes a comprehensive pre-operative assessment. Depending on individual health requirements, optimisation may involve physicians, cardiologists, anaesthetists and other specialists. This multidisciplinary approach enhances surgical safety, facilitates recovery and improves long-term outcomes.
- Potential risks discussed with patients include:
 - Infection
 - Bleeding
 - Dural tear (CSF leak)
 - Nerve injury
 - Implant-related complications
 - Cage migration

- Screw loosening or breakage
- Failure of fusion (non-union)
- Persistent pain
- Adjacent segment degeneration
- Rare need for revision surgery
- Fortunately, careful patient selection, modern endoscopic techniques and comprehensive perioperative care help minimise these risks.
- Preparing For Surgery
- Before surgery:
- Clinical evaluation
- MRI review
- Standing dynamic X-rays
- CT scan (if required)
- Blood investigations
- Medical fitness assessment
- Medication review
- Anaesthesia assessment
- Patients should inform their doctor regarding:
- Blood thinning medications
- Osteoporosis
- Diabetes
- Heart disease
- Previous spinal surgeries
- Allergies
- Smoking history
- Smoking cessation is strongly recommended as it improves bone healing and fusion rates.
- What Happens During Hospital Stay?
- Day of Surgery
- Hospital admission
- Surgery

Recovery room observation

- Pain management
- Neurological monitoring
- First 24–48 Hours
- Assisted walking
- Physiotherapy guidance
- Stair climbing as tolerated

- Wound care instructions
- Discharge
- Most patients are discharged within:
- 2–3 days
- depending on the complexity of surgery and individual recovery.

Recovery After Surgery

- Week 1
- Expected symptoms:
- Mild wound discomfort
- Improvement in leg pain
- Gradual reduction in back pain
- Walking encouraged several times a day
- Weeks 2–6
- Progressive walking programme
- Return to light daily activities
- Follow-up consultation
- Physiotherapy if advised
- 6 Weeks–3 Months
- Core strengthening exercises
- Progressive functional rehabilitation
- Continued fusion healing
- Return to routine activities
- Long-Term Recovery
- Fusion continues over several months. Most patients experience substantial improvement in back pain, sciatica, walking ability and overall quality of life. Maintaining good posture, spinal fitness, bone health and adherence to rehabilitation protocols contributes to long-term success.
- When Can I Return To Work?
- Occupation
- Approximate Timeline
- Work From Home
- 2–3 weeks
- Desk Job
- 4–6 weeks
- Light Physical Work
- 6–8 weeks
- Heavy Manual Labour
- 3–4 months

- Driving
- 3–4 weeks
- Sports & High-Impact Activities
- 3–6 months

Frequently Asked Questions

- 1. Why do I need this surgery?
- Because your spinal condition requires both nerve decompression and spinal stabilisation. Fusion helps relieve pain while preventing abnormal movement at the affected spinal level.
- 2. Are there alternatives to surgery?
- Many patients improve with medications, physiotherapy, lifestyle modification and image-guided injections. Surgery is recommended when these measures fail or when spinal instability is present.
- 3. Will I have a large scar?
- No. UBE Endoscopic Fusion is performed through several small keyhole incisions, resulting in excellent cosmetic healing.
- 4. How long will I stay in hospital?
- Most patients remain in hospital for approximately 2–3 days.
- 5. When can I start walking?
- Walking usually begins within a few hours after surgery under supervision.
- 6. When can I climb stairs?
- Most patients can safely climb stairs before discharge.
- 7. When can I drive?
- Driving is generally permitted after approximately 3–4 weeks, once you are comfortable and no longer require strong pain medications.
- 8. When can I return to work?
- Work-from-home activities are often possible after 2–3 weeks. Office-based work generally resumes within 4–6 weeks, while physically demanding occupations may require 3–4 months.
- 9. What is the success rate?
- When performed for appropriate indications, UBE Endoscopic Fusion has a high success rate in relieving back pain, sciatica and improving spinal stability. Most patients experience significant improvement in function and quality of life.
- 10. Will the implants remain permanently?
- Yes. The pedicle screws, rods and fusion cage are designed to remain permanently and usually do not require removal unless a specific complication develops.
- Myth vs Fact
- Myth:
- Fusion surgery means I will not be able to bend or live a normal life.
- Fact:

- Only the affected spinal segment is fused. Most patients regain excellent mobility for daily activities and return to an active lifestyle after rehabilitation.
- Myth:
- Endoscopic fusion is less stable than open fusion.
- Fact:
- When performed correctly using modern implants and appropriate patient selection, UBE Endoscopic Fusion provides stable fixation and excellent fusion outcomes comparable to conventional fusion surgery.
- When Should I Contact My Surgeon After Surgery?
- Contact your surgeon if you experience:
- Fever
- Increasing wound discharge
- Progressive weakness
- Severe back or leg pain
- Difficulty passing urine
- New numbness
- Significant wound swelling
- Sudden worsening of symptoms
- Related Conditions
- Lumbar Spondylolisthesis
- Lumbar Canal Stenosis
- Recurrent Slip Disc
- Degenerative Disc Disease
- Lumbar Instability
- Related Procedures
- Endoscopic Decompression (UBE)
- MIS TLIF (Tubular)
- Microscopic Discectomy (Tubular)
- Image-Guided Spinal Injections
- Need Expert Advice?
- If you have been advised lumbar fusion surgery or would like a second opinion regarding your MRI, X-rays or CT scan, you may schedule a consultation or upload your imaging studies for specialist review.
- Dr. Siddharth Katkade Consultant Spine Surgeon
- Bombay Spine Clinic™
- Top of Form
- Bottom of Form

Need Clinical Evaluation or Second Opinion?

This educational document was prepared by **Dr. Siddharth Katkade**. For appointments or to share MRI scan reports

for clinical review, call **+91 88507 73095** or consult at Byculla (E) / Khar (W) clinics.

Bombay Spine Clinic • Dr. Siddharth Katkade • Masina Hospital Byculla (E) & Khar (W), Mumbai • +91 88507 73095