

Minimally invasive neurosurgery

- [Successful minimally invasive reduction surgery with a micro burr hole in a pediatric patient with depressed skull fracture: a case report](#)
- [Using a syringe as tubular retractor and working channel in minimally invasive cranial and spinal neurosurgery](#)
- [Advances and Integrations of Computer-Assisted Planning, Artificial Intelligence, and Predictive Modeling Tools for Laser Interstitial Thermal Therapy in Neurosurgical Oncology](#)
- [Simulating Endonasal Endoscopic Skull Base Surgery on Animal Carcasses: A Prospective Observational Study](#)
- [When can lumbar fusion be considered appropriate in the treatment of recurrent lumbar disc herniation? A systematic review and meta-analysis](#)
- [A Comprehensive Review of the Role of the Latest Minimally Invasive Neurosurgery Techniques and Outcomes for Brain and Spinal Surgeries](#)
- [Simultaneous two-level minimally invasive lumbar laminectomy performed with dual tubular retractor systems in a 93-year-old under spinal anesthesia: illustrative case](#)
- [Ultrasound-induced blood-brain barrier opening and selenium-nanoparticle injection lower seizure activity: A mouse model of temporal lobe epilepsy](#)

see also [Minimally invasive spine surgery](#).

see also [Minimally invasive image-guided therapy](#).

see [Laser interstitial thermotherapy](#)

Is any [neurosurgical procedure](#) (surgical or otherwise) that is less invasive than open neurosurgery used for the same purpose. A minimally invasive procedure typically involves use of devices and remote-control manipulation of [instruments](#) with indirect observation of the surgical field through an [endoscope](#) or large scale display panel, and is carried out through the skin or through a body cavity or anatomical opening. Interventional radiology may offer techniques that avoid the need for surgery.

A patient may require only a band-aid on the incision, rather than multiple stitches or staples to close a large incision. This usually results in less infection, a quicker recovery time and shorter hospital stays, or allow outpatient treatment.

However, the safety and effectiveness of each procedure must be demonstrated with randomized controlled trials. The term was coined by John EA Wickham in 1984, who wrote of it in British Medical Journal in 1987.

A minimally invasive procedure is distinct from a non-invasive procedure, such as external imaging instead of exploratory surgery. When there is minimal damage of biological tissues at the point of entrance of instrument(s), the procedure is called minimally invasive.

[Laser interstitial thermotherapy](#) (LITT), sometimes referred to as [stereotactic laser ablation](#) or SLA, is a [minimally invasive surgery](#) approach that uses thermal energy delivered by a [laser](#) to ablate tissue

Examples

MIS [transforaminal lumbar interbody fusion](#) (MIS TLIF) procedure.

[Magnetic resonance guided laser induced thermal therapy for epilepsy](#).

Laparoscopic implantation of a distal [peritoneal catheter](#) is a simple, [minimally invasive](#), and easy procedure to perform and allows exact localization of the peritoneal catheter and confirmation of its patency ^{1) 2)}.

[Minimally invasive surgery](#) (MIS) techniques are increasingly used to treat [adult spinal deformity](#).

Journals

<https://www.thieme-connect.com/products/ejournals/journal/10.1055/s-00000039>

International journal Minimally Invasive Neurosurgery is now part of the [Journal of Neurological Surgery](#)

¹⁾

Bani A, Telker D, Hassler W, Grundlach M. Minimally invasive implantation of the peritoneal catheter in ventriculoperitoneal shunt placement for hydrocephalus: analysis of data in 151 consecutive adult patients. J Neurosurg. 2006 Dec;105(6):869-72. PubMed PMID: 17405257.

²⁾

Sosin M, Sofat S, Felbaum DR, Seastedt KP, McGrail KM, Bhanot P. Laparoscopic-assisted Peritoneal Shunt Insertion for Ventriculoperitoneal and Lumboperitoneal Shunt Placement: An Institutional Experience of 53 Consecutive Cases. Surg Laparosc Endosc Percutan Tech. 2015 Jun;25(3):235-7. doi: 10.1097/SLE.0000000000000141. PubMed PMID: 25738700.

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