

OmniGuide's BeamPath® System for NEUROSURGERY

HEMOSTATIC CUTTING

IMPROVED SURGICAL EFFICIENCY

PRECISE DISSECTION

SUB-MILLIMETER THERMAL EFFECT

LOW PROFILE

THE VALUE OF THE CO₂ LASER IN NEUROSURGERY

For over 30 years, the CO₂ laser has been considered the gold standard for precise hemostatic tissue cutting, with a peer-reviewed publication base in the thousands. The CO₂ laser has received such accolades due its superficial and controlled interaction with tissue. OmniGuide is the first to introduce a hand-held, flexible CO₂ laser, optimized for neurosurgery.

Hemostatic cutting: dry resection minimizes oozing, increasing surgical efficiency

Precise dissection: pin-point accuracy & sub-millimeter thermal effect¹

Non-electrical micro-vascular coagulation: no interference with neuro-monitoring²

Excellent for hard/calcified/fibrous tumor resection: for more complete tumor removal³

Small profile instrument, <2mm: improves visualization through small or deep seated approaches³

TISSUE INTERACTION & SAFETY

ABSORPTION IN WATER:

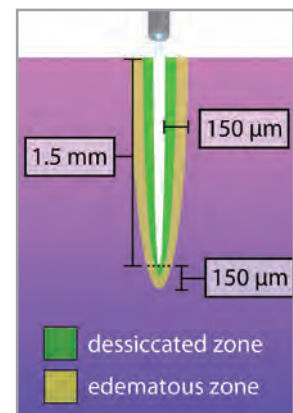
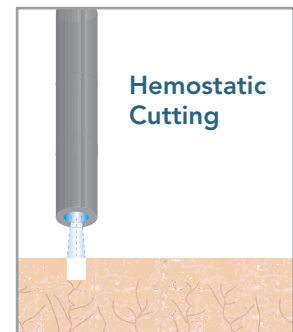
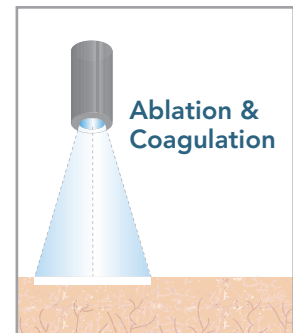
- CO₂ laser energy is highly absorbed in water and cuts tissue by vaporizing the water content of cells at the tissue surface.
- High absorption in water leads to a superficial tissue interaction and sub-millimeter thermal effect on surrounding tissue.⁴
- During surgery, wet cottonoids can be used to shield delicate anatomy from the laser beam.

CONTROL:

- The hand-held CO₂ laser produces a divergent beam, allowing control of resection depth by adjusting distance to tissue and power settings.

THERMAL EFFECT:

- When the CO₂ laser cuts tissue, the surrounding thermally affected zone is approximately 150 microns.¹
- In comparison, the thermal effect produced by bipolar electrocautery is approximately 1.5mm, a difference of 10x.¹



Depiction is based on peer reviewed publication,¹ measurements are approximate

CLINICAL APPLICATIONS

SKULL BASE: Meningioma & Acoustic Neuroma

As a hemostatic cutting instrument, the laser enables a dry resection, improving visualization of the surgical field. Dry piecemeal resection technique reduces instrument exchange, enhances surgical efficiency and may reduce operative time in both large and in fibrous skull base tumor resections.

Recommended Technique: Piecemeal Resection

The laser is used in a cutting mode to resect large portions of tumor mass. Traction is used to achieve efficient hemostatic cutting.

Illustrations by J. Pryll

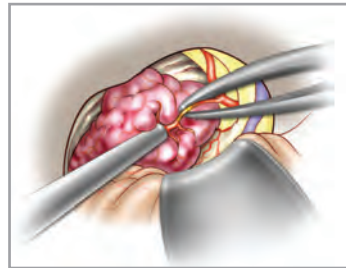


Fig. 1: Cauterize feeding vessel.

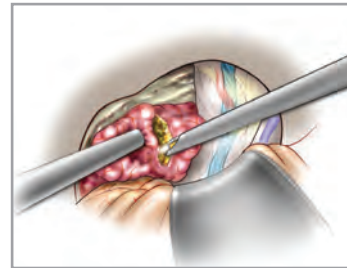


Fig. 2: Wet cottonoid shields delicate anatomy. Counter traction used for efficient cutting.

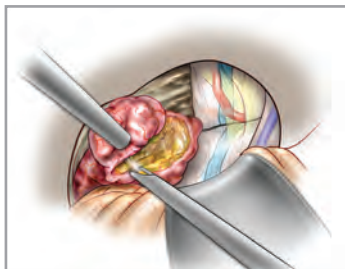


Fig. 3: Suction repositioned to create local traction, enhancing cutting effect.

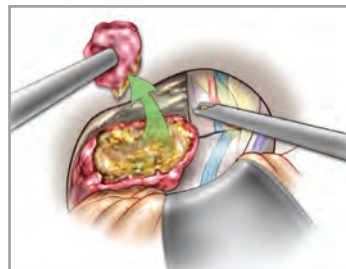


Fig. 4: Tumor section removed by piecemeal resection technique.

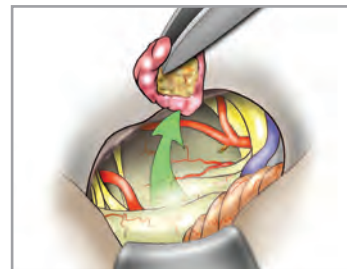


Fig. 5: Tumor debulked by repeating piecemeal resection technique.

SPINE: Adherent tumors, Myelotomy, Detethering with Lipoma

The laser is highly precise for delicate removal of adherent tumor tissue from healthy anatomy. The sub-millimeter thermal effect of the laser allows layer-by-layer removal of tumor tissue while sparing adjacent delicate anatomy.⁵ The non-electrical hemostatic effect of the laser enables dissection close to nerves without interfering with neuro-monitoring.²

CEREBROVASCULAR: Cavernous Malformations

The laser enables precise, no-touch dissection at the interface between diseased and healthy tissue. The low profile of the instrument and its sub-millimeter thermal effect facilitate complex resections through deep approaches and within pristine anatomy (i.e., brainstem, thalamus).³

- 1 Ryan RW, Wolf T, Spetzler RF, Coons SW, Fink Y, Preul MC. **Application of a flexible CO₂ laser fiber for neurosurgery: laser-tissue interactions.** *J. Neurosurgery* 2010; 112.2: 434-443
- 2 Silverstein H, Norrel H, Hyman SM. **Simultaneous use of CO₂ laser with continuous monitoring of eighth cranial nerve action potential during acoustic neuroma surgery.** *Otolaryngology Head Neck Surg.* 1984; 92.1
- 3 Killroy, BD, Chang SW, Wait SD, Spetzler RF. **Use of Flexible Hollow-Core CO₂ Laser in Microsurgical Resection of CNS Lesions: Early Surgical Experience.** *Neurosurgery* 2010; 66.6: 1187-1192
- 4 Ryan RW, Spetzler RF, Preul MC. **Aura of technology and the cutting edge: a history of lasers in neurosurgery.** *Neurosurgery Focus* 2009; 27:E6
- 5 Browd SR, Zauberman J, Karandikar M, Ojemann JG, Avellino AM, Ellenbogen RG. **A new fiber-mediated carbon dioxide laser facilitates pediatric spinal cord detethering. Technical note.** *J Neurosurg Pediatr.* 2009; 4:280-284.

ORDERING INFORMATION

	Catalog #	Product Name	Description
	NEURO-L	BeamPath NEURO-L Fiber	Length = 150 cm. Set of 10 fibers.
	NEURO-HS	BeamPath NEURO Handpiece Set	Includes 6 NEURO handpieces; NEURO-HP-3.5, 5, 6B, 8, 8B, 10B and one autoclave tray.
	NEURO-HP-3.5	BeamPath NEURO Handpiece Straight	3.5 cm working length with dissecting tip. Compatible with NEURO-L fiber.
	NEURO-HP-5	BeamPath NEURO Handpiece Straight	5 cm working length with dissecting tip. Compatible with NEURO-L fiber.
	NEURO-HP-8	BeamPath NEURO Handpiece Straight	8 cm working length with dissecting tip. Compatible with NEURO-L fiber.
	NEURO-HP-6B	BeamPath NEURO Handpiece Bayonet	6 cm working length, bayonet design with dissecting tip. Compatible with NEURO-L fiber.
	NEURO-HP-8B	BeamPath NEURO Handpiece Bayonet	8 cm working length, bayonet design with dissecting tip. Compatible with NEURO-L fiber.
	NEURO-HP-10B	BeamPath NEURO Handpiece Bayonet	10 cm working length, bayonet design with dissecting tip. Compatible with NEURO-L fiber.
	FELS-25A	Fiber Enabled Laser System	Portable CO ₂ laser with optical adapter. BeamPath NEURO-L compatible. Maximum power 25 W.
	ACC-GFU-100	Gas Filter Unit	Sterile gas filter unit. 10 pack.
	ACC-SH-510	Helium Gas Cylinder	Helium gas tank (510 liter).
	ACC-SH-290	Helium Gas Cylinder	Helium gas tank (290 liter).
	ACC-GR-SH1	Gas Tank Regulator	Gas tank regulator: 0-200 PSI output pressure. For use with the SH-510 and SH-290 helium gas cylinders.
	ACC-GRP	Handpiece Grippers	Replacement silicone grippers for handpieces. Pack of 10.
	ACC-SP	Sterile Instrument Pouch	Pouches for sterile intraoperative placement of fiber-in-handpiece. Pack of 10.



For more information or to order call 888-666-4484/617-551-8444 or visit www.omni-guide.com

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