Laser Hemorrhoidoplasty: TRIANGEL's Proctology Diode Laser Machine for Minimally Invasive Hemorrhoid Treatment





BAODING, HEBEI, CHINA, September 21, 2026 /EINPresswire.com/ -- Achieving definitive hemorrhoidal resolution while safeguarding anal continence remains a primary clinical priority for colorectal surgeons and ambulatory surgery centers. Conventional excisional hemorrhoidectomy requires extensive mucosal cutting, resulting in significant post-operative pain and prolonged wound healing. In response to these clinical challenges, medical laser manufacturer TRIANGEL engineered the V6 proctology diode laser platform. Operating under certified ISO 13485 standards, TRIANGEL develops surgical systems holding FDA clearance and Medical CE certification. The proctology diode laser machine for hemorrhoids enables closed endoluminal ablation, precise vascular occlusion, and intact anoderm preservation across ambulatory surgical environments.

Clinical Challenges and the Modern Evolution in Colorectal Surgery

Symptomatic Grade II to Grade IV internal hemorrhoids stem from hypervascular enlargement and laxity within the submucosal corpus cavernosum recti. Traditional surgical excision removes the vascular cushions alongside sensitive anoderm epithelium. This mechanical resection frequently disrupts the internal anal sphincter, leading to prolonged recovery times of four to six weeks. Patients undergoing conventional excisional procedures often report severe post-defecation pain, wound discharge, and risks of secondary bleeding that necessitate extended hospital monitoring.

Laser hemorrhoidoplasty establishes a minimally invasive clinical alternative. Rather than excising tissue, the surgeon introduces a dedicated optical fiber directly into the hemorrhoidal cushion through a micro-puncture. Interstitial thermal energy coagulates the terminal branches of the feeding rectal artery from within. This closed technique preserves the sensitive squamous epithelium, avoids open surgical wounds, and protects sphincter muscular continuity. Consequently, the preservation of the mucosal architecture maintains normal sensory feedback mechanisms, markedly reducing post-procedural discomfort.

Laser Hemorrhoidoplasty Endoluminal Ablation and Hemostasis Mechanism

The therapeutic efficacy of laser hemorrhoidoplasty relies on controlled photothermal interaction inside the vascular plexus. Applying coherent 1470 nm and 980 nm energy inside the hemorrhoidal node causes instantaneous thermal shrinkage of collagenous connective tissue, mucosal adherence to underlying structures, and arterial occlusion without requiring incisions, rubber bands, mechanical staples, or foreign suture materials.

Compared to deep-penetrating Nd:YAG (1064 nm) or high-scattering CO2 lasers, the 1470 nm emission delivers an exceptionally shallow, highly confined ablation zone targeting interstitial water and blood vessels simultaneously. This controlled thermal confinement prevents deep collateral thermal spread, preserving the internal anal sphincter intact. Progressive post-operative fibrosis retracts prolapsed tissue, allowing patients to resume normal daily activities within 1 to 2 days without open wounds or significant post-operative pain. Surgical teams can adjust continuous or pulsed energy delivery modes to match tissue density, ensuring uniform thermal coagulation without generating intraoperative smoke, carbonization, or mucosal perforation.

Engineered around proprietary diode laser innovations, the TRIANGEL V6 platform integrates four core technological pillars that ensure precise endoluminal control and sphincter safety:

Selective 1470 nm and 980 nm Dual Emission: Delivering balanced interstitial water absorption and vascular coagulation to achieve rapid node collapse.

Radial 360-Degree Optical Fiber Geometry: Distributing conical optical energy uniformly along the submucosal cushion while avoiding localized hotspots.

Internal Anal Sphincter Protection and Mucosal Preservation: Maintaining continence by avoiding thermal energy transmission into underlying muscular layers.

Rapid Hemodynamic Occlusion and Tissue Shrinkage: Inducing immediate node retraction with clinical recovery achieved within 1 to 2 days.

Multi-Indication Expansion: FiLaC and SiLaC Procedures

The clinical utility of the TRIANGEL V6 proctology platform extends beyond hemorrhoid treatment to complex anorectal conditions. Fistula-tract Laser Closure (FiLaC) provides a sphincter-preserving approach for low, medium, and high transsphincteric anal fistulas without cutting the sphincter apparatus. Similarly, Sinus Pilonidalis Laser Closure (SiLaC) obliterates pilonidal sinus tracts from within, eliminating extensive surgical excision. In addition, the dual-wavelength output supports precise outpatient vaporization and coagulation for chronic anal fissures (rhagades), mucosal polyps, and localized vascular neoplasms, enabling multi-disciplinary colorectal units to treat diverse perianal pathologies with a unified procedural platform.

Manufacturing Standards, Fiber Sterility, and Quality Assurance

Surgical reliability requires high hardware consistency across every clinical procedure. TRIANGEL manufactures its proctology laser platforms using original American QPC laser diode arrays built on gallium aluminum arsenide substrates. The V6 system integrates high-precision thermal monitoring assemblies to preserve stable energy calibration during lengthy operative schedules.

All optical delivery components, including 200 to 1000 micrometer bare and radial silica fibers, feature standardized SMA905 connectors and EO-sterilized individual medical packaging. TRIANGEL maintains an ISO 13485:2016 quality framework with 12 dedicated quality inspection specialists. Holding US FDA clearance and EU Medical CE MDR certifications, the platform delivers documented reliability for hospital operating rooms. Each manufactured unit undergoes strict optical alignment validation, thermal output calibration, and device history tracking to verify adherence to international medical device safety standards.

Ambulatory Surgery Center Economics and Factory Procurement Value

For ambulatory surgery centers and specialized proctology clinics, the TRIANGEL V6 platform delivers compelling financial and operational advantages. Performing LHP, FiLaC, and SiLaC procedures under local or regional anesthesia compresses operating room turnover to under 30 minutes, substantially lowering theater utilization expenses and optimizing patient discharge schedules for high-volume ambulatory facilities. Sourcing directly from manufacturer TRIANGEL removes intermediary distribution costs and establishes direct communication with laser engineering teams.

Direct factory cooperation facilitates customized user interface localization and dependable long-term optical accessory replenishment. In addition to hardware, TRIANGEL equips clinical teams with complete onboarding materials, including standardized operative protocols, parameter guideline manuals, and procedural video resources across colorectal indications. In addition, structured factory logistics support rapid worldwide door-to-door delivery within two weeks. Backed by 15 partner hospitals, four European research centers, and two US flagship

training centers, clinics achieve predictable procurement timelines and durable equipment productivity across the platform lifecycle.

Technical Consultation and Factory Documentation

Colorectal surgeons, proctology clinic directors, and medical equipment distributors are invited to explore the certified TRIANGEL V6 proctology laser platform. Access optical specifications, surgical video documentation, and direct factory procurement quotations by visiting the official TRIANGEL medical engineering portal: https://www.triangelmed.com/.

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+ +86 15810767862
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