Effective March 1, 2024, refer to CMS Reasonable and Necessary for services included in this policy.

BlueCross BlueShield of Alabama

Name of Blue Advantage Policy:

Laser Interstitial Thermal Therapy (LITT) for Neurological Disorders

Policy #: 728
Latest Review Date: December 2023
Category: Surgery
ARCHIVED 3/1/2024

BACKGROUND:

Blue Advantage *medical policy does not conflict with Local Coverage Determinations (LCDs), Local Medical Review Policies (LMRPs) or National Coverage Determinations (NCDs) or with coverage provisions in Medicare manuals, instructions or operational policy letters. In order to be covered by Blue Advantage the service shall be reasonable and necessary under Title XVIII of the Social Security Act, Section 1862(a)(1)(A). The service is considered reasonable and necessary if it is determined that the service is:*

1. *Safe and effective;*
2. *Not experimental or investigational*;*
3. *Appropriate, including duration and frequency that is considered appropriate for the service, in terms of whether it is:*
   - *Furnished in accordance with accepted standards of medical practice for the diagnosis or treatment of the patient's condition or to improve the function of a malformed body member;*
   - *Furnished in a setting appropriate to the patient's medical needs and condition;*
   - *Ordered and furnished by qualified personnel;*
   - *One that meets, but does not exceed, the patient's medical need; and*
   - *At least as beneficial as an existing and available medically appropriate alternative.*

Routine costs of qualifying clinical trial services with dates of service on or after September 19, 2000 which meet the requirements of the Clinical Trials NCD are considered reasonable and necessary by Medicare. Providers should bill* ***Original Medicare* *for covered services that are related to* ***clinical trials*** *that meet Medicare requirements (Refer to Medicare National Coverage Determinations Manual, Chapter 1, Section 310 and Medicare Claims Processing Manual Chapter 32, Sections 69.0-69.11).*

POLICY:

For dates of service on or after January 1, 2022:

Epilepsy

Blue Advantage will treat **laser interstitial thermal therapy (LITT)** (e.g., the NeuroBlate and the Visualase Thermal Therapy System) as a **covered benefit** as a treatment of refractory epilepsy when ALL of the following conditions have been met:

- Non-epileptic attacks such as cardiogenic syncope and psychogenic seizures have been ruled out.
- The diagnosis of epilepsy has been documented, and the epileptic seizure type and syndrome has been clearly defined.
- Documented disabling seizures, despite the use of two or more tolerated antiepileptic drug regimens (i.e., medically refractory epilepsy).
- There is a well-defined epileptogenic focus in the temporal lobe or hypothalamus accessible by LITT.

Radiation Necrosis

Blue Advantage will treat **laser interstitial thermal therapy (LITT)** (e.g., the NeuroBlate and the Visualase Thermal Therapy System) as a **covered benefit** as a treatment for medically refractory radiation necrosis with lesions not amenable to surgical decompression or refractory radiation necrosis despite prolonged, high-dose steroid therapy.

Blue Advantage will treat **laser interstitial thermal therapy (LITT)** as a **non-covered benefit** and as **investigational** for all other indications.

Blue Advantage does not approve or deny procedures, services, testing, or equipment for our members. Our decisions concern coverage only. The decision of whether or not to have a certain test, treatment or procedure is one made between the physician and his/her patient. Blue Advantage administers benefits based on the members' contract and medical policies. Physicians should always exercise their best medical judgment in providing the care they feel is most appropriate for their patients. Needed care should not be delayed or refused because of a coverage determination.

DESCRIPTION OF PROCEDURE OR SERVICE:

Laser interstitial thermal therapy (LITT) involves the introduction of a laser fiber probe to deliver thermal energy for the targeted ablation of diseased tissue. The goal of therapy is selective thermal injury through the maintenance of a sharp thermal border, as monitored via the parallel use of real-time magnetic resonance(MR) thermography and controlled with the use of actively cooled applicators. In neurological applications, LITT involves the creation of a transcranial burr hole for the placement of the laser probe at the target brain tissue. Probe position, ablation time, and intensity are controlled under magnetic resonance imaging (MRI)guidance. LITT has been proposed as a less invasive treatment option for patients with

neurological conditions compared to surgery. Two LITT systems, Visualase and NeuroBlate®, have received marketing clearance from the U.S. Food and Drug Administration (FDA).

Laser Interstitial Thermal Therapy (LITT)
Laser interstitial thermal therapy (LITT) involves the introduction of a laser fiber probe to deliver thermal energy for the targeted ablation of diseased tissue. Thermal destruction of tissue is mediated via DNA damage, necrosis, protein denaturation, membrane dissolution, vessel sclerosis, and coagulative necrosis.The goal of therapy is selective thermal injury through the maintenance of a sharp thermal border, as monitored via the parallel use of real-time magnetic resonance (MR) thermography and controlled with the use of actively cooled applicators. In neurological applications, LITT involves the creation of a transcranial burr hole for the placement of the laser probe at the target brain tissue. Probe position, ablation time, and intensity are controlled under magnetic resonance imaging (MRI) guidance.

The majority of neurological LITT indications described in the literature involve the ablation of primary and metastatic brain tumors, epileptogenic foci, and radiation necrosis in surgically inaccessible or eloquent brain areas. LITT may offer a minimally invasive treatment option for patients with a high risk of morbidity with traditional surgical approaches. The most common complications following LITT are transient and permanent weakness, cerebral edema, hemorrhage, seizures, and hyponatremia. Delayed neurological deficits due to brain edema are temporary and typically resolve after corticosteroid therapy. Contraindications to MRI are also applicable to the administration of LITT.

Epilepsy
Laser interstitial thermal therapy (LITT) utilizes thermal energy to induce cell death by damaging DNA and triggering protein denaturation. This technique uses heat to target and ablate the region where the seizure begins. This minimally invasive procedure offers alternatives to patients who are not optimal candidates for open resection.

Laser interstitial thermal therapy (LITT) minimizes injury to surrounding brain because it is done through a burr hole. This technology lowers the risk of affecting normal neurological function, endorses less operative risk, less discomfort, and shorter hospitalizations. Laser Interstitial Thermal Therapy (LITT) is FDA approved for soft tissue ablation and is increasingly utilized to treat epilepsy, especially when seizures arise from deeper structures such as the hippocampus, amygdala, or discrete dysplastic tissue, such as hypothalamic hamartomas. Mesial temporal epilepsy is the most frequently encountered surgically remedial epilepsy suitable for LITT, particularly when there is unilateral hippocampal sclerosis. There is emerging evidence that it can be effective for eliminating seizures in this type of epilepsy, and that it has a lower risk of cognitive deficits than anterior temporal lobectomy.

Radiation Necrosis
Radiation Necrosis, or treatment-induced brain tissue necrosis, is a serious complication that usually develops 1 to 3 years after radiation. The dose that causes necrosis may vary by region of the brain. Tissue necrosis is more likely to occur when high doses per fraction are given with concurrent chemotherapy or radio sensitizers. The risk of tissue necrosis after stereotactic

radiosurgery (SRS) has been reported to be higher, with a steep dose-response relationship. Tissue necrosis develops at or nearby the original site of the tumor, or the location that received the highest radiation dose. Tissue necrosis can also develop in part of the normal brain parenchyma that was included in the treatment field, such as temporal lobe necrosis that develops in some patients treated for nasopharyngeal cancer or clival chordoma. In this setting, brain tissue necrosis typically presents as new focal neurologic signs, and imaging studies such as computed tomography (CT) or magnetic resonance imaging (MRI) may show an enhancing mass lesion with edema.

For individuals who do not achieve symptomatic response to glucocorticoids, or when glucocorticoids cannot be tapered without the reoccurrence of symptoms, surgical resection of the necrotic tissue is sometimes required. Surgery can provide palliative benefit by reducing mass effect and decreasing steroid requirements postoperatively. Minimally invasive laser interstitial thermal therapy (LITT) has been explored as therapeutic intervention in the treatment of radiation necrosis.

KEY POINTS:

This evidence review was created with a search of the PubMed database. The most recent literature update was performed through October 24, 2023.

Summary of Evidence

For individuals who have primary or metastatic brain tumors who receive magnetic resonance (MR)-guided laser interstitial thermal therapy (LITT), the evidence includes systematic reviews and meta-analyses and several nonrandomized comparative and single-arm studies. Relevant outcomes are overall survival (OS),disease-specific survival, symptoms, change in disease status, functional outcomes, quality of life, and treatment-related morbidity. Overall survival estimates have ranged from 9.0 to 14.4 months in new or recurrent glioblastoma. Among patients with metastatic tumors receiving LITT following prior stereotactic radiosurgery (SRS), OS rates have ranged between 72% to 76% at 6 months and 63% to 65% at 12 months. In a more heterogenous population of patients with primary and metastatic brain tumors who received LITT, 12-month OS rates were slightly lower in patients with brain metastases (56.3%) and high-grade glioma(43.0%) than other analyses. Systematic reviews comparing LITT to open craniotomy with resection or SRS suggest a reduced incidence of adverse events with LITT; however, neurological deficits attributable to LITT-induced thermal damage have been observed despite concurrent magnetic resonance imaging (MRI)guidance. Studies are limited by predominantly retrospective designs, small sample sizes, and population heterogeneity, with study subjects varying by performance status, lesion volume and location, extent of prior therapies, and extent of ablation. Prospective comparative studies in well-defined and -controlled patient populations are lacking. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have symptomatic cranial radiation necrosis who receive MR-guided LITT, the evidence includes meta-analyses, nonrandomized comparative studies, and a single-arm study. Relevant outcomes are OS, disease-specific survival, symptoms, change in disease status,

functional outcomes, quality of life, and treatment-related morbidity. Studies have reported improved local control and survival outcomes in patients with radiation necrosis compared to those with brain metastases. One study comparing LITT to bevacizumab suggested that LITT treatment may be more successful among patients before radiation necrosis lesions become symptomatic. One study comparing LITT to craniotomy and one study comparing LITT to medical management did not report significant survival differences between groups. Studies are limited by retrospective designs, small sample sizes, population heterogeneity, and unclear relevance, as symptomatic status and steroid-related morbidity were not consistently reported. Prospective comparative studies in well-defined and -controlled patient populations are lacking.

For individuals who have drug-resistant epilepsy who receive MR-guided LITT, the evidence includes systematic reviews and meta-analyses, nonrandomized comparative studies, and single-arm studies. Relevant outcomes are disease-specific survival, symptoms, change in disease status, functional outcomes, quality of life, and treatment-related morbidity. Meta-analyses have reported seizure freedom rates ranging from 50% to 61% but are limited by heterogeneous study populations and follow-up durations. Studies comparing LITT to open resection have reported comparable outcomes in patients with pediatric insular epilepsy and adult temporal lobe epilepsy (TLE). In one meta-analysis comparing LITT to radiofrequency ablation (RFA) and conventional surgery, superior outcomes were noted with conventional surgery among patients with TLE. A subsequent meta-analysis concluded that while there is no evidence to suggest that LITT is less effective than open surgical resection in the short term, long-term data are lacking. Total quality of life scores reported in the ongoing LAANTERN registry increased by 72.4%, but this change was not considered statistically significant. Prospective comparative studies in well-defined and -controlled patient populations are required to assess a net health outcome and to identify patients most likely to benefit from LITT.

Practice Guidelines and Position Statements

American Association of Neurological Surgeons et al

In September 2021, the American Association of Neurological Surgeons (AANS) and Congress of Neurological Surgeons (CNS) Joint Section on Tumors issued a position statement regarding the use of laser interstitial thermal therapy (LITT) for brain tumors and radiation necrosis. The statement concludes that "LITT is an appealing option because it offers a method of minimally invasive, targeted thermal ablation of a lesion with minimal damage to healthy tissue. There is a growing body of evidence to demonstrate that LITT is an effective and well-tolerated cytoreductive option for treatment of [newly diagnosed glioblastoma multiforme (GBM), recurrent GBM, and primary or recurrent brain metastases.] Intracranial LITT is also an effective option for addressing radiation necrosis with an overall reduction in steroid dependence for these patients. Especially in instances where the therapeutic window is narrowed such that craniotomy is not a viable option, LITT can play an important role in treatment for glioma or metastatic brain cancer."

American Society of Clinical Oncology et al

In 2021, the American Society of Clinical Oncology (ASCO) issued a joint evidence-based guideline on the treatment of brain metastases with the Society for Neuro-Oncology (SNO) and the American Society for Radiation Oncology (ASTRO). The guideline stated that "no

recommendation can be made for or against laser interstitial thermal therapy (Type: informal consensus; Evidence quality: low; Strength of recommendation: none)."

American Society for Stereotactic and Functional Neurosurgery
In September 2021, the American Society for Stereotactic and Functional Neurosurgery (ASSFN) issued a position statement on the use of LITT in drug-resistant epilepsy. The statement recommends consideration of MR-guided LITT (MRgLITT) as a treatment option when all of the following criteria are met: "Failure to respond to, or intolerance of, at least 2 appropriately chosen medications at appropriate doses for disabling, localization-related epilepsy AND Well-defined epileptogenic foci or critical pathways of seizure propagation accessible by MRgLITT."

The Congress of Neurological Surgeons
In 2019, the Congress of Neurological Surgeons completed a systematic review and evidence-based guideline on the role of emerging and investigational therapies for the treatment of adults with metastatic brain tumors. Brain metastases associated with systemic cancer remain challenging to treat. Current standard treatment modalities, including surgery and radiation, cannot be applied to all patients and are not uniformly successful when applied. Therefore, novel treatment strategies are necessary.

The National Comprehensive Cancer Network (NCCN)
The National Comprehensive Cancer Network (NCCN) clinical practice guidelines for central nervous system cancers (v.1.2023) states that magnetic resonance (MR) guided LITT "may be considered for patients who are poor surgical candidates (craniotomy or resection). Potential indications include relapsed brain metastases, radiation necrosis, and recurrent glioblastoma." (Category 2B) The guidelines additionally state that LITT "can be considered on a case-by-case basis for treatment of radiation necrosis in patients with a history of radiation therapy for primary brain tumor or metastatic disease. Consultation with adept neurosurgeons trained in LITT should be done when the procedure is considered."

U.S. Preventive Services Task Force Recommendations
Not Applicable.

KEY WORDS:
Epilepsy Surgery, laser interstitial thermal therapy; LITT; MR-guided stereotactic laser amygdalohippocampotomy; MRgLITT; NeuroBlate; Visualase; thermal therapy; mesial temporal lobe epilepsy; MTLE; focal laser therapy, interstitial laser ablation, interstitial laser coagulation, interstitial laser photocoagulation, laser induced thermal therapy, MRI-guided laser interstitial thermal therapy (MRgLITT) and photothermal therapy.

APPROVED BY GOVERNING BODIES:
In August 2007, the Visualase™ MRI-Guided Laser Ablation System Thermal Therapy System (Medtronic; formerly Biotex, Inc.) received initial marketing clearance by the U.S. Food and

Drug Administration (FDA) through the 510(k) pathway (K071328). In January 2022, (K211269), the system (software version 3.4) was classified as a neurosurgical tool with narrowed indications for use, including "to ablate, necrotize or coagulate intracranial soft tissue including brain structures (e.g., brain tumor, radiation necrosis and epileptic foci as identified by non-invasive and invasive neurodiagnostic testing, including imaging) through interstitial irradiation or thermal therapy in medicine and surgery in the discipline of neurosurgery with 800 nm through 1064 nm lasers." The device is not recommended for patients with medical conditions or implanted medical devices contraindicated for MRI and for patients whose physician determines that LITT or invasive surgical procedures in the brain are not acceptable. Data from compatible MRI sequences can be processed to relate imaging changes to relative changes in tissue temperature during therapy. The Visualase™ cooling applicator utilizes saline.

In April 2013, the NeuroBlate® System (Monteris Medical) received initial clearance for marketing by the FDA through the 510(k) pathway (K120561). As of August 2020, the system is indicated for use “to ablate, necrotize, or coagulate intracranial soft tissue, including brain structures (e.g., brain tumor and epileptic foci as identified by non-invasive and invasive neurodiagnostic testing, including imaging), through interstitial irradiation or thermal therapy in medicine and surgery in the discipline of neurosurgery with 1064 nm lasers” (K201056). The device is utilized for planning and monitoring of thermal therapy under MRI guidance, providing real-time thermographic analysis of selected MRI images. The NeuroBlate® system utilizes a laser probe with a sapphire capsule to promote prolonged, pulsed laser firing and a controlled cooling applicator employing pressurized CO2.

BENEFIT APPLICATION:

Coverage is subject to member’s specific benefits. Group-specific policy will supersede this policy when applicable.

CURRENT CODING:

61736	Laser interstitial thermal therapy (LITT) of lesion, intracranial, including burr hole(s), with magnetic resonance imaging guidance, when performed; single trajectory for 1 simple lesion (Effective 01/01/2022)
61737	Laser interstitial thermal therapy (LITT) of lesion, intracranial, including burr hole(s), with magnetic resonance imaging guidance, when performed; multiple trajectories for multiple or complex lesion (Effective 01/01/2022)

REFERENCES:

1. Ahluwalia M, Barnett GH, Deng D, et al. Laser ablation after stereotactic radiosurgery: a multicenter prospective study in patients with metastatic brain tumors and radiation necrosis. J Neurosurg. May 04 2018; 130(3): 804-811.

2. Alkazemi M, Lo YT, Hussein H, et al. Laser Interstitial Thermal Therapy for the Treatment of Primary and Metastatic Brain Tumors: A Systematic Review and Meta-Analysis. World Neurosurg. Mar 2023; 171: e654-e671.
3. Barot N, Batra K, Zhang J, et al. Surgical outcomes between temporal, extratemporal epilepsies and hypothalamic hamartoma: systematic review and meta-analysis of MRI-guided laser interstitial thermal therapy for drug-resistant epilepsy. J Neurol Neurosurg Psychiatry. Feb 2022; 93(2): 133-143.
4. Brotis AG, Giannis T, Paschalis T, et al. A meta-analysis on potential modifiers of LITT efficacy for mesial temporal lobe epilepsy: Seizure-freedom seems to fade with time. Clin Neurol Neurosurg. Apr 20 2021; 205: 106644.
5. Barnett GH, Voigt JD, Alhuwalia MS. A Systematic Review and Meta-Analysis of Studies Examining the Use of Brain Laser Interstitial Thermal Therapy versus Craniotomy for the Treatment of High-Grade Tumors in or near Areas of Eloquence: An Examination of the Extent of Resection and Major Complication Rates Associated with Each Type of Surgery. Stereotact Funct Neurosurg. 2016; 94(3): 164-73.
6. Barnett G, Leuthardt E, Rao G, et al. American Association of Neurological Surgeons and Congress of Neurological Surgeons (AANS-CNS) Position Statement on MR-guided Laser Interstitial Thermal Therapy (LITT) for Brain Tumors and Radiation Necrosis. September 2021;https://www.aans.org/-/media/Files/AANS/Advocacy/PDFS/AANS-CNS_Position_Statement_Paper_LITT_Tumor-Oncology_090721.ashx.
7. Chen C, Guo Y, Chen Y, et al. The efficacy of laser interstitial thermal therapy for brain metastases with in-field recurrence following SRS: systemic review and meta-analysis. Int J Hyperthermia. 2021; 38(1): 273-281.
8. Cobourn K, Fayed I, Keating R, Oluigbo C. Early outcomes of stereo electroencephalography followed by MR-guided laser interstitial thermal therapy: a paradigm for minimally invasive epilepsy surgery. Neurosurgical Focus. 2018 45 (3):1-9.
9. de Franca SA, Tavares WM, Salinet ASM, et al. Laser interstitial thermal therapy as an adjunct therapy in brain tumors: A meta-analysis and comparison with stereotactic radiotherapy. Surg Neurol Int. 2020; 11: 360.
10. de Groot JF, Kim AH, Prabhu S, et al. Efficacy of laser interstitial thermal therapy (LITT) for newly diagnosed and recurrent IDH wild-type glioblastoma.Neurooncol Adv. 2022; 4(1): vdac040.
11. Elder JB, Nahed BV, Linskey ME, et al. Congress of Neurological Surgeons Systematic Review and Evidence-Based Guidelines on the Role of Emerging and Investigational Therapies for the Treatment of Adults With Metastatic Brain Tumors. Neurosurgery. Mar 01 2019; 84(3): E201-E203.
12. Epilepsy Foundation. https://www.epilepsy.com/treatment/surgery/types/litt-thermal-ablation.
13. Esmaeili B, Hakimian S, Ko AL, et al. Epilepsy-Related Mortality After Laser Interstitial Thermal Therapy in Patients With Drug-Resistant Epilepsy.Neurology. Sep 26 2023; 101(13): e1359-e1363.

14. Fadel HA, Haider S, Pawloski JA, et al. Laser Interstitial Thermal Therapy for First-Line Treatment of Surgically Accessible Recurrent Glioblastoma: Outcomes Compared With a Surgical Cohort. Neurosurgery. Nov 01 2022; 91(5): 701-709.
15. Grabowski MM, Srinivasan ES, Vaios EJ, et al. Combination laser interstitial thermal therapy plus stereotactic radiotherapy increases time to progression for biopsy-proven recurrent brain metastases. Neurooncol Adv. 2022; 4(1): vdac086.
16. Grewal SS, Alvi MA, Lu VM, et al. Magnetic Resonance-Guided Laser Interstitial Thermal Therapy Versus Stereotactic Radiosurgery for Medically Intractable Temporal Lobe Epilepsy: A Systematic Review and Meta-Analysis of Seizure Outcomes and Complications. World Neurosurg. 2019 Feb; 122: e32-e47.
17. Hale AT, Sen S, Haider AS, et al. Open Resection versus Laser Interstitial Thermal Therapy for the Treatment of Pediatric Insular Epilepsy. Neurosurgery.Oct 01 2019; 85(4): E730-E736.
18. Holste KG, Orringer DA. Laser interstitial thermal therapy. Neurooncol Adv. 2020; 2(1): vdz035.
19. Hong CS, Deng D, Vera A, et al. Laser-interstitial thermal therapy compared to craniotomy for treatment of radiation necrosis or recurrent tumor in brain metastases failing radiosurgery. J Neurooncol. Apr 2019; 142(2): 309-317.
20. Hoppe C, Helmstaedter C. Laser interstitial thermotherapy (LiTT) in pediatric epilepsy surgery. Seizure. Apr 2020; 77: 69-75.
21. IOM (Institute of Medicine). 2011. Clinical Practice Guidelines We Can Trust. Washington, DC: The National Academies Press.
22. Kang J, Sperling M. Magnetic Resonance Imaging-Guided Laser interstitial Thermal Therapy for Treatment of Drug-Resistant Epilepsy. 2017 14:176-181.
23. Kanner AM, Irving LT, Cajigas I, et al. Long-term seizure and psychiatric outcomes following laser ablation of mesial temporal structures. Epilepsia. Apr 2022; 63(4): 812-823.
24. Kim AH, Tatter S, Rao G, et al. Laser Ablation of Abnormal Neurological Tissue Using Robotic NeuroBlate System (LAANTERN): 12-Month Outcomes and Quality of Life After Brain Tumor Ablation. Neurosurgery. Sep 01 2020; 87(3): E338-E346.
25. Kohlhase K, Zöllner JP, Tandon N, et al. Comparison of minimally invasive and traditional surgical approaches for refractory mesial temporal lobe epilepsy:A systematic review and meta-analysis of outcomes. Epilepsia. Apr 2021; 62(4): 831-845.
26. Kwan P, Arzimanoglou A, Berg AT, et al. Definition of drug resistant epilepsy: consensus proposal by the ad hoc Task Force of the ILAE Commission on Therapeutic Strategies. Epilepsia. Jun 2010; 51(6): 1069-77.
27. Lagman C, Chung LK, Pelargos PE, et al. Laser neurosurgery: A systematic analysis of magnetic resonance-guided laser interstitial thermal therapies. J Clin Neurosci. 2017; 36: 20-26.
28. Landazuri P, Shih J, Leuthardt E, et al. A prospective multicenter study of laser ablation for drug resistant epilepsy - One year outcomes. Epilepsy Res. Nov2020; 167: 106473.

29. Lewis EC, Weil AG, Duchowny M, et al. MR-guided laser interstitial thermal therapy for pediatric drug-resistant lesional epilepsy. Epilepsia. 2015; 56(10):1590-1598.
30. Medvid R, Ruiz A, Komotar RJ, et al. Current Applications of MRI-Guided Laser Interstitial Thermal Therapy in the Treatment of Brain Neoplasms and Epilepsy: A Radiologic and Neurosurgical Overview. AJNR Am J Neuroradiol. Nov 2015; 36(11): 1998-2006.
31. Mohammadi AM, Sharma M, Beaumont TL, et al. Upfront Magnetic Resonance Imaging-Guided Stereotactic Laser-Ablation in Newly Diagnosed Glioblastoma: A Multicenter Review of Survival Outcomes Compared to a Matched Cohort of Biopsy-Only Patients. Neurosurgery. Dec 01 2019; 85(6):762-772.
32. Marathe K, Alim-Marvasti A, Dahele K, et al. Resective, Ablative and Radiosurgical Interventions for Drug Resistant Mesial Temporal Lobe Epilepsy: A Systematic Review and Meta-Analysis of Outcomes. Front Neurol. 2021; 12: 777845.
33. National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology: Central Nervous System Cancers. Version 1.2023;https://www.nccn.org/professionals/physician_gls/pdf/cns.pdf.
34. National Institute for Health and Care Excellence (NICE). Interventional procedures guidance: MRI-guided laser interstitial thermal therapy for drug-resistant epilepsy [IPG671]. March 4, 2020; https://www.nice.org.uk/guidance/ipg671.
35. NeuroBlate® Systems website. https://www.monteris.com/healthcare-professionals/neuroblate-procedure/ /.
36. Palmisciano P, Haider AS, Nwagwu CD, et al. Bevacizumab vs laser interstitial thermal therapy in cerebral radiation necrosis from brain metastases: a systematic review and meta-analysis. J Neurooncol. Aug 2021; 154(1): 13-23.
37. Petito GT, Wharen RE, Feyissa AM, et al. The impact of stereotactic laser ablation at a typical epilepsy center. Epilepsy Behav. Jan 2018; 78: 37-44.
38. Rammo R, Scarpace L, Nagaraja T, Lee I. MR-guided laser interstitial thermal therapy in the treatment of recurrent intracranial meningioma's. Lasers Surg Med. 2019; 51(3):245-250.
39. Rao MS, Hargreaves EL, Khan AJ, et al. Magnetic resonance-guided laser ablation improves local control for post radiosurgery recurrence and/or radiation necrosis. Neurosurgery. 2014;74(6):658-667
40. Rennert RC, Khan U, Bartek J, et al. Laser Ablation of Abnormal Neurological Tissue Using Robotic Neuroblate System (LAANTERN): Procedural Safety and Hospitalization. Neurosurgery. Apr 01 2020; 86(4): 538-547.
41. Sankey EW, Grabowski MM, Srinivasan ES, et al. Time to Steroid Independence After Laser Interstitial Thermal Therapy vs Medical Management for Treatment of Biopsy-Proven Radiation Necrosis Secondary to Stereotactic Radiosurgery for Brain Metastasis. Neurosurgery. Jun 01 2022; 90(6): 684-690.
42. Shukla N, Ho A, Pendharkar A et al. Laser interstitial thermal therapy for the treatment of epilepsy: evidence to date. Neuropsychiatr Dis Treat. 2017; 13: 2469-2475.

43. Sujijantarat N, Hong CS, Owusu KA, et al. Laser interstitial thermal therapy (LITT) vs. bevacizumab for radiation necrosis in previously irradiated brain metastases. J Neurooncol. Jul 2020; 148(3): 641-649.
44. UpToDate. Surgical Treatment of Epilepsy in Adults. Gregory D. Cascino M.D., Topic last updated November 11, 2022.
45. Visualase® Thermal Therapy Systems website. https://www.medtronic.com/us-en/healthcare-professionals/products/neurological/laser-ablation/visualase.html.
46. Vogelbaum MA, Brown PD, Messersmith H, et al. Treatment for Brain Metastases: ASCO-SNO-ASTRO Guideline. J Clin Oncol. Feb 10 2022; 40(5): 492-516.
47. Waseem H, Vivas AC, Vale FL. MRI-guided laser interstitial thermal therapy for treatment of medically refractory non-lesional mesial temporal lobe epilepsy: Outcomes, complications, and current limitations: A review. J Clin Neurosci. 2017; 38: 1-7.
48. Wu C, Jermakowicz WJ, Chakravorti S, et al. Effects of surgical targeting in laser interstitial thermal therapy for mesial temporal lobe epilepsy: A multicenter study of 234 patients. Epilepsia. Jun 2019; 60(6): 1171-1183
49. Wu C, Schwalb JM, Rosenow J, et al. American Society for Stereotactic and Functional Neurosurgery Position Statement on Laser Interstitial Thermal Therapy for the Treatment of Drug-Resistant Epilepsy. September 2021;https://www.aans.org/-/media/Files/AANS/Advocacy/PDFS/ASSFN_Position_Statement_on_LITT_for_the_Treatment_of_Drug_Resistant_Epilepsy_091321.ashx.
50. Xue F, Chen T, Sun H. Postoperative Outcomes of Magnetic Resonance Imaging (MRI)-Guided Laser Interstitial Thermal Therapy (LITT) in the Treatment of Drug-Resistant Epilepsy: A Meta-Analysis. Med Sci Monit. Dec 21 2018; 24: 9292-9299.

POLICY HISTORY:

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