Anthem

Medical Policy

Subject:	**Focal Laser Ablation for the Treatment of Prostate Cancer**		
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Description/Scope

This document addresses the use of focal laser ablation, also known as laser interstitial therapy or laser interstitial photocoagulation, to treat localized prostate cancer. The procedure is frequently performed with real-time MR imaging which also allows the use of MR thermometry to monitor the lesion and surrounding tissue during treatment.

Note: Please see the following related documents regarding other minimally invasive treatments of prostate cancer:

- **CG-MED-81 High Intensity Focused Ultrasound (HIFU) for Oncologic Indications**
- **CG-SURG-61 Cryosurgical or Radiofrequency Ablation to Treat Solid Tumors Outside the Liver**

Note: Please see the following for the treatment of benign prostatic hyperplasia:

- **CG-SURG-107 Surgical and Minimally Invasive Treatments for Benign Prostatic Hyperplasia (BPH)**

Position Statement

Investigational and Not Medically Necessary:

Focal laser ablation is considered investigational and not medically necessary for the treatment of prostate cancer.

Rationale

The U.S. Food and Drug Administration (FDA) cleared the Visualase® Thermal Therapy System (Bio Tex, Inc., Houston, TX) in 2007. The device is indication for use in necrotizing or coagulating soft tissue through

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interstitial irradiation or thermal therapy under magnetic resonance imaging (MRI) guidance. A more recent version of the device was cleared in 2008, allowed for better temperature control limits to be set. The Visualase device is being used to deliver focal laser ablation to treat localized prostate cancer in several clinical trials (NCT02243033, NCT02600156, NCT02759744).

Valerio and associates (2016) published a systematic review regarding the treatment of prostate cancer using focal therapies. The review included 4 prospective studies on laser interstitial thermotherapy and 50 individuals with low-intermediate prostate cancer. The authors summarize that focal laser ablation therapy is in the early stages of assessment with an adequate early safe toxicity profile. Further assessment of short and long term outcomes as well as comparison studies against standard of care is needed.

In 2019, Zheng and associates compared the mid-term survival outcomes of individuals with localized prostate cancer who were treated with radical prostatectomy (n=12,433) or focal laser ablation (n=442). Following propensity score matching, there were 321 pairs of matched individuals; there were no significant differences in baseline characteristics between the groups. The mean follow-up was 62.26 months in the laser ablation group and 59.62 months in the radical prostatectomy group. The laser ablation had higher all-cause mortality and lower statistically insignificant cancer-specific mortality compared to radical prostatectomy (hazard ratio [HR], 0.82; 95% confidence interval [CI], 0.18-3.67; p=0.7936) and (HR, 2.35; 95% CI, 1.38-3.98; p=0.0016), respectively.

In a similar analysis, Zhou and colleagues (2020) compared the overall survival and prostate cancer-specific mortality in the long term of individuals who were treated with radiotherapy (n=93,041) or laser ablation (n=428). The population included individuals with low or intermediate-risk localized prostate cancer. A total of 81,015 individuals in the radiotherapy group died and 1303 of those individuals died from prostate cancer-specific reasons. In the laser ablation group, 356 individuals died and 7 of those individuals died of prostate cancer-specific reasons. In a multivariate regression analysis of the two groups, there was no obvious difference between the groups in reducing cancer-specific mortality (HR=1.73; 95% CI, 0.82-3.64; p=0.147). The laser ablation group was associated with worse overall survival outcomes compared to the radiotherapy group (HR=1.91; 95% CI, 1.51-2.40; p<0.001). Following propensity score matching in which the statistical differences between the groups were eliminated, the radiotherapy group benefit in overall survival remained (HR=1.50; 95% CI, 1.17–1.93; p=0.001). There was still no significant difference between the groups in cancer-specific mortality (HR=1.48; 95% CI, 0.66–3.32; p=0.336). The study population included individuals diagnosed between 2004 and 2015, and some of the individuals receiving radiotherapy were treated with outdated radiotherapy techniques. Radiotherapy still outperformed laser ablation with

better survival outcomes. The authors suggest that the advantages of radiotherapy over laser ablation may be more pronounced if laser ablation was compared to intensity modulated radiation therapy (IMRT) only.

In 2017, the American Urological Association (AUA) / American Society for Radiation Oncology (ASTRO) / Society of Urologic Oncology (SUO) published a guideline on clinical localized prostate cancer. The guideline includes the following recommendations regarding focal therapy:

> **Clinicians should inform low-risk prostate cancer patients who are considering focal therapy or high intensity focused ultrasound (HIFU) that these interventions are not standard care options because comparative outcome evidence is lacking. (Expert Opinion)**
>
> **Clinicians should inform intermediate-risk prostate cancer patients who are considering focal therapy or HIFU that these interventions are not standard care options because comparative outcome evidence is lacking. (Expert Opinion)**
>
> **Cryosurgery, focal therapy and HIFU treatments are not recommended for men with high-risk localized prostate cancer outside of a clinical trial. (Expert Opinion)**
>
> **As prostate cancer is often multifocal, clinicians should inform localized prostate cancer patients considering focal therapy that focal therapy may not be curative and that further treatment for prostate cancer may be necessary. (Expert Opinion)**

The authors explain these recommendations noting "The Panel recognizes that concern exists about the potential for undetected and, therefore, occult untreated clinically-significant multifocal disease. Confirmation of oncologic effectiveness is currently lacking and will require prospective studies with long-term follow up."

The National Comprehensive Cancer Network® (NCCN) Clinical Practice Guidelines for prostate cancer does not address the use of focal laser ablation in the treatment of prostate cancer. Treatment recommendations vary based upon the individuals risk group. Treatment varies from active surveillance in the very low and low risk group to external beam radiation therapy, brachytherapy, radical prostatectomy, pelvic node dissection and androgen deprivation therapy for the higher risk groups.

The evidence is limited to case studies and small phase I or phase II clinical trials with limited follow-up (Lee, 2014; Lepor, 2015; Natarajan, 2016; Oto, 2013). No randomized controlled trials (RCTs) regarding

focal laser ablation have been published (Zhou, 2020). Studies evaluating the long-term oncologic control associated with focal laser ablation are also lacking.

Background/Overview

Prostate cancer is one of the most common types of cancer diagnosed in men in the United States (U.S.). In 2020, there will be an estimated 191,930 newly diagnosed cases and 33,330 deaths from prostate cancer (American Cancer Society [ACS], 2020). Prostate cancers can be broadly categorized as:

- **Localized: Cancer is limited to the prostate**
- **Regional: Cancer is limited to the prostate and nearby structures or lymph nodes.**
- **Distant: Metastatic cancer (ACS, 2020)**

In addition to the broad categories listed above, localized prostate cancer is also stratified by risk assessment. Individual risk level provides prognostic information and guides further diagnostic and therapeutic planning. Prostate cancer risk levels are characterized by the results of digital rectal exam, the clinical T stage, Gleason score, extent of cancer and serum PSA levels (NCCN, V2.2020). The NCCN stratifies risk into 5 levels: very low, low, intermediate, high and very high. An estimated 74% of all cases of prostate cancer are categorized as low or intermediate risk (Zhou, 2020). Generally, active surveillance is recommended for individuals with localized disease who are in the very low and low risk groups (NCCN, V2.2020; Stabile, 2019). However, approximately 94% of individuals diagnosed with low-risk cancers undergo radical treatment such as radiation or surgery (Colin, 2012). These treatments are associated with long term quality of life issues, such as incontinence and impotence. Focal therapy has been proposed as an alternative to active surveillance and surgery or radiation.

Focal laser ablation therapy is a type of focal therapy which involves the destruction of prostate tissue while preserving surrounding tissue and structures such as neurovascular bundles, bladder neck, and urethral sphincter (Zheng, 2019). The laser uses coagulative necrosis to remove targeted tissue and avoids cavitation, carbonization or vaporization (Natarajan, 2016). Prostate cancer is multifocal in up to 75% of all cases (Stabile, 2019). Treatment can involve the destruction of multiple lesions within the prostate or a significant single index lesion. It has been proposed that the index lesion, which is associated with the most aggressive nidus of cancer within the prostate gland, drives the natural course of disease. Focal therapy can also be used to ablate half of the gland containing the tumor (hemi-ablation) or ablate a volume greater than half of the prostate (sub-total ablation) (Stabile, 2019). In addition to the lack of demonstrable oncologic efficacy, there

are additional concerns related to the use of focal laser ablation. Focal therapy is susceptible to multiple technical errors, such as poor navigation, inadequate imaging or imprecise tissue destruction, which increases the risk of incomplete tumor tissue ablation (Zheng, 2019; Zhou, 2020).

Definitions

Focal therapy: The use of ablative techniques, such as laser, to destroy a predefined area of tissue with minimal damage to surrounding tissue.

Initial Risk Stratification for Clinically Localized Disease*

Risk Group	Clinical/ Pathologic Features
Very Low	Has all of the following: • T1c • Grade Group 1 • PSA < 10 ng/mL • Fewer than 3 prostate biopsy fragments/cores positive, ≤ 50% cancer in each fragment/core • PSA density <0.15 ng/mL/g
Low	Has all of the following but does not qualify for very low risk: • T1-T2a • Grade Group 1 • PSA < 10 ng/mL
Intermediate	Has all of the following: • No high-risk group features • No very-high-risk group features • Has one or more intermediate risk factors (IRF) ○ T2b-T2c ○ Grade Group 2 or 3 ○ PSA 10-20 ng/mL
	Favorable Intermediate Has all of the following: • 1 IRF

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	• **Grade Group 1 or 2** • **<50% biopsy cores positive**
	Unfavorable Intermediate **Has one or more of the following;** • **2 or 3 IRFs** • **Grade Group 3** • **≥ 50% biopsy cores positive**
High	**Has no very-high-risk features and has at least one high-risk feature:** • **T3a** • **Grade Group 4 or Grade Group 5 OR** • **PSA > 20 ng/ML**
Very High	**Has at least one of the following:** • **T3b-T4** • **Primary Gleason pattern 5** • **2 or 3 high-risk features** • **> 4 cores with Grade Group 4 or 5**

*** National Comprehensive Cancer Network (NCCN). NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines). Prostate Cancer V2.2020. Updated May 21, 2020. For additional information visit the NCCN website: http://www.nccn.org/index.asp. Accessed on November 9, 2020.**

Coding

The following codes for treatments and procedures applicable to this document are included below for informational purposes. Inclusion or exclusion of a procedure, diagnosis or device code(s) does not constitute or imply member coverage or provider reimbursement policy. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

When services are Investigational and Not Medically Necessary:
For the following procedure and diagnosis codes; or when the code describes a procedure indicated in the Position Statement section as investigational and not medically necessary.

CPT

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55899	**Unlisted procedure, male genital system [when specified as focal laser ablation of the prostate]**
0655T	**Transperineal focal laser ablation of malignant prostate tissue, including transrectal imaging guidance, with MR-fused images or other enhanced ultrasound imaging [Note: code effective 07/01/2021]**

ICD-10 Procedure	
0V503ZZ	**Destruction of prostate, percutaneous approach [when specified as focal laser ablation of the prostate]**

ICD-10 Diagnosis	
C61	**Malignant neoplasm of prostate**
D07.5	**Carcinoma in situ of prostate**

References

Peer Reviewed Publications:

1. **Colin P, Mordon S, Nevoux P, et al. Focal laser ablation of prostate cancer: definition, needs, and future. Adv Urol. 2012;2012:589160.**
2. **Eggener SE, Yousuf A, Watson S, et al. Phase II Evaluation of Magnetic Resonance Imaging Guided Focal Laser Ablation of Prostate Cancer. J Urol. 2016; 196(6):1670-1675.**
3. **Lee T, Mendhiratta N, Sperling D, Lepor H. Focal laser ablation for localized prostate cancer: principles, clinical trials, and our initial experience. Rev Urol. 2014;16(2):55-66.**
4. **Lepor H, Llukani E, Sperling D, Fütterer JJ. Complications, Recovery, and Early Functional Outcomes and Oncologic Control Following In-bore Focal Laser Ablation of Prostate Cancer. Eur Urol. 2015; 68(6):924-926.**
5. **Natarajan S, Raman S, Priester AM, et al. Focal Laser Ablation of Prostate Cancer: Phase I Clinical Trial. J Urol. 2016; 196(1):68-75.**
6. **Oto A, Sethi I, Karczmar G, et al. MR imaging-guided focal laser ablation for prostate cancer: phase I trial. Radiology. 2013; 267(3):932-940.**
7. **Stabile A, Moschini M, Montorsi F, et al. Focal therapy for prostate cancer - index lesion treatment vs. hemiablation. A matter of definition. Int Braz J Urol. 2019; 45(5):873-876.**
8. **Valerio M, Cerantola Y, Eggener SE, et al. New and Established Technology in Focal Ablation of the Prostate: A Systematic Review. Eur Urol. 2017; 71(1):17-34.**

9. **Zheng X, Jin K, Qiu S, et al. Focal Laser Ablation Versus Radical Prostatectomy for Localized Prostate Cancer: Survival Outcomes From a Matched Cohort. Clin Genitourin Cancer. 2019; 17(6):464-469.e3.**
10. **Zhou X, Jin K, Qiu S, et al. Comparative Effectiveness of Radiotherapy versus Focal Laser Ablation in Patients with Low and Intermediate Risk Localized Prostate Cancer. Sci Rep. 2020; 10(1):9112.**

Government Agency, Medical Society, and Other Authoritative Publications:

1. **American Urological Association (AUA) / American Society for Radiation Oncology (ASTRO) / Society of Urologic Oncology (SUO). Clinically Localized Prostate Cancer: AUA/ASTRO/SUO Guideline. April 2017. Available at: https://www.astro.org/uploadedFiles/_MAIN_SITE/Patient_Care/Clinical_Practice_Statements/Content_Pieces/ClinicallyLocalizedProstateCancer.pdf. Accessed on October 28, 2020.**
2. **Desert Medical Imaging. Phase II Laser Focal Therapy of Prostate Cancer (LITT or FLA). NLM Identifier: NCT02243033. Last updated January 30, 2020. Available at: https://www.clinicaltrials.gov/ct2/show/NCT02243033?term=visualase&recrs=abdf&cond=prostate+cancer&draw=2&rank=1. Accessed on November 9, 2020.**
3. **Mayo Clinic. Focal Laser Ablation of Prostate Cancer Tumors. NLM Identifier: NCT02600156. Last updated September 11, 2020. Available at: https://www.clinicaltrials.gov/ct2/show/NCT02600156?term=visualase&recrs=abdf&cond=prostate+cancer&draw=2&rank=2. Accessed on November 9, 2020.**
4. **National Institutes of Health Clinical Center. Fusion Guided Focal Laser Ablation of Prostate Cancer. NLM Identifier: NCT02759744. Last updated October 12, 2020. Available at: https://www.clinicaltrials.gov/ct2/show/NCT02759744?term=visualase&recrs=abdf&cond=prostate+cancer&draw=2&rank=3. Accessed on November 9, 2020.**
5. **NCCN Clinical Practice Guidelines in Oncology®. ©2020 National Comprehensive Cancer Network, Inc. Prostate Cancer V2.2020. May 21, 2020. For additional information visit the NCCN website: http://www.nccn.org/index.asp. Accessed on October 28, 2020.**
6. **U.S. Food and Drug Administration 510(k) Premarket Notification Database.**
   - **Visualase Thermal Therapy System. 510L Summary/ No. K071328. Rockville, MD: FDA. September 10, 2008. Available at:**
   - **Visualase Thermal Therapy System. 510(k) Summary. No. K081656. Rockville, MD: FDA. August 31, 2007. Available at: https://www.accessdata.fda.gov/cdrh_docs/pdf7/K071328.pdf. Accessed on November 6, 2020.**

Websites for Additional Information

1. Centers for Disease Control and Prevention. Prostate Cancer. Last reviewed August 18, 2020. Available at: https://www.cdc.gov/cancer/prostate/index.htm. Accessed on November 10, 2020.
2. National Institute of Health. National Cancer Institute. Lasers in Cancer Treatment. Reviewed September 13, 2011. Available at: https://www.cancer.gov/about-cancer/treatment/types/surgery/lasers-fact-sheet. Accessed on November 10, 2020.
3. U.S. National Library of Medicine. Medline Plus. Prostate Cancer. Last updated October 14, 2020. Available at: https://medlineplus.gov/prostatecancer.html. Accessed on November 10, 2020.

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The use of specific product names is illustrative only. It is not intended to be a recommendation of one product over another, and is not intended to represent a complete listing of all products available.

Document History

Status	Date	Action
New	02/11/2021	Medical Policy & Technology Assessment Committee (MPTAC) review. Initial document development.