

Focal Laser Ablation of Prostate Cancer: A Review of the Literature
By [name withheld]

With the increasing ability to accurately detect and diagnose early stage, low risk prostate cancer (PCa), interest in targeted or focal treatment is rapidly growing. A significant subcategory of journal articles/presentations discusses the feasibility and results of tumor ablation (destruction) by various methods, including cryoablation (freezing), High Intensity Focused Ultrasound (HIFU), and photodynamic therapy. A team of researchers from France, led by Pierre Colin, recently reviewed the available literature on Focal Laser Ablation (FLA) as a treatment option for prostate cancer. They published their analysis and discussion online. The article is available in its entirety online.ⁱ

The authors begin by identifying how early detection of PCa has generated a dilemma for patients. 94% of patients who are treated have a radical (whole gland) procedure with risks of damage to urinary and sexual function. Those who do not immediately seek treatment begin a program of active surveillance (AS) but this entails the psychological stress of monitoring for possible disease progression. For qualified patients, a focal treatment that destroys the tumor while sparing healthy tissue—and thus continence and potency—represents a reasonable middle ground between radical treatment and AS.

Certain conditions must be met in order for minimal (or non) invasive focal tumor ablation, by any modality, to be effective:

- It must be able to be guided by imaging to identify the exact location, shape and extent of the cancer
- Targeting must encompass the cancer yet be limited only to the desired area in order to preserve healthy tissue
- Untreated areas are able to be monitored for potential future cancer activity

Focal Laser Ablation satisfies these criteria, as the balance of the article demonstrates.

The article goes on to describe the mechanisms by which laser ablation utilizes light to generate sufficient heat to destroy tissue, and how the process is monitored by both imaging and temperature sensors. If you are interested in technical details, see the full article at <http://www.hindawi.com/journals/au/2012/589160/>.

The authors then surveyed the literature for preclinical (prior to use in humans) and clinical papers. Early experiments with animal and cadaver models demonstrated the accuracy and effectiveness of laser ablation.

The first article on use of Focal Laser Ablation in humans was published in 1994. A cluster of more recent research (2009-2011) helped to solidify evidence that FLA is safe, feasible, accurate, able to be guided and monitored by imaging, and has promising cancer control results. The authors point out that the numbers of treated patients are relatively small, and that long term follow up has not yet been reported, so more research with larger patient groups is needed. In fact, in North America there are ongoing clinical trials of this promising treatment modality.

The authors conclude by emphasizing that although focal therapy for prostate cancer is still considered controversial among more conventional schools of thought, it will continue to be developed and tested because of its ability to meet the needs of certain qualified patients. As

their review of literature demonstrates, Focal Laser Ablation fits the main criteria of a targeted, image-guided prostate cancer treatment that allows monitoring of both the treated and untreated areas of the gland.

ⁱ Colin P, Mordon S, Nevoux P et al. Focal laser ablation of prostate cancer: definition, needs, future. *Advances in Urology* 2012;article ID 589160:10 pages. <http://www.hindawi.com/journals/au/2012/589160/>