Clinical Application Series
VISICOIL™ Linear Fiducial Marker for Lung IGRT

Clinical Application of VISICOIL at Klinikum Frankfurt Oder, Germany

Lung SBRT (Stereotactic Body Radiation Therapy)
➤ SBRT lung cancer treatment protocol: 7.8 Gy x 10 fractions
➤ One to two 2 cm VISICOIL markers applied using a CT-guided transthoracic procedure. No pneumothorax developed with our patients 1
➤ VISICOIL is clearly visible in the CT providing a distinct tumor reference during imaging, treatment planning, and follow up imaging (Fig.1)
➤ Excellent local marker stability, no VISICOIL migration experienced 1, 2

Lung IGRT set-up and treatment delivery
➤ Precise tumor location via VISICOIL and kV imaging (Fig.2) enables accurate patient set-up prior to treatment
➤ In-house studies have proven a set-up accuracy of 2.07 mm *
➤ The clear and unambiguous VISICOIL marker positions enables therapists to perform faster and more confident patient set-up
➤ To address respiration induced tumor motion and to provide targeting accuracy throughout the treatment fraction we apply periodic verification x-rays for select gated treatments

1) Wurm et al.: Image guided respiratory gated hypofractionated SBRT for liver and lung tumors; Acta Oncologica, 2006; 45: 881-889
* 113 verification images, average standard deviation 0.87 mm

“We are using VISICOIL linear markers since 2004 primarily for radiation therapy of lung and liver tumors as well as for prostate cancer.

Until 2010 we have been applying VISICOIL to more than 150 of our lung cancer patients where we typically apply one to two 2 cm markers per lesion in a CT-guided transthoracic procedure.

Using an x-ray based IGRT system the VISICOIL markers are tracked prior to treatment for initial precise patient set-up. For lung and liver cases with tumor motion larger than 10 mm VISICOIL is used to track breathing induced motion during gated treatment delivery. Key benefits are a high tumor targeting accuracy with a lower dose to the patient as compared with other solutions like cone beam CT. VISICOILs also help us to speed up the patient set-up as the clear visibility and unambiguous location of the markers allows our therapists to confidently define the tumor location during IGRT patient set-up.

We are pleased with the spiral design of VISICOIL as we could not verify any marker migration from the initial position in or close to the lung tumor 1.”
Safety, Efficiency and Clinical Confidence in Tumor Targeting

Patient Safety
➤ Non-migrating design
➤ Visualizing tissue deformation and motion

Treatment Efficiency
➤ Faster patient set-up based on unambiguous marker geometry
➤ One marker – two reference points

Clinical Confidence
➤ Accurate tumor targeting at planning and treatment due to minimized artifacts

Contact Details:

Europe, Middle East, Africa
IBA Dosimetry GmbH
Bahnhofstr. 5
90592 Schwarzenbruck, Germany
Tel.: +49 9128 607 0
Fax: +49 9128 607 10
Email: info@iba-dosimetry.com

North America, Latin America
IBA Dosimetry America
3150 Stage Post Drive, Suite 110
Bartlett, TN 38133
Tel.: +1 901 432 7202
Fax: +1 901 432 7206
Toll Free: 866 429 0922
Email: visicoil@iba-group.com

Asia Pacific
IBA Dosimetry Asia Pacific
No.6, Xing Guang Er Jie Beijing
OPTO-mechatronics Industrial Park (OIP)
Tongzhou District
Beijing 101111, China
Tel.: +86 10 8080 9288
Fax: +86 10 8080 9299
Email: info@iba-dosimetry.com