

# CT Treatment Planning

## Reducing artifact as an obstacle when dosing and treatment planning in CT

Artifact can be an unavoidable obstacle for the radiation oncology team.

In radiation therapy, no one knows this more than the medical dosimetrist who is responsible for interpreting the images taken during CT simulation and determining the appropriate dose and dose distribution.

In many cases, artifact images as light streaks across normal tissue. This can distort the true density of the normal tissue (measured by hounsfield units), putting the patient at risk of either receiving too little or too much of a radiation dose.

There have been a number of advances in technology for removing artifact from images.

Software has been developed to reduce artifact and noise, while other medical professionals have developed techniques to work around it, such as image reconstruction and utilization of images from other modalities.

Still, dosimetrists resort to auto-contouring images, matching the affected tissue with the hounsfield units of nearby tissue unaffected by the streak artifact.

This tedious and time consuming task must be performed on every slice on which the artifact appears for that patient. A miscalculation in the dose could harm nearby healthy tissue or prove to be less effective on the cancer cells and tumor growth.

## What causes artifact?

Most streak artifact occurs near high attenuation materials, such as bone or metal, and tends to be the result of beam hardening and scatter.

In many cases one can eliminate some of this artifact by evaluating the tools used in treatment planning. High density skin markers are prone to creating such streak artifact.

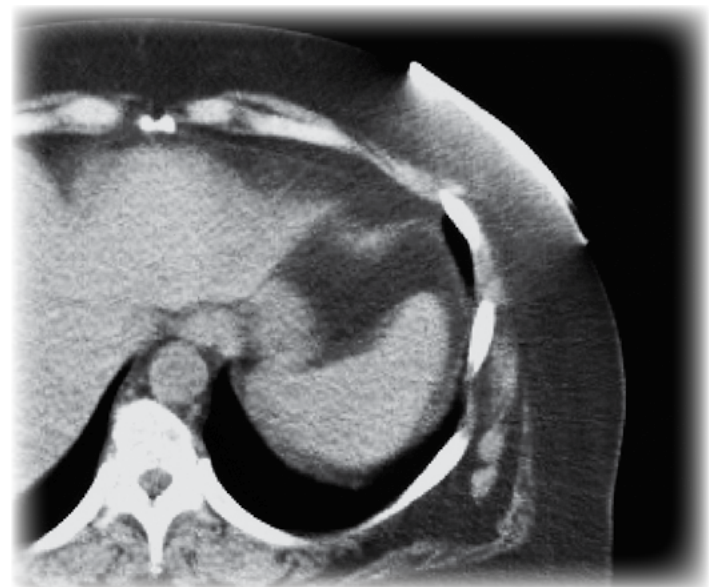
However, skin markers remain an important tool and valuable guide for those involved in treatment planning, particularly for 3-point set-ups, isocenters, and for specific points of interest.



## CT-SPOT® skin markers help reduce artifact

Beekley Medical®'s CT-SPOT® pellet-style skin markers are designed to reduce and minimize artifact in CT treatment planning.

The non-metallic pellets image brightly on every slice and help to reduce the time the dosimetrist spends auto-contouring while remaining a visual aid for the interpreting radiation oncologist.



Streak artifact caused by high density skin markers

## [Product Safety Information](#)



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## CT-SPOT® Pellet

Unique non-metallic markers image brightly during simulation without streaking or artifact.



### CT-SPOT®

REF 119 QTY 85 / Box

- 2.3mm non-metallic pellet
- For 3-point set-ups and isocenters

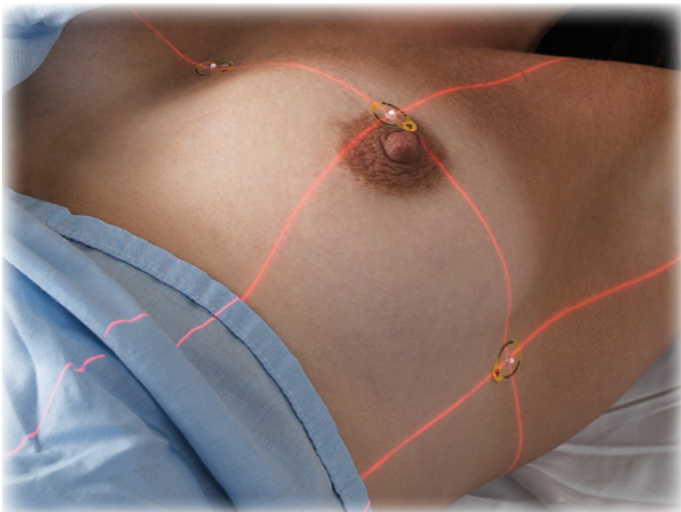


### CT-SPOT®

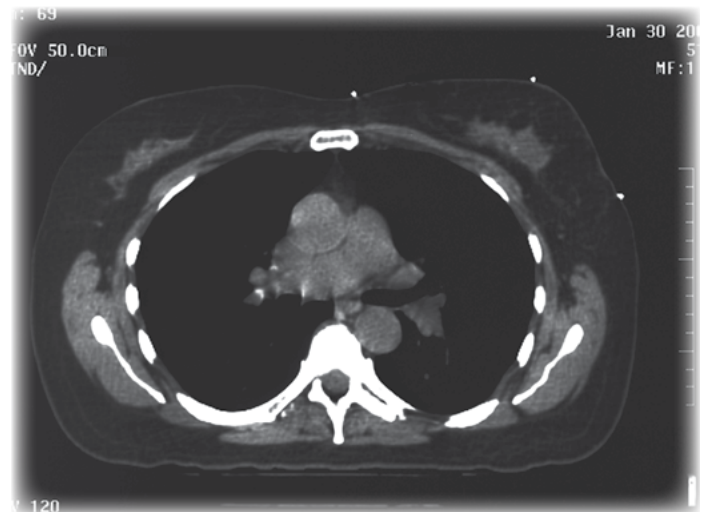
REF 120 QTY 85 / Box

- 4.0mm non-metallic pellet
- For 3-point set-ups and isocenters

// I have been using these for over 15 years and have tried some other brands and none of them ever come close to the CT-SPOT® pellets we use in the Radiation Oncology field," said a radiation therapist of Alliance Oncology. "[The] 4.0mm are perfect for use when doing 2.5-3cm scans, you can't miss using the 4.0mm pellet skin markers. I have tried smaller spots in the past but due to the large distance we use in radiation oncology between slices 4.0mm were the best! //



3-point breast set-up using non-metallic CT-SPOT pellets



Axial slice showing 3-point set-up of breast

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