



Radiation Oncologist
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Treatment
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fractions over 5 days
with a minimum of 6
hours between fractions.

Electronic Brachytherapy Treatment

Clinical History

- 64 year old, postmenopausal, G2, P2
- No prior history of breast cancer
- No family history of breast cancer
- 20 year history of oral hormone therapy, stopped 2 years ago
- Mammogram results – new spiculated mass LOQ with 1.4 cm mass per ultrasound
- Core biopsy – IDC, consistent with mammogram/clinical picture

Indication for APBI

Patient was referred for radiation oncology consultation for Electronic Brachytherapy treatment of left breast cancer/infiltrating ductal carcinoma.

- IDC, T1c, NO, MO
- 1.8 cm tumor, G3
- ER+ PR+ K1 67 53%
- Lower, inner quadrant
- No node involvement

Consultation

There was a full discussion with the patient and her son about Electronic Brachytherapy prior to her receiving the balloon applicator. This patient was not receiving any chemotherapy nor had in the past. Patient had an Axxent Balloon Applicator inserted the following week by the breast surgeon and position was confirmed by CT two days post placement.

Treatment

Planning – The patient's treatment planning CT was performed using 2.5 mm thick slices starting 3 cm superiorly from the balloon applicator surface to 3 cm inferior from the balloon surface. The resultant DICOM dataset was then imported to a commercially available



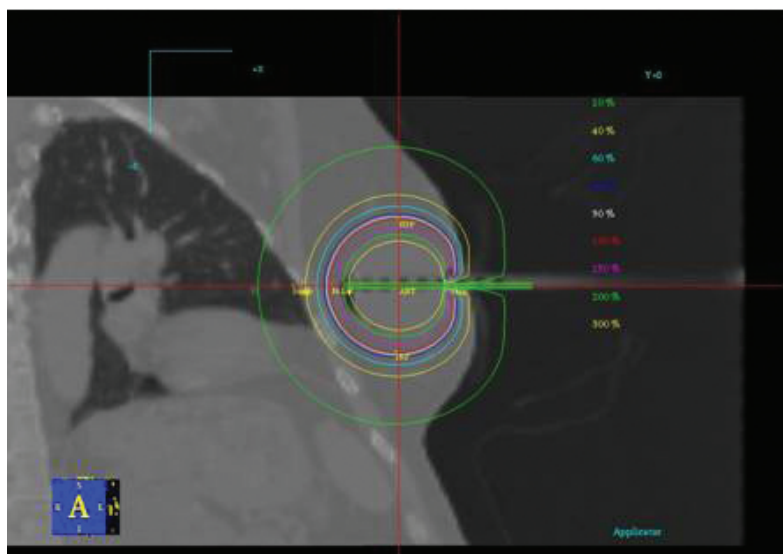
brachytherapy treatment planning system for contouring, dose calculation, and plan evaluation. The following structures were defined and contoured:

- Balloon
- Margin (1 cm from balloon surface)
- PTV (volume from the above Margin minus the Balloon volume)
- Skin
- Ipsilateral Breast
- Contralateral Breast
- Ipsilateral Lung
- Contralateral Lung
- Heart

Note: The Xoft balloon does not require the use of radiographic contrast as the wall of the balloon is impregnated with Barium Sulfate to aid visualization on CT. It is important that NO radiographic contrast be used as this will result in the attenuation of dose to the target volume.

The applicator diameter measured at mid-plane perpendicular to the source lumen was 4.8 cm.

Fractionation – The patient received 10 fractions over 5 days with a minimum of 6 hours between fractions. The dose per fraction was 340 cGy to 1 cm from balloon surface. The treatment times ranged from 420 seconds to 481 seconds per fraction. The Xoft Axxent source is verified prior to each fraction using the well chamber and electrometer on the controller. Any variation of the source output from the verification will be automatically compensated by the Axxent controller, either by increasing or decreasing the treatment times of each source position.



Results/Conclusion

The patient returned for her four week follow up visit in December. She presented with excellent cosmesis. On the patient satisfaction survey, she responded with “very satisfied” on all aspects of her treatment. She would highly recommend the Electronic Brachytherapy treatment to a friend.