Breast Brachytherapy and a Case Report

İlknur ALSAN ÇETİN,1 Seden KÜÇÜCÜK,2 İşık ASLAY3

1Department of Radiation Oncology, Marmara University, İstanbul-Turkey
2Department of Radiation Oncology, İstanbul University, İstanbul-Turkey
3Department of Radiation Oncology, Acıbadem Hospital, İstanbul-Turkey

SUMMARY
For women who had breast-conserving surgery (BCS), brachytherapy can be used along with external beam radiation as a way to add an extra boost of radiation to the tumor site. It may also be used as a form of accelerated partial breast irradiation. Tumor size, location and other factors may affect brachytherapy decision. The patient was 47 years old and applied to Istanbul University Oncology Institute Radiation Oncology Department. A mass in the upper outer quadrant was detected. Invasive ductal cancer was diagnosed with biopsy. MKC and sentinel lymph node biopsy were performed in 2013. Histological and nuclear grade II, ER (+++), PG (+++), cerbB2 (-), lymphovascular invasion (-), pT1N0 was revealed. In 2013, 50 Gy/25 frx ERT was applied to the left breast tangent. After 16 days, HDR was performed twice daily (BID) (4x3Gy), 14-channel ISI breast implants. The reference dose is defined as 3 Gy GTV.

Keywords: Brachytherapy; breast cancer.

Introduction
Breast-conserving surgery and radiotherapy are the standard treatment methods for early-stage breast cancer. Tumor bed recurrence rate after BCS is 60%–85%. Local control increases with a boost of 45–50 Gy and 10–16 Gy.[1,2] Recurrence in breast cancer is often around the tumor. The idea that irradiation of the primary tumor bed instead of the whole breast tissue is sufficient for local control has improved the approach of partial breast radiotherapy.[3,4] Briefly, it is the application of brachytherapy (BRT) within a margin of 1–2 cm to the primary tumor bed instead of the whole breast tissue. The treatment is completed in as short as 2 weeks with high-dose administration. It also improves patient compliance. This application can be applied in BRT and intraoperatively, and both have advantages and disadvantages. However, most commonly BRT involves interstitial (ISI) and intracavitary practice. These applications can be in the forms of LDR, HDR, or PDR. Catheters can be intraoperatively or postoperatively placed.

Case Report
The case patient was aged 47 years who presented to Istanbul University Oncology Institute Radiation Oncology Department. A mass was detected in the upper outer quadrant, and invasive ductal cancer was diagnosed by biopsy. MKC and sentinel lymph node biopsy were performed in 2013. Histological and nuclear grade II, ER (+++), PG (+++), cerbB2 (-), lymphovascular invasion (-), and pT1N0. In 2013, 50 Gy/25 frx ERT was applied to the left breast tangent. After 16 days, HDR was performed twice daily (4x3 Gy), and 14-channel ISI breast implants were used. The reference dose was 3 Gy GTV (Figs. 1–2).
increases local control. Excellent cosmetic results and local control were obtained with balloon-based BRT in APBI studies.[11,15] Additionally, Vicini et al. found that a large tumor (>2 cm) and smaller skin sparing (<7 mm) were the crucial independent predictors of cosmesis.[13]

Conclusion

Based on a large number of studies, BRT is considered a safe and effective method for appropriate patients. Since it is an invasive and complicated technique, it should be applied in experienced centers.

Peer-review: Externally peer-reviewed.
Conflict of Interest: The authors have no of interest.
Financial Support: None declared.

Authorship contributions:
- Concept – İ.A.Ç., S.K., I.A.;
- Design – İ.A.Ç., S.K., I.A.;
- Supervision – İ.A.Ç., S.K., I.A.;
- Materials – İAÇ, S.K., I.A.;
- Data collection &/or processing – İ.A.Ç.;
- Analysis and/or interpretation – İ.A.Ç.;
- Literature search – İ.A.Ç.;
- Writing – İ.A.Ç., S.K., I.A.;
- Critical review – İ.A.Ç.

References


