Background

New Zealand women are fortunate to have a robust screening mammography program offered by the private and public healthcare systems. Fortunately, this results in most women being diagnosed with early breast cancer and most women undergoing breast conservation therapy. However, some women may require partial mastectomy and reconstruction. For this reason, oncoplastic surgery (OS) has been readily available in New Zealand since the 1990s.

However, oncoplastic reconstruction of the breast can introduce several significant challenges, most notably:

- Difficulty in identifying the tumor bed with an implant
- Obstructing the surgical site marker
- Unforeseen deformities

These issues can lead to challenges for RT planning treatment such as:

- Uncertainty about the tumour bed for targeting
- Ambiguities in tumour identification

Methods

Eleven consecutive patients were selected for implantation with the Mimtec breast marker (MimTec Mini Mark) with or without partial breast irradiation (PBI) following partial mastectomy. Each patient had a complete pre-operative work-up and was informed of all possible treatment options. The optimal treatment plan was confirmed by the radiation oncologist before treatment. The Mini Mark is a sterile, biocompatible radiopaque 3-D spiral implant which reliably marks the tumor bed excision site for subsequent radiotherapy and follow-up imaging.

Results: Case Examples

3 Years Post

Surgery + RT

Markers

Marker diameter

3 cm

Coverage

90% of breast volume

Surgery + RT

3 Months Post

Surgical Marking

3 cm

Coverage

90% of breast volume

Surgery + RT

3 Years Post

Surgical Marking

3 cm

Coverage

90% of breast volume

Figure 1

“MimTec” breast marker in place

3 months after RT

4.5 mm Focus of Activity

(50 GY RT) for a 9 mm IDC

3 years Post RT

Surgical Marking

A NEW METHOD FOR PARTIAL BREAST RECONSTRUCTION: 3-YEAR NEW ZEALAND EXPERIENCE

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Abstract

Background: Most women in New Zealand undergo partial mastectomy (PM) and are in need of breast reconstruction either for cosmetic reasons or for functional issues. Oncoplastic surgery (OS) is common; however, reconstructions of the breast during partial mastectomy present several significant issues. Implantation of breast reconstruction material may inadvertently impact the tumour bed, resulting in difficulties for the radiation oncologist. This is especially important in cases where the patient is undergoing partial breast irradiation (PBI).

The authors kindly acknowledge the assistance of: Michelle Semmens, Denise Redwood, Mallory Nugent, Debbie Van Ryswyk

Summary of patients implanted

Patient

Tumour size

Histology

Years Post

RM

SLN

Bx

RT

Recurrence

OS

BM

RJ

RM

SLN

Bx

RT

Recurrence

Patient

Tumour size

Histology

Years Post

RM

SLN

Bx

RT

Recurrence

OS

BM

RJ

RM

SLN

Bx

RT

Recurrence

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Oncoplastic Surgery (OS) is rapidly gaining worldwide acceptance as a means to achieve improved aesthetic outcomes following BCT. This is mainly due to the ability to contour or ‘smooth’ the breast to a more normal shape and contour. Oncoplastic breast surgery (OS) has been shown to have significant advantages over standard BCT and has been shown to improve aesthetic outcomes.

While mastectomy used to be the only option for women, today the approach to surgery is customized for each patient. The extent of the surgical procedure is individualized and can be tailored to the patient’s needs. This includes the use of breast implants for aesthetic improvement.

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Methodology

The Mini Mark is a sterile, biocompatible radiopaque 3-D spiral implant which reliably marks the tumor bed excision site for subsequent radiotherapy and follow-up imaging. In order to develop a better method of marking the tumor bed while performing partial breast irradiation as well as providing a means to facilitate use of hypo-fractionated or accelerated partial breast radiation treatment regimens. Future studies will help to determine the decrease in radiation treatment volumes with resultant decrease in radiation exposure of healthy adjacent tissues.

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Conclusions

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