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PARTIAL RADIATION THERAPY=BRACHYTHERAPY; THE MAMMOSITE® RTS

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Internal radiation therapy (Brachytherapy) has been used as an alternative to whole breast radiation for adjuvant treatment of early breast cancer following breast-conserving surgery. Brachytherapy uses a radiation source that is placed inside the body. This has three important advantages:

1. It places the radiation inside the lumpectomy cavity. The radiation is targeted to the area where cancer is most likely to recur,

2. Radiation is delivered from within the cavity, limiting the amount of radiation to healthy tissue, thereby reducing the potential for side effects.

3. The therapy can be completed in 5 days.

For many years, internal radiation therapy has primarily been delivered using a complicated multicatheter implant method that requires up to 25 catheters (tubes) to be placed in the breast. After placement, a radioactive seed is delivered into each catheter to treat the target area. Doctors have been encouraged by recent studies in North America that have shown low local tumor recurrence rates using this radiation delivery technique. The MammoSite® RTS (MSB) is a new minimally invasive method of delivering internal radiation therapy following a lumpectomy for breast cancer. Therapy is given on an outpatient basis-there is no need to stay in the hospital-and can be completed in 5 days. Open cavity (time of lumpectomy) and closed cavity (ultrasound guided) techniques have been described for placement of Mammosite® catheter to deliver accelerated partial breast brachytherapy (APBB).

We retrospectively analyzed our registry data and report early complications of both techniques. Median follow-up was 12 (4-40) months for open technique and 5 (3-28) months for closed technique.

The incidence of persistent seroma (more than 6 months) was 31% (22/70) and aspiration was performed 13 times in 7 patients (10%; 7/70) in the open group. Because the median follow-up for closed group was 5 months it is early to reach any conclusion for persistent and symptomatic seroma differences.

The overall cosmesis is excellent in 56% of patients, good in 37% of patients and fair 7% of patients based on the Harvard scale of assessing cosmesis. Despite the short follow-up and small sample size in the study, it seems that the Mammosite® brachytherapy was well tolerated in patients with early stage breast cancer in both techniques, and overall cosmesis was excellent or good in 93% of patients.

Table 1. Partial radiation therapy recommendations from 2 American societies

American Brachytherapy Society recommendations American Society of Breast Surgeons recommendations
Age (years) >45 >50
Diagnosis Unifocal, invasive ductal carcinoma Invasive ductal carcinoma or DCIS
Tumor size <3 cm <2 cm
Surgical margin Negative microscopic surgical margins of excision Negative microscopic surgical margins of at least 2 mm in all directions Node status
Nodal Status N0 N0

Table 2. Acute complications of Mammosite® brachytherapy (MWH experience)

Open technique (n=70)	Closed technique (n=14)
Leakage/drainage 2 (3%)	3 (21%)
Abscess 2 (3%)	-
Wound infection 2 (3%)	1 (7%)
Balloon rupture 4 (6%)	1 (7%)
Acute skin Toxicity Grade 2 3 (4%)	1 (7%)