

AbstractID: 1068 Title: Radiation Therapy For intact Breast Based on Proton Beams for Treatment of Intact Breast

Radiation Therapy For intact Breast Based on Proton Beams for Treatment of Intact Breast

Introduction:

Some 215990 new women will be diagnosed with breast cancer in 2004 according to the American Cancer Society. The most common techniques for treating breast cancer are surgery, chemotherapy, and radiation with x-ray, electrons, and brachytherapy or a combination of these modalities.

Proton radiation therapy offers an alternative technique in treating these patients.

However, no breast has ever been treated with proton beams.

Material and Method:

We have studied a technique for treatment of breast cancer using 155 MeV proton beams at Loma Linda Medical Center. This technique is restricted to tumors with 3cm in diameter or less. A tissue equivalent breast and torso phantom were used to mimic the human body. The prone position was chosen for beam delivery. Dose calculations were performed using the Optirad®⁽¹⁾ treatment planning system. A bolus target was created for each beam to control and optimize the dose coverage and tissue sparing. Two or three coplanar beams were used to treat the breast. A set of TLDs was used to measure the dose to the skin.

Results:

The technique offers reduction in lung dose and heart, especially when left breast is treated. One of the important advantages about this technique is the skin sparing. Use of the bolus targets reduced the skin dose to about 70% of the prescribed dose.

1) Permedics, Inc. Loma Linda, CA. USA.