

# 高雄榮民總醫院

## 乳癌治療團隊

### Principle of intra-operative radiotherapy for early stage breast cancer patients –balloon technique

Kaohsiung VGH version 1.0, 2017

#### **Indication:**

Early stage breast carcinoma and low risk loco-regional recurrence

Low risk ductal carcinoma in situ

#### **Patient selection and inclusion criteria:**

1. Age: old than 50 y/o
2. Histology: invasive ductal, mucinous, medullary, colloid carcinoma Image appearance: unifocal
3. Tumor size: < 2cm
4. Margin: free
5. Lymph node status: pN0 (SLNB)
6. Hormone status: any, favor ER positive
7. Ductal carcinoma in situ
  - (1) Screen detected
  - (2) Low to intermediate nuclear grade
  - (3) Size  $\leq$  2.5cm
  - (4) Receted with margins negative  $\geq$  3mm

#### **Exclusion criteria:**

1. Age: < 30 y/o
2. Margin: positive
3.  $>$  3cm ductal carcinoma in situ
4. Lympho-vascular invasion (LVI): not allowed (ESTRO & ASTRO)
5. Metastatic disease

#### **Intra-operative radiotherapy (IORT) treatment procedures:**

1. Patient selection in GS OPD 【IORT 說明書】
2. Radiation oncology OPD for 2<sup>nd</sup> dicussion

3. Arrange operation date, announce Xoft Inc. and Radiation oncology department for radiation protection procedures
4. Lumpectomy and sentinel lymph node biopsy (SLNB) or lumpectomy-breast reconstruction surgery and SLNB
5. Call radiation oncologist and waiting for the results of frozen section
6. If fulfilled the selection criteria, go on IORT. If not fulfilled the selection criteria, stop further procedures of IORT.
7. If final pathological report did not compatible with the selection criteria, adjuvant external beam radiotherapy (EBRT) for chest wall with or without regional lymphatic region should be arranged.

**Intra-operative radiotherapy (IORT) treatment technique and dosage protocol:**

1. Selection of proper balloon size: use Foley's catheter (cutting distal end) for testing, ex. 30 ml, 35 ml, 40 ml etc
2. Shielding of chest wall: when breast reconstruction surgery is performing, use 1-2 mm thickness lead with variable size depend on the size of balloon
3. Placement of treatment balloon: insert the treatment balloon into the lumpectomy cavity, use proper wet gauze for filling of the dead space among the balloon and cavity wall. (\* minimal gauze insertion is preferred)
4. Closing the lumpectomy wound temporarily and checking the distance between balloon surface to skin. If the distance exceed 1.0 cm, go on the IORT. If the distance is between 0.80 to 0.99 cm, adding wet gauze as spacer for exceed the standard of 1.0 cm. If this distance smaller than 0.8 cm, stop the IORT procedure.
5. Re-evaluate the placement of balloon and the possible dead space: by ultra-sonography
6. Dosage: surface dose 20 Gy ± 10%, depend on the clinical situation and the judgement of radiation oncologist.
8. Removal of the treatment balloon and closing the lumpectomy wound.

**Follow-up:**

- Oncology survey: as regular schedule
- Evaluation of cosmetic results: Fibrosis & skin atrophy etc by SOMA scale or CTC AE v4.0 【CTC 追蹤時填寫】

**Reference:**

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