



**Karolinska
Institutet**

Institutionen för molekylär medicin och kirurgi

Different aspects of breast reconstruction

**Contralateral prophylactic mastectomy,
postmastectomy radiotherapy,
complications after biomaterials injection**

AKADEMISK AVHANDLING

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ABSTRACT

The advances in breast reconstruction and oncoplastic surgery have positively affected the cosmetic and functional outcomes without compromising oncological safety.

In this thesis, different aspects and challenges of reconstruction of the breast have been addressed. Specifically, reconstructive outcomes and quality of life after contralateral prophylactic mastectomy in women with personal and family history of breast cancer, the role of implant reconstruction in postmastectomy radiotherapy, and the management of complications after polyacrylamide gel injections are discussed.

In **article I** the clinical course of bilateral breast reconstruction and possible influence of adjuvant treatment were addressed in a consecutive series of patients with personal and family history of breast cancer undergoing contralateral prophylactic mastectomy (CPM) during 1998-2008 (n=91). The findings indicated that CPM was a complex procedure, where the majority of patients (82%) received concurrent bilateral breast reconstruction. In addition, during the 3.9 years follow-up period more than half of the patients required at least one reconstruction-related operation. The clinical course after bilateral breast reconstruction was predominantly affected by operations on the cancer side and reoperation was associated with radiotherapy. A protocol for management of patients opting for CPM and bilateral breast reconstruction is highly demanded.

In **article II** the psychosocial outcomes of CPM with reconstruction in patients with personal and family history of breast cancer were assessed. In this prospective questionnaire study no negative changes in health-related quality of life, sexuality or body image were found. At the 2-year postoperative assessment, the patients showed a satisfactory quality of life similar to women in general population. However, CPM could have a negative impact on the particular aspects of body image including dissatisfaction with the body, appearance, scars, femininity, and attractiveness. Women considering CPM should be informed about the possible psychosocial implications and outcomes of the operation.

In **article III** the impact of immediate breast reconstruction with implants on dose distribution of radiotherapy was addressed in a cohort study of patients with (n=162) and without (n=558) breast implants. Overall, there was no difference in radiation doses to the organs at risk (ipsilateral lung and heart) between the two groups of patients. The presence of breast implants during radiotherapy planning was not associated with increased doses to ipsilateral lung and heart or decreased dose coverage of target volume. Further studies specifically addressing consequences of radiotherapy with the longer follow-up will shed light on oncologic safety aspects.

In **article IV** the results from a retrospective multicenter study from Ukraine on patients with complications after breast augmentation with polyacrylamide gel (n=106) were evaluated. The injections were found to have caused irreversible damage to the breast in previously healthy women as they presented with multiple symptoms as pain (80%), breast deformity (73%), lumps (54%), and gel migration (37%). All patients necessitated gel evacuation with complex debridement operations; 39% with partial mastectomy, 7% with subcutaneous mastectomy; and 72% required a subsequent breast reconstruction. Public awareness of the potential hazards associated with injectables is warranted.

Key words: breast reconstruction, contralateral prophylactic mastectomy, radiotherapy, breast injection, complications, biomaterials, quality of life.

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