

Oncoplastic breast surgery in a Danish perspective II:

Reconstructive strategy in oncoplastic breast surgery

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Surgical strategy, methods of reconstruction, surgical margins and postoperative complications in oncoplastic breast surgery

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Aim of the study :

1. Present and evaluate our strategy in the surgical planning of oncoplastic breast surgery in terms of reconstruction methods related to tumour size, location and size of the breast
2. Present the results of surgical radicality in terms of resection margins,
3. Present numbers of surgery due to insufficient resection margins and late positive SN, and
4. Report early postoperative complications

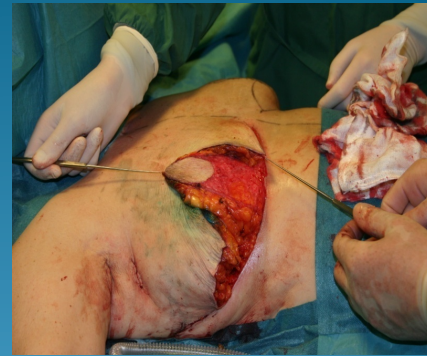
The reasoning behind oncoplastic breast surgery is twofold:

1. To ensure that patients are treated with radical cancer surgery, and
2. To achieve the best possible functional and esthetic result, including a naturally shaped breast with acceptable symmetry.

Oncoplastic breast cancer surgery

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Breast conserving ablativ cancer surgery + immediate partial reconstruction + eventually contralateral correction



A single stage procedure !

Material and methods

Table I. Patients with breast cancer treated at Sydvestjysk Sygehus and Privathospitalet Hamlet in the period January 2008 to December 2010 and Aabenraa Sygehus in the period October 2010 to December 2010.

	Sydvestjysk Sygehus	Privathospitalet Hamlet	Aabenraa Sygehus
No. patients	736	115	95
Mastectomy	283 (38%)	45 (39%)	37 (39%)
Lumpectomy	453 (62%)	70 (61%)	58 (61%)
Oncoplastic surgery *	44 (6%)	23 (20%)	5 (5,2%)

* Number of patients operated with oncoplastic surgery and percentage of total number of patients operated for breast cancer. Total 7,6%.

Age 53(31-69) years, invasive ductale carcinomas 87%, lobular carcinomas 3%, mixed types 6%, DCIS 4%, tumour size 21 (6-50)mm, observation period 26(11-46) months.

Potential candidates for oncoplastic breast surgery

When,

1. Conventional breast-conserving surgery was predicted to result in an unfavourable cosmetic outcome, or when
2. Mastectomy was the primary recommendation based on tumour size and location rather than for oncological reasons,

then the patient was informed of the alternative of oncoplastic breast surgery and referred for a consultation with a plastic surgeon

Surgical planning and reconstructive strategy

1. Tumour size, location and breast size

Clinical judgment

Clinical norm : small up to 250 cc
medium 250-500 cc
large more than 500 cc

Where is the resulting defect located and what is the size of the defect ?

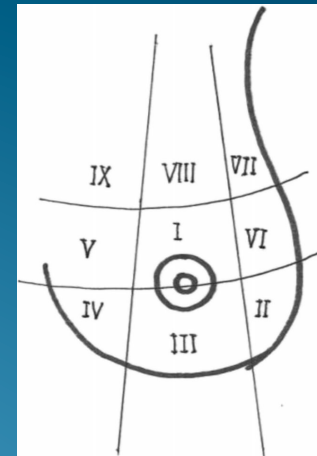


Fig. 1 Illustration of the distribution of zones in the breast described by McCulley and MacMillan [14]

Surgical planning and reconstructive strategy

2. "The total population"

Groups for surgical planning depending on breast size and tumour location

I : Lower region (zones II-IV), medium to large breasts

II : Upper or mid region (zones V-IX), medium to large breasts

III: Central tumours (zone I), medium to large breasts

IV: Small breasts (zones I-IX)

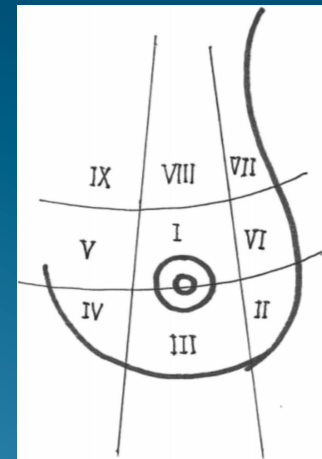


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Surgical planning and reconstructive strategy

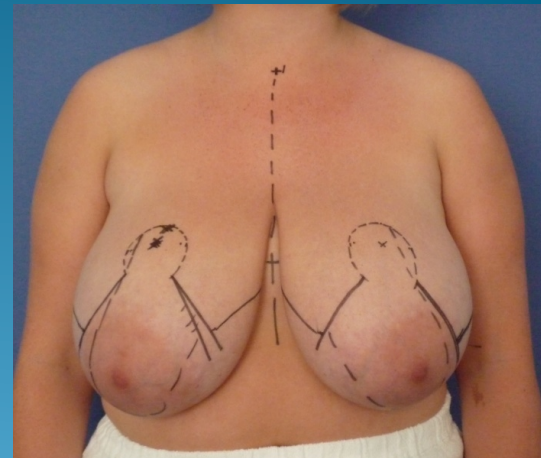
3. Reconstructive techniques

How to fill the defect and reshape a natural breast ?

Volume reduction

Volume displacement

Volume replacement



Surgical planning and reconstructive strategy

4. Peroperative procedure – teamwork !

The breast surgeon is responsible for the ablative procedure, SN and eventually axillary dissection.

The plastic surgeon is responsible for the reconstruction and eventually contralateral surgery to achieve symmetry.

Strategy

Table II. Tumour resections with immediate partial breast reconstruction in relation to tumor location (zones) and size of the breast (small, medium and large), weight of resection (g), methods of reconstruction and contralateral surgery group I-IV.

Group:	No.	Tumor resection weight mean (range)	Reconstruction method	No.	Contralateral surgery
I (medium to large, zone II-IV)	17	367 g (41-1630)	Superior flaps	17	17 /17 (100%)

For 1 of 72 patients, mastectomy was required instead of oncoplastic surgery due to non-radical lumpectomy due to tumor histology. *Tunneled lateral fasciocutan thoracodorsal flap with skin island. **LT = lateral thoracodorsal flap.

Strategy



Figure 2. Patient with medium to large breasts from group I. A 42 year old woman with a 15 mm invasive ductal carcinoma located in the lower central region of the left breast (zone III). Weight of lumpectomy at 80 gram, reconstruction with volume reduction technique and contralateral reduction mammoplasty. Preoperative photos (a-b) and results after radiotherapy 2 years post-surgery (c-d).

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			Superior flaps	4	
			Lateral flaps	1	
			Rotation flap	1	
			Tunneled LT. flap*	2	
			TAP-flap	1	

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Strategy



Figure 3. Patient with medium to large breasts from group II. A 59 year old woman with a 17 mm invasive ductal carcinoma in the upper region (zone VII) of the left breast. Weight of lumpectomy 41 gram, reconstruction with **volume displacement** technique with inferior-based extended flap with skin island and contralateral reduction mammoplasty. Photos preoperative (a and b), peroperative (c) and 3 months postoperative (d and e).

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III (medium to large, zone I)	14	83 g (27-124)	Inferior flaps	13	14 /14 (100%)
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Strategy



Figure 4. Patient with medium to large breasts from group III. A 63 year old woman with a 19 mm invasive ductal carcinoma located in the central region of the right breast (zone I). Weight of lumpectomy 124 gram, which included the nipple-areola-complex, reconstruction with **volume displacement** technique with inferior-based flap and immediate nipple reconstruction and contralateral reduction mammoplasty. Photos taken preoperative (a and b), peroperative (c) and 2 years postoperative (d and e).

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IV (small breasts, zone I-IX)	17	55 g (20-127)	Tunneled LT. flap* LD-flap Rotation flap + LT**	13 3 1	1 / 17 (6%)

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Figure 5. Patient with small breasts from group IV. A 46 year old woman with a 25 mm invasive ductal carcinoma in the lateral region (zone VI) of the left breast. Weight of lumpectomy 40 gram, reconstruction with volume replacement technique with tunneled thoracodorsal flap with skin island and no contralateral surgery. Preoperative photos (a and b) and postoperative photos after 3 months (c and d).

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Total (group I-IV, zone I-IX)	73	157 (20-1630)			54 / 73 (74%)

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Results

Table III: Primary mastectomies, primary sufficient resection margins, primary axillary exaeresis, secondary mastectomies, re-resections, and secondary axillary exaeresis after final pathological evaluation.

	No. of breast	%
<i>Primary surgery</i>		
Mastectomy	1	1.4
Sufficient resection margins peroperative	73	98.6
Peroperative positive sentinel node + axillary exaeresis	38	51.4

n=74. n is the numbers of breasts with cancer. Two patients had bilateral cancers.

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<i>Secondary surgery</i>		
Insufficient resection margins in final pathological evaluation causing mastectomies	3	4.0
Insufficient resection margins in final pathological evaluation causing re-resection	7	9.5
Late positive sentinel node causing secondary axillary exaeresis	9	12.1

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Table IV: Secondary surgery in general anesthesia due to complications and local disease control.

Complication	Site of complication	No	%
Haematoma	Reconstruction	4	(5.4%)
	Contralateral breast	3	(4.1%)
	Axilla	2	(2.7%)

n=73. One patient had a haematoma on both the reconstructed and contralateral breast after reduction mammoplasty, as well as a third haematoma after re-resection due to insufficient resection margins.

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	Axilla	2	(2.7%)
Disease control			
Re-resections		7	(9.5%)
Axillary exaeresis due to late positive SN		9	(12.3%)
Mastectomy		3	(4.1%)
Reoperations total		28	(38.3%)

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7. Two patients had recurrence of the disease – one with metastasis, one died from dissemination
8. In total 7,6 % of patients in 2008-2010 had oncoplastic surgery .

Conclusion

In conclusion, it is possible and safe to carry through a preoperatively planned method for immediate partial breast reconstruction in a wide range of variations in tumour size, tumour location and breast size, and this demonstrates the feasibility to implement oncoplastic breast surgery into daily clinical practice based on our strategy.

As such, oncoplastic breast surgery may provide a markedly better outcome than breast-conserving surgery in terms of shape and symmetry without compromising the surgical margins.

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