MAP Breast 2015

Breast cancer overview and problems I

Giuseppe Catanuto MD PhD
Azienda Ospedaliera Cannizzaro Catania
Scuola di Oncologia Chirurgica Ricostruttiva -Milano

THE INCREASED COMPLEXITY OF DECISION MAKING IN BREAST CANCER SURGERY

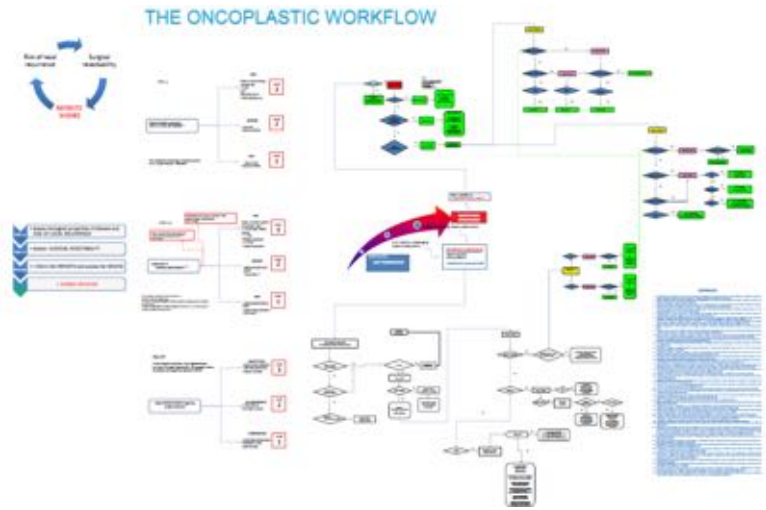
NO CHOICE ! **EASY CHOICE** **COMPLEX CHOICE**

+/- Reconstruction

Mastectomy

Breast Cancer

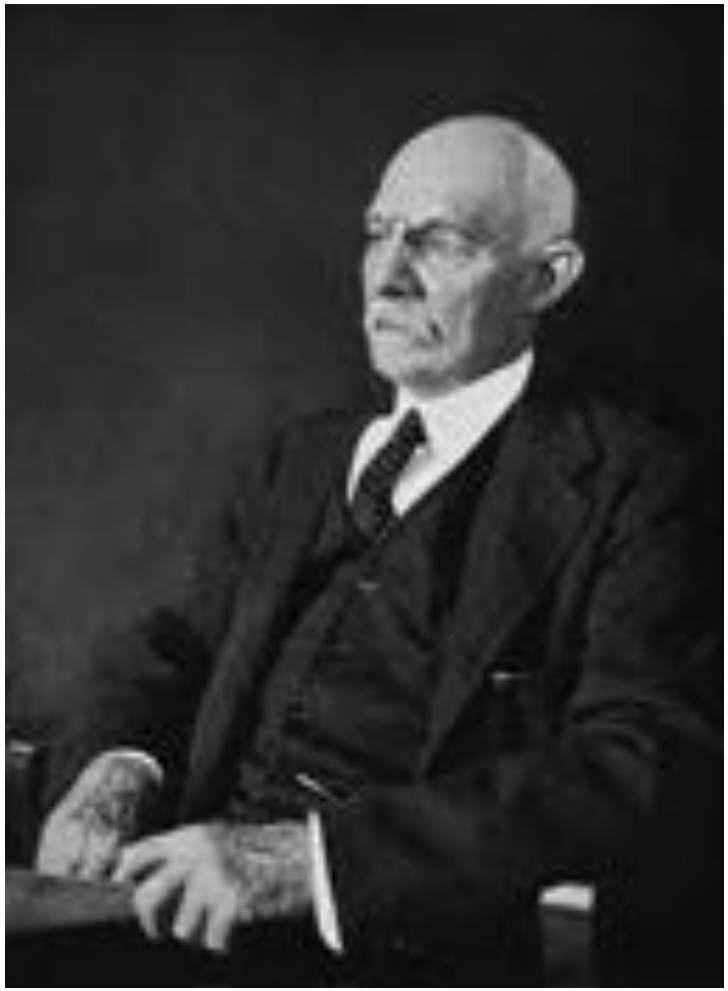
Breast Conservation



Breast Cancer= Mastectomy

1970 **1980-2000** **2000-10**

The historical background of the modern surgical treatment of breast cancer

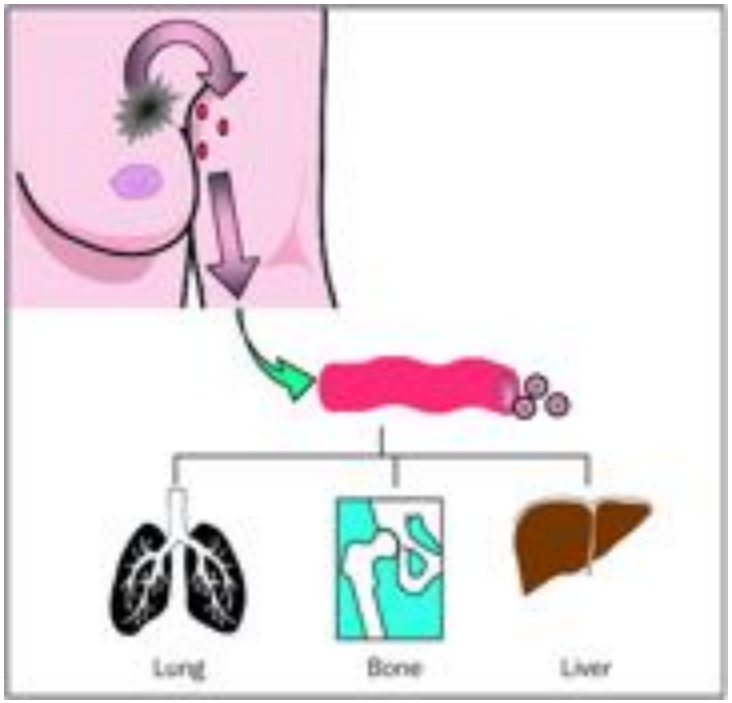


The Halstedian paradigm

Cancers usually do not spread through the bloodstream:

Adequate **local removal** of the cancer **would cure** it – if the cancer later appeared elsewhere, it was a new process.

Metastatic spread to distant organs by haematogenous dissemination is preceded by infiltration of the lymph nodes, which provide a circumferential line of defence.



The Halsted radical mastectomy resulted in a dramatic reduction in the rates of local recurrence (from 60% to 6%). However, long-term survival was unaffected the procedure caused considerable disfigurement.

From about 1895 to the mid-1970s about 90% of the women being treated for breast cancer in the U.S. underwent the Halsted radical mastectomy.

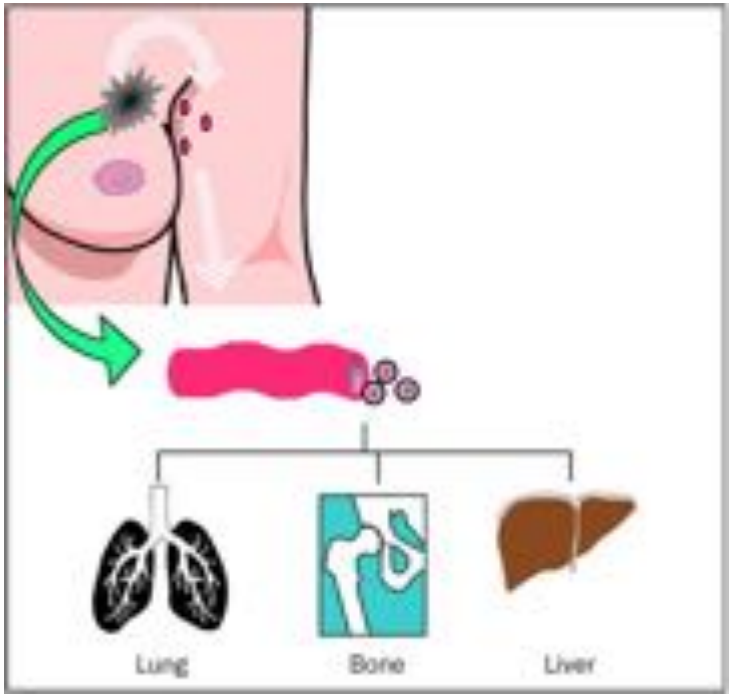
The alternative paradigm

George Crile proposed that breast cancer was a systemic disease at an early stage in its natural history.

This alternative hypothesis led to early attempts at local tumour excision and clinical trials of conservative breast-cancer surgery.

Bernard Fisher undertook extensive clinical and laboratory studies over 30 years and **formulated a hypothesis of biological predeterminism** that challenged the existing Halstedian paradigm

Fisher "demonstrated that the **regional lymph nodes were not a barrier to the dissemination of tumor cells,** as postulated earlier**,** but were routes traversed by tumor cells to gain access to the circulating bloodstream and lymphatic system.
Out of this basic work on cancer metastasis came **a new model for the management of breast cancer based on the premise that the disease is systemic from its inception.**



Thus breast cancer metastasis is not solely determined by anatomic considerations, but is also influenced by biologic activity of both the tumor and the host.

TWENTY-YEAR FOLLOW-UP OF A RANDOMIZED TRIAL COMPARING TOTAL MASTECTOMY, LUMPECTOMY, AND LUMPECTOMY PLUS IRRADIATION FOR THE TREATMENT OF INVASIVE BREAST CANCER

BERNARD FISHER, M.D., STEWART ANDERSON, PH.D., JOHN BRYANT, PH.D., RICHARD G. MARGOLESE, M.D., MELVIN DEUTSCH, M.D., EDWIN R. FISHER, M.D., JONG-HYEON JEONG, PH.D., AND NORMAN WOLMARK, M.D.

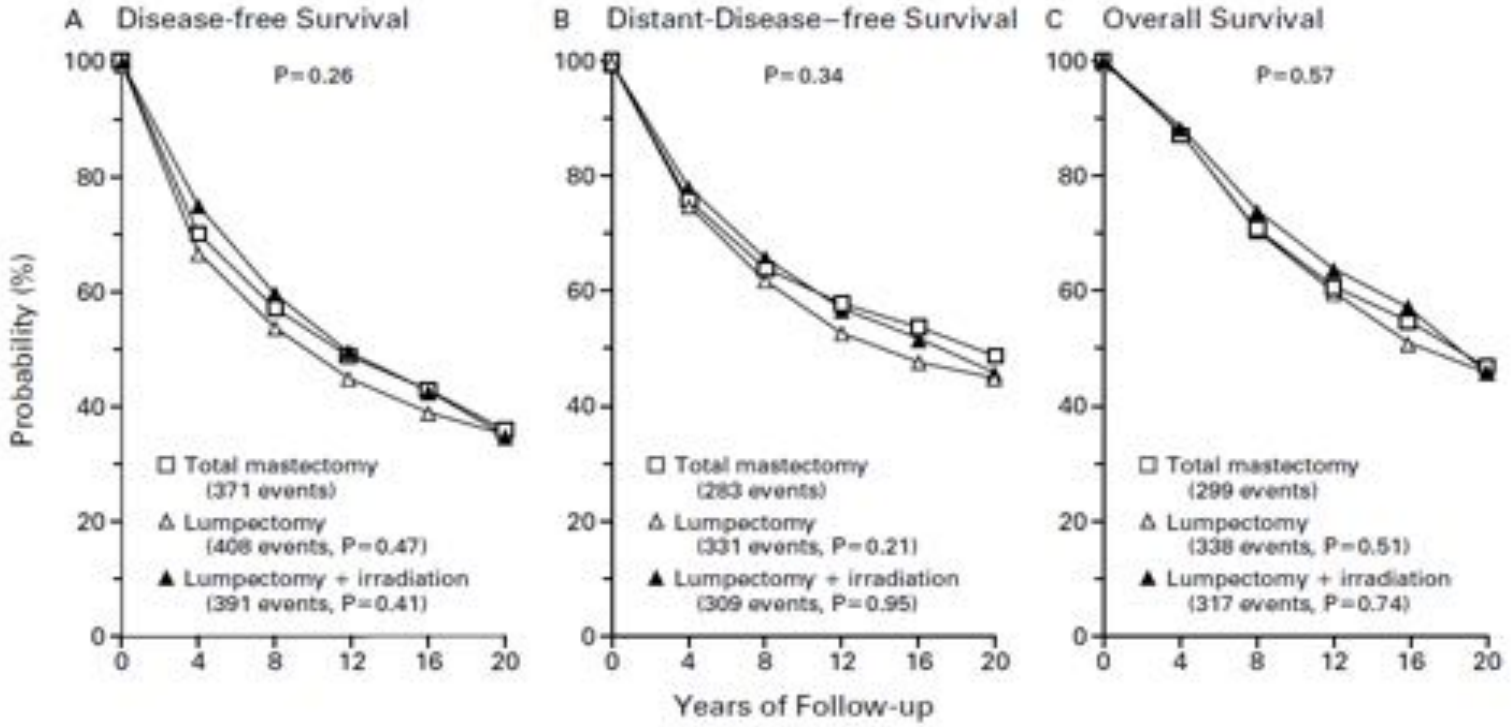
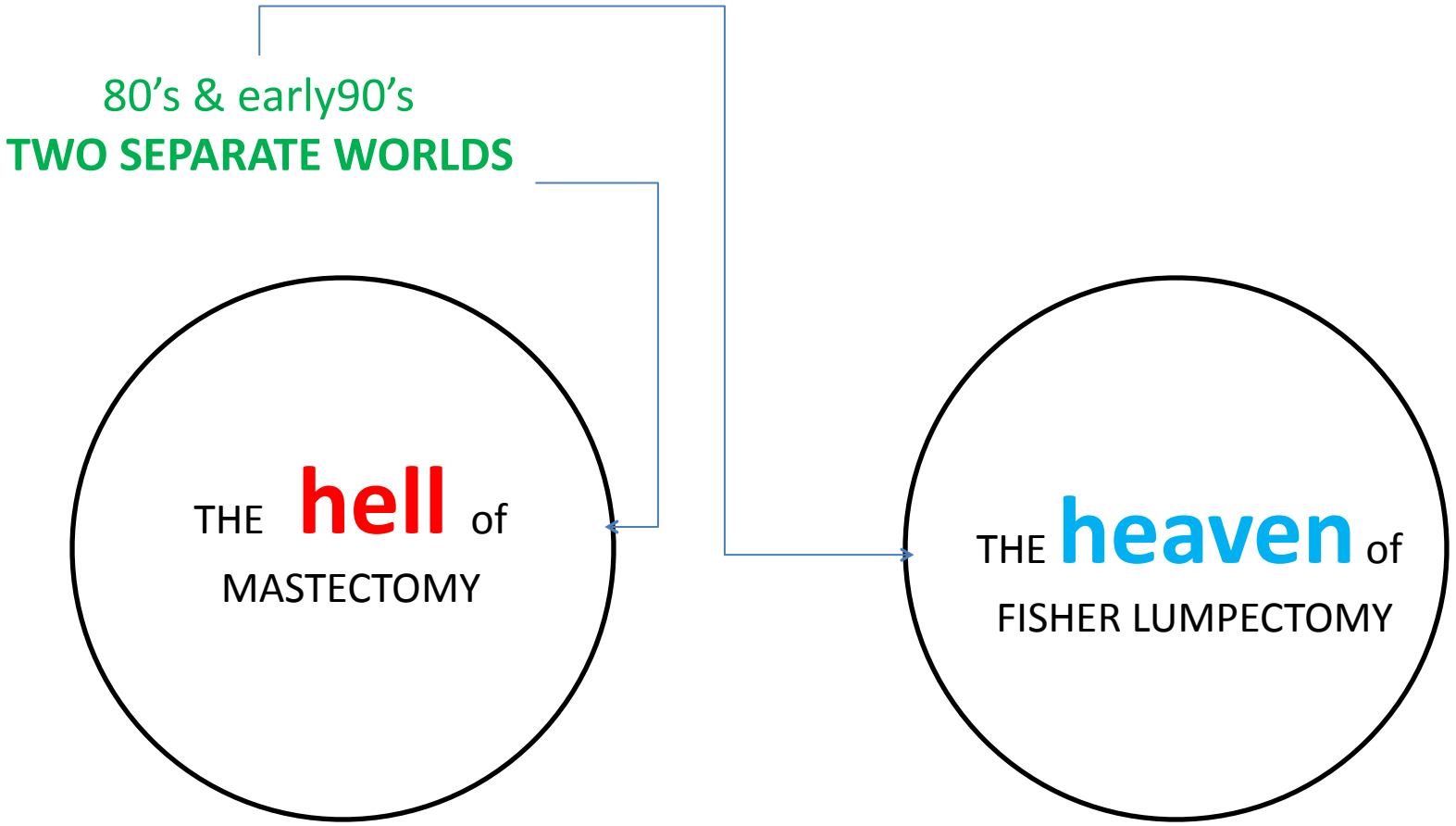


Figure 2. Disease-free Survival (Panel A), Distant-Disease–free Survival (Panel B), and Overall Survival (Panel C) among 589 Women Treated with Total Mastectomy, 634 Treated with Lumpectomy Alone, and 628 Treated with Lumpectomy plus Irradiation.

In each panel, the P value above the curves is for the three-way comparison among the treatment groups; the P values below the curves are for the two-way comparisons between lumpectomy alone or with irradiation and total mastectomy.

However Fisher still reccomended free margins of excision and therefore about 20% of patients were condemned to received a mastectomy



IS BREAST CONSERVING SURGERY
AN UNFAILING PROMISE OF INTEGRITY ?

APPARENTLY NOT ! **Breast conserving surgery can be failing !**

Rates of **failed breast conservation** are reported up to **30%**

These have been associated with tumor size and location by Cochrane and have been classified by Fitoussi:

New	**Description**
Type I	Ipsilateral minor deformity
Type II	Contralateral symmetrisation
Type III	Ipsilateral moderate deformity
Type IV	Ipsilateral major deformity
Type V	Unsalvageable

Chronicle effects of radiotherapy must be added in this classification !

Cochrane RA, Valasiadou P, Wilson AR, Al-Ghazal SK, Macmillan RD. Cosmesis and satisfaction after breast-conserving surgery correlates with the percentage of breast volume excised. ***Br J Surg. 2003;90:1505–1509.***

Management of the post-breast-conserving therapy defect: extended follow-up and reclassification. Fitoussi AD, Berry MG, Couturaud B, Falcou MC, Salmon RJ.
Plast Reconstr Surg. 2010 Mar;125(3):783-91

Fig. 1. An example of grade I deformity showing good form and volume of the treated breast but a depressed scar (*above*) managed with a Z-plasty (*below*).

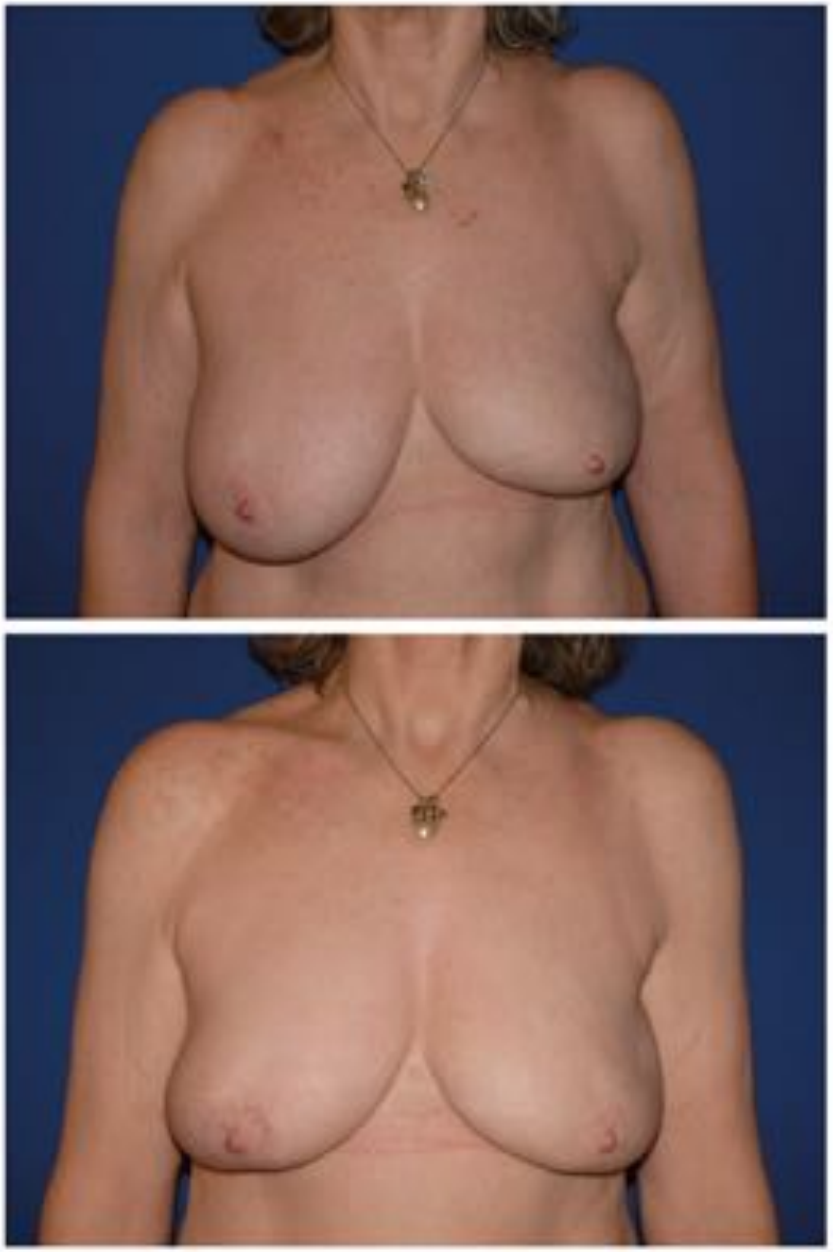


Fig. 2. A grade II deformity where the treated breast is perfectly acceptable but symmetrization is required (*above*), in this case using an inverted-T mammaplasty (*below*).

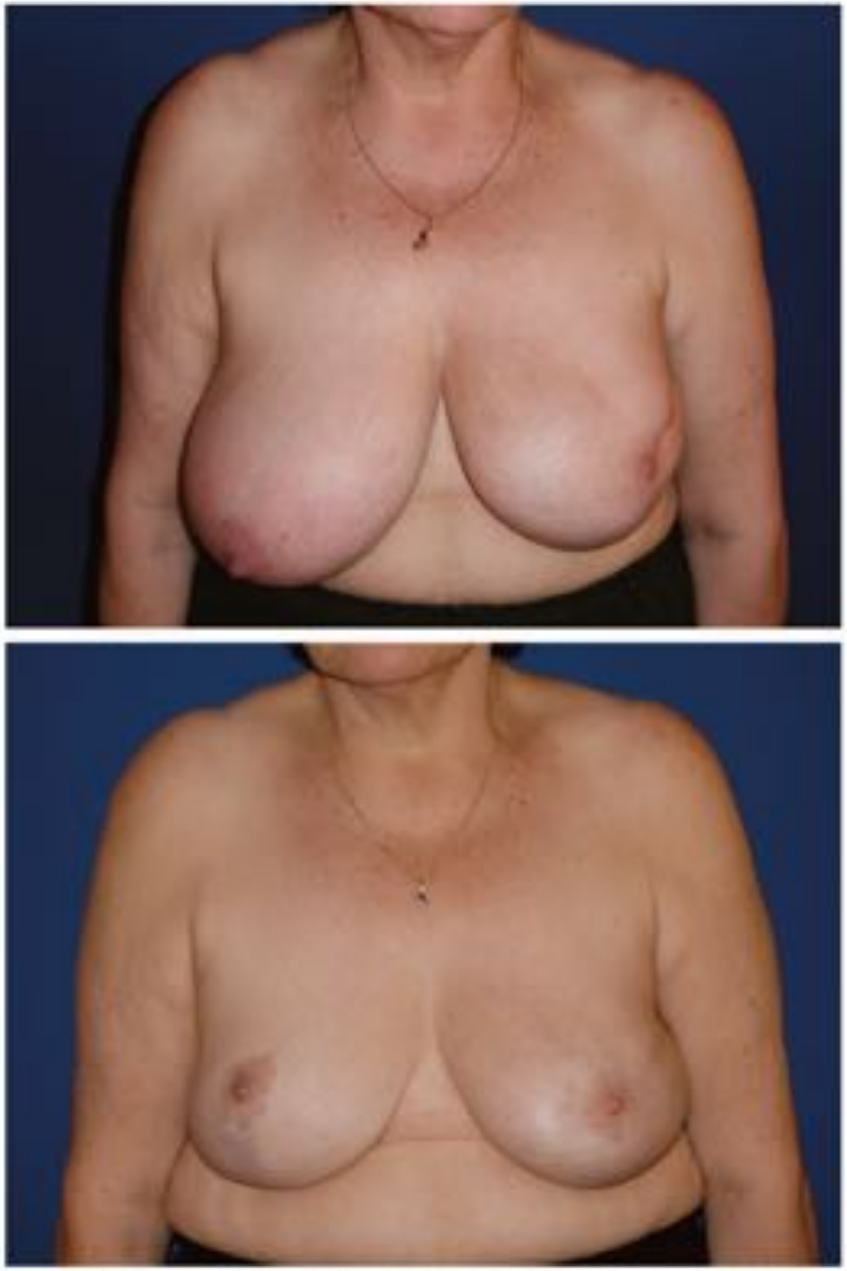
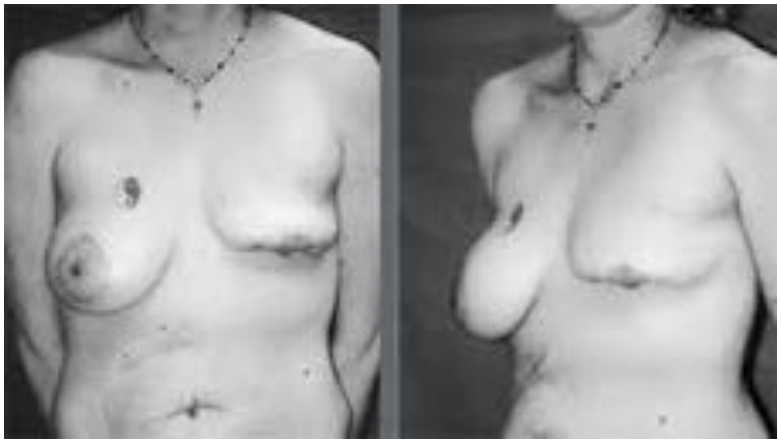


Fig. 3. A grade III deformity where the breast has not retained an acceptable form (*above*); addressed by lateral mammaplasty to the treated breast and contralateral symmetrization (*below*).

Fig. 5. An example of grade IV deformity in which there is both loss of volume and anatomical distortion (*above*). The volume loss is revealed on excision of the scar tissue (*center*) and a latissimus dorsi musculocutaneous flap has been used to restore both volume and form (*below*).

But also devastating results that may require a mastectomy and reconstruction



The effects of failed breast conservation have been investigated

Women who reported pronounced asymmetry were significantly **less likely to be satisfied with the decision for surgery.**
(odds ratio [OR], 0.43; 95% confidence interval [95% CI], 0.21– 0.89).

Women with pronounced asymmetry were **less likely to be certain about their surgical decision** (OR, 0.36; 95% CI, 0.21–0.60)

Less likely to believe that they were prepared to make the decision for surgery (OR, 0.25; 95% CI, 0.14–0.43).

Increasing **breast asymmetry** was associated with **higher surgeon distrust scores** (2.14 vs. 2.30 vs 2.35; P 5.04)

Correlates of patient **satisfaction** and provider trust after **breast**-**conserving** surgery. **Waljee** JF, Hu ES, Newman LA, Alderman AK.
Cancer. 2008 Apr 15;112(8):1679-87

Conservative mastectomies: closing the gaps between the two techniques

The extra-projection model: implant based reconstriuctive surgery bearing in mind cosmetic surgery

Can reconstructive surgery eliminate the differences between BCS and Mastectomy? Were are we now?

EORTC-B23 (mean +/- SD)	**IBR**	**BCS**	**p**
Functional score	78.1 +/-13.4	81.2 +/- 12.6	0.083
Symptom score	13.8 +/- 12.0	14.1 +/- 11.4	0.852
Global health score	76.3 +/- 18.5	77.1 +/- 19.9	0.797
Overall FACT-B	112.7 +/- 20.1	113.3 +/- 19.4	0.801
General heath (FACT-G score)	87.6 +/- 15.3	97.8 +/- 99.2	0.346
Breast specific score	71.2 +/- 13.2	70.8 +/- 13.5	0.814

Most of the **scores do not vary significantly** in a study comparing Mastectomy and reconstruction with pedicled LD flaps+ implants or other autologous flaps

Quality of life after immediate **breast** reconstruction and **skin**-**sparing mastectomy** - a comparison with patients undergoing **breast conserving surgery**.
Heneghan HM, Prichard RS, Lyons R, Regan PJ, Kelly JL, Malone C, McLaughlin R, Sweeney KJ, Kerin MJ.
Eur J Surg Oncol. 2011 Nov;37(11):937-43. Epub 2011 Sep 6.

Can reconstructive surgery eliminate the differences between BCS and Mastectomy? Were are we now?

TABLE 3. Linear Regression Model of Satisfaction With Breast Cosmetic Outcomes* (N = 1245†)

Characteristic	Estimated Coefficient	SE	95% CI	P
Intercept	3.41	0.13	3.15 to 3.67	<0.001
Surgical treatment				0.0002
Mastectomy without reconstruction	−0.38	0.093	−0.56 to −0.20	
Mastectomy with autologous reconstruction	0.21	0.16	−0.093 to 0.52	
Mastectomy with implant reconstruction	−0.12	0.13	−0.38 to 0.14	
Breast conservation	0	0	0 to 0	
Chemotherapy	−0.16	0.071	−0.30 to −0.017	0.028
BMI‡	−0.027	0.006	−0.038 to −0.016	<0.0001
Smoking	−0.26	0.11	−0.46 to −0.048	0.016
Age§	0.003	0.003	−0.004 to 0.010	0.42
Education				0.23
High school or less	−0.14	0.093	−0.33 to 0.038	
Some college	−0.11	0.082	−0.28 to 0.049	
College or more	0	0	0 to 0	
Race				0.093
White (non-Latina)	0	0	0 to 0	
Black	0.20	0.084	0.039 to 0.37	
Latina (English-speaking)	0.015	0.097	−0.18 to 0.21	
Latina (Spanish-speaking)	0.010	0.12	−0.22 to 0.24	
Family income at diagnosis				0.011
<$20,000	0	0	0 to 0	
$20,000–$70,000	0.20	0.11	−0.023 to 0.43	
>$70,000	0.054	0.13	−0.19 to 0.30	
Unknown	0.34	0.13	0.092 to 0.60	

Table 3 presents a multivariable linear regression model of the scaled measure of Satisfaction With Breast Cosmetic Outcomes in the 1245 patients with complete variable information. **Satisfaction was not significantly different between the group receiving breast conservation and the group receiving mastectomy with reconstruction with either implant technique or autologous technique**.

The advent of oncoplastic surgery and its impact on cosmetic outcome

Mastectomy and reconstruction nowadays

Nipple sparing mastectomy in large and ptotic breast
With Skin Reducing mastectomy

The advent of oncoplastic surgery and its impact on cosmetic outcome early 90’

Oncoplastic surgery: It represents the **integration of plastic surgery techniques into breast cancer surgery .**

In order to preserve aesthetical outcomes and quality of life of the patients without compromising local control of disease

Oncoplastic Techniques Allow Extensive Resections for Breast-Conserving Therapy of Breast Carcinomas

Krishna B. Clough, MD,* Jacqueline S. Lewis, FRCS,* Benoît Couturaud, MD,* Alfred Fitoussi, MD,* Claude Nos, MD,* and Marie-Christine Falcou†

*From the Departments of *General and Breast Surgery and †Biostatistics, Institut Curie, Paris, France*

The advent of oncoplastic surgery and its impact on cosmetic outcome

The central quadrantectomy

Therapeutic Wide local excision and breast reshape

Breast conserving surgery post-neoadjuvant chemo

The use of systemic treatment to allow breast conserving surgery

A woman whose tumor can be removed by mastectomy may instead receive neoadjuvant therapy to shrink the tumor enough to allow breast-conserving surgery

Fisher B, Bryant J, Wolmark N, et al. Effect of preoperative chemotherapy on the outcome of women with operable breast cancer. *Journal of Clinical Oncology* 1998; 16(8):2672–2685.

van der Hage JA, van de Velde CJ, Julien JP, et al. Preoperative chemotherapy in primary operable breast cancer: results from the European Organization for Research and Treatment of Cancer Trial 10902. *Journal of Clinical Oncology* 2001; 19(22):4224–4237.

Mauri D, Pavlidis N, Ioannidis JP. Neoadjuvant versus adjuvant systemic treatment in breast cancer: a meta-analysis. *Journal of the National Cancer Institute* 2005; 97(3):188–194.

The use of post-mastectomy radiotherapy and its integration with reconstructions

Postmastectomy

Postoperative chest wall and regional lymph node adjuvant radiation therapy has traditionally been given to **selected patients considered at high risk for local-regional failure after mastectomy.** [49-51]

Four or more positive axillary nodes.

- Grossly evident extracapsular nodal extension.
- Large primary tumors.
- Very close or positive deep margins of resection of the primary tumor.

Ragaz J, Jackson SM, Le N, et al.: Adjuvant radiotherapy and chemotherapy in node-positive premenopausal women with breast cancer. N Engl J Med 337 (14): 956-62, 1997. [PUBMED Abstract]

Overgaard M, Hansen PS, Overgaard J, et al.: Postoperative radiotherapy in high-risk premenopausal women with breast cancer who receive adjuvant chemotherapy. Danish Breast Cancer Cooperative Group 82b Trial. N Engl J Med 337 (14): 949-55, 1997. [PUBMED Abstract]

Sharing decisions improves patients' satisfaction

Patients were subdivided in three groups: **paternalistic; informed consumeristic; shared.**

There were **differences in overall general satisfaction** (P = 0.034), in the comparison between the informed group to the paternalistic group (66.7% versus 38.9%, P = 0.020) and the shared to the paternalistic group (69.3% versus 38.9%, P = 0.016). There were no differences in aesthetic satisfaction. There **were differences found in the SF-12 physical component summary score** across all groups (P = 0.033), and a difference was found between the informed and paternalistic groups (P < 0.05).

The authors concluded that **who adopted a more active role had better results in terms of general satisfaction and physical summary scores**.

Chan SW, Cheung PS, Lam SH World J. Cosmetic outcome and percentage of breast volume excision in oncoplastic breast conserving surgery. Surg. 2010 Jul;34(7):1447-52.

THE MODERN SCENARIO

- **Breast Conserving surgery can be failing**
- **Modern Therapeutic mammaplasties may optimize the outcome of breast conserving surgery**
- **Breast reconstruction provides comparable outcome to breast conserving surgery**
- **Integration of other systemic treatment/ local regional treatments may affect the surgical decision**

Correlates of patient **satisfaction** and provider trust after **breast**-**conserving** surgery. **Waljee** JF, Hu ES, Newman LA, Alderman AK.
Cancer. 2008 Apr 15;112(8):1679-87

THE INCREASED COMPLEXITY OF DECISION MAKING IN BREAST CANCER SURGERY

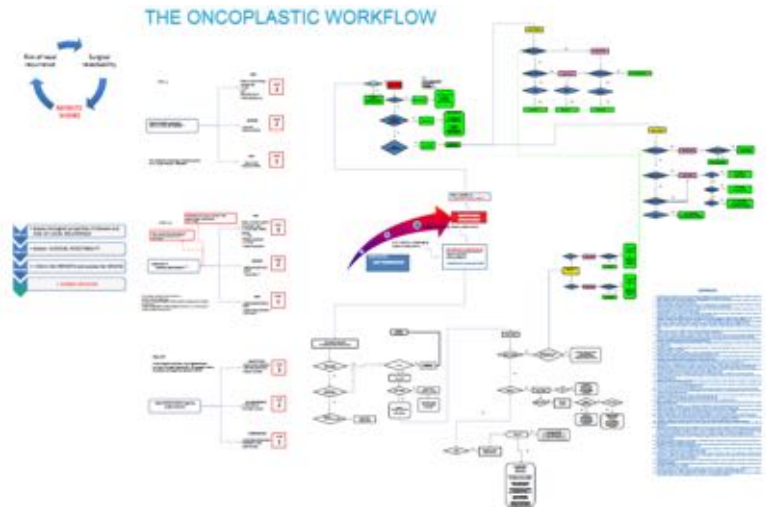
NO CHOICE ! **EASY CHOICE** **COMPLEX CHOICE**

+/- Reconstruction

Mastectomy

Breast Cancer

Breast Conservation



Breast Cancer= Mastectomy

1970 **1980-2000** **2000-10**

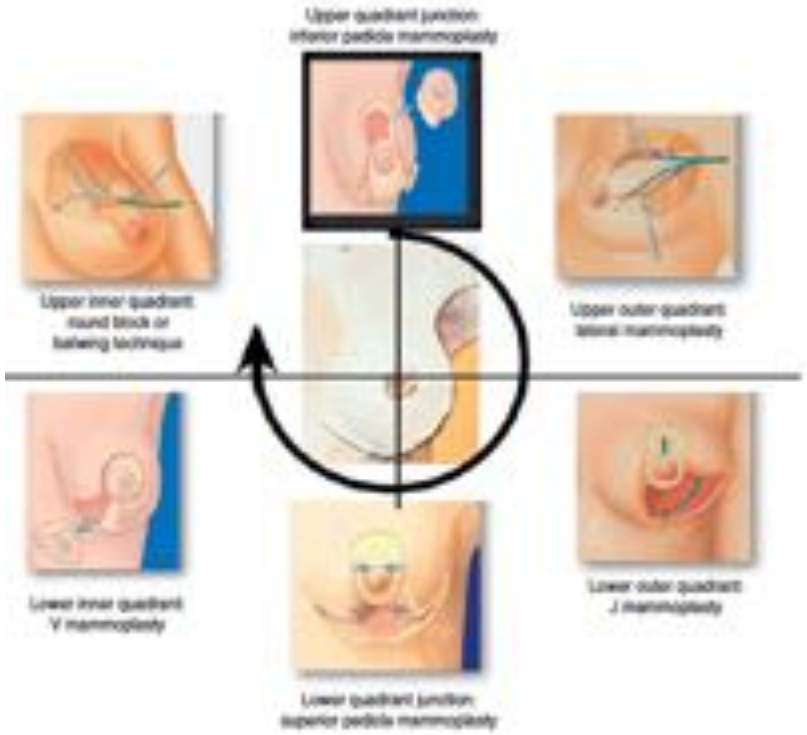
FLOW CHARTS –ALGHORITHMS- NOMOGRAMS

Original article

Oncoplastic surgery for breast cancer based on tumour location and a quadrant-per-quadrant atlas

K. B. Clough[1], T. Ihrai[1,2], S. Oden[1], G. Kaufman[1], E. Massey[1] and C. Nos[1]

[1]The Paris Breast Centre – L'Institut du Sein, Paris, and [2]Breast Cancer Unit, Centre Antoine Lacassagne, Nice, France
Correspondence to: Dr K. B. Clough, The Paris Breast Centre – L'Institut du Sein, 7 Avenue Bugeaud, 75116 Paris, France
(e-mail: krishna.clough@orange.fr)



LOCATION

SURGICAL TECHNIQUE

No consideration of tumor size, shape ptosis, integration of pre-post op Adjuvant treatment

Assessment of Immediate Conservative Breast Surgery Reconstruction: A Classification System of Defects Revisited and an Algorithm for Selecting the Appropriate Technique

Alexandre Mendonça Munhoz, M.D.
Eduardo Montag, M.D.
Eduardo Arruda, M.D.
Leandro Pellarin, M.D.
José Roberto Filassi, M.D.
José Roberto Piato, M.D.
Alfredo Carlos de Barros, M.D., Ph.D.
Luis Carlos Prado, M.D.
Alexandre Fonseca, M.D.
Edmund Baracat, M.D., Ph.D.
Marcus Castro Ferreira, M.D., Ph.D.
São Paulo, Brazil

Background: Although various techniques have been used for breast conservation surgery reconstruction, there are few studies describing a logical approach to reconstruction of these defects. The objectives of this study were to establish a classification system for partial breast defects and to develop a reconstructive algorithm.

Methods: The authors reviewed a 7-year experience with 209 immediate breast conservation surgery reconstructions. Mean follow-up was 31 months. Type I defects include tissue resection in smaller breasts (bra size A/B), including type IA, which involves minimal defects that do not cause distortion; type IB, which involves moderate defects that cause moderate distortion; and type IC, which involves large defects that cause significant deformities. Type II includes tissue resection in medium-sized breasts with or without ptosis (bra size C), and type III includes tissue resection in large breasts with ptosis (bra size D).

Results: Eighteen percent of patients presented type I, where a lateral thoracodorsal flap and a latissimus dorsi flap were performed in 68 percent. Forty-five percent presented type II defects, where bilateral mastopexy was performed in

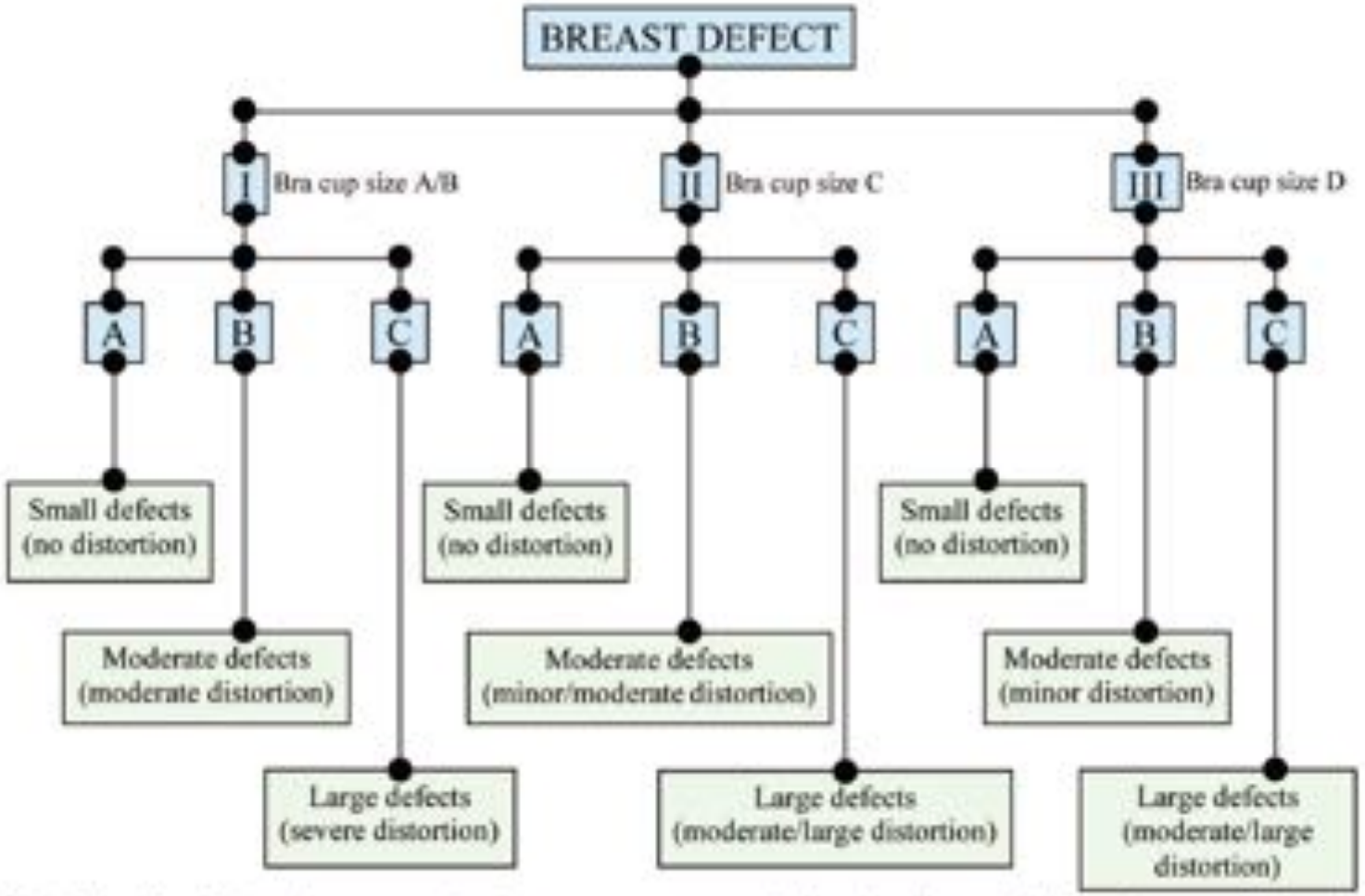


Fig. 1. Algorithm for immediate conservative breast surgery reconstruction based on the type of breast and extent of defect.

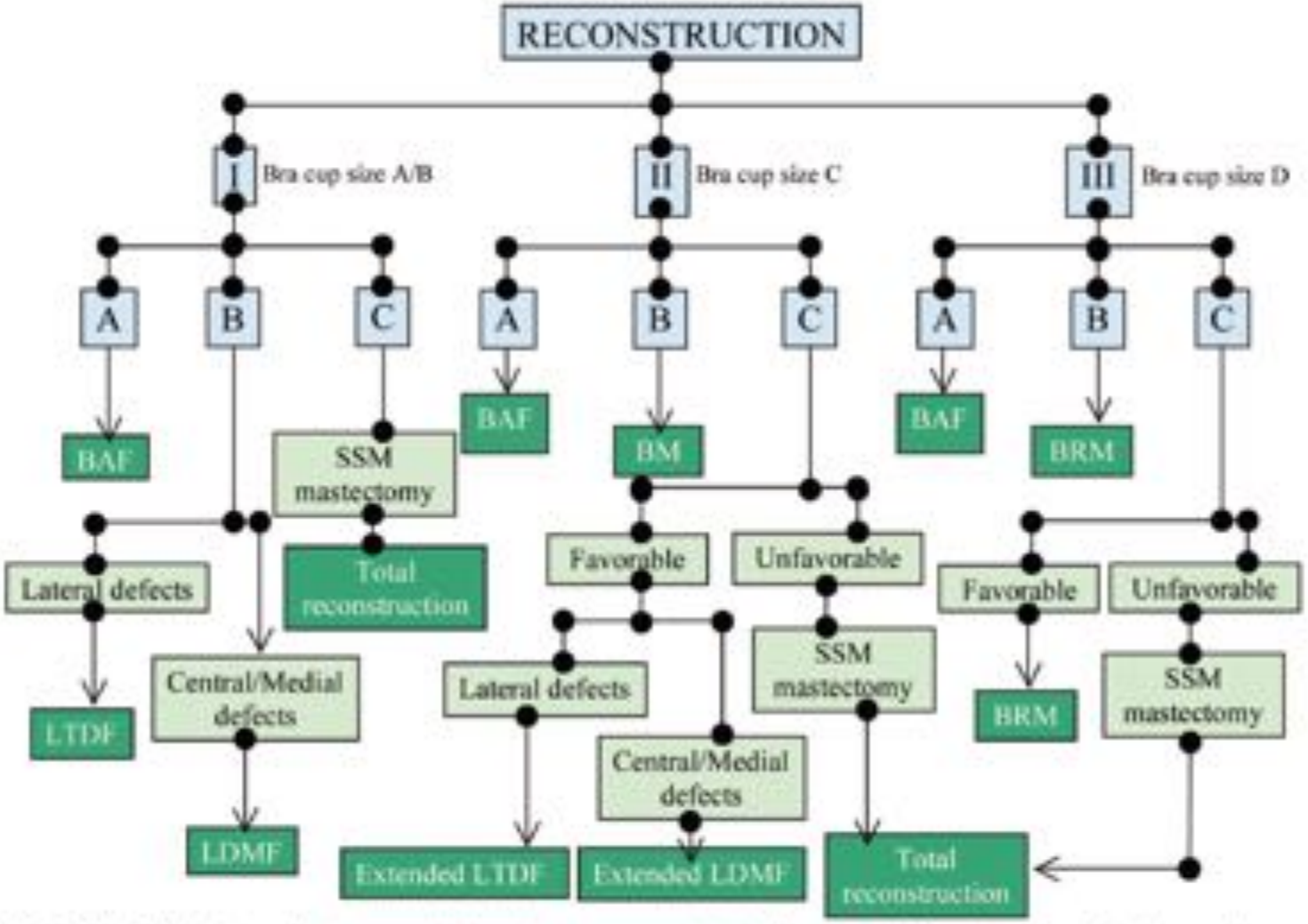


Fig. 2. Algorithm for immediate conservative breast surgery reconstruction based on the breast type, tumor location, and reconstructive options. BAF, breast tissue advancement flap; SSM, skin-sparing mastectomy; BM, bilateral mastectomy; BRM, bilateral reduction mammaplasty; LTDF, lateral thoracodorsal flap; LDMF, latissimus dorsi myocutaneous flap.

Practical Guidelines for Repair of Partial Mastectomy Defects Using the Breast Reduction Technique in Patients Undergoing Breast Conservation Therapy

Steven J. Kronowitz, M.D.
Kelly K. Hunt, M.D.
Henry M. Kuerer, M.D.
Eric A. Strom, M.D.
Thomas A. Buchholz, M.D.
Joe E. Ensor, Ph.D.
Cindy A. Kountz, M.S., P.A.-C.
Geoffrey L. Robb, M.D.

Houston, Texas

Background: The authors previously compared the local tissue rearrangement, breast reduction, and latissimus dorsi flap reconstruction techniques for repairing partial mastectomy defects and showed the benefits of breast reduction.
Methods: In this study, the authors focused solely on factors influencing outcome in 41 patients who underwent repair of a partial mastectomy defect using breast reduction.
Results: Tumor location had a significant effect on the design of the parenchymal pedicle ($p = 0.05$). Most repairs were performed with an inferior pedicle. Fifty percent of the lower outer and central quadrant tumors required an amputative design with a free nipple graft. The complication rates for immediate and delayed repair were 24 and 50 percent, respectively. The superior pedicle was associated with the highest complication rate. Tumors in the upper outer

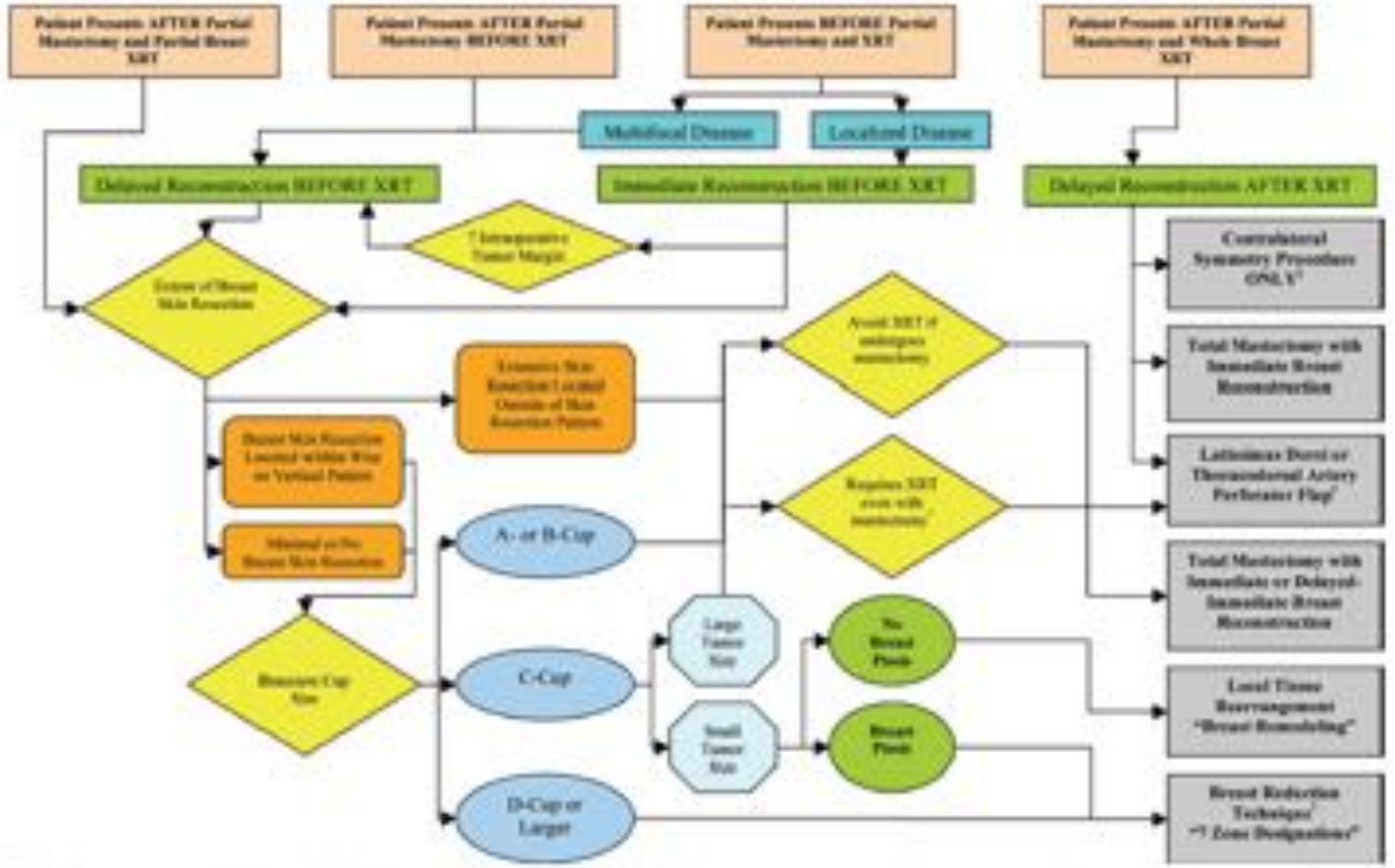


Fig. 1. Management algorithm for repair of partial mastectomy defects. *Scenario of patient who undergoes neoadjuvant chemotherapy with reduction of tumor size and becomes amenable to breast-conserving therapy instead of mastectomy. †Prior to radiation therapy, only perform the breast reduction on the ipsilateral involved breast, and then 6 months or more later, use the same pedicle design as used to repair the ipsilateral breast to perform the breast reduction for symmetry on the contralateral breast. ‡Most applicable to patients with partial defects located in zone 6 or 7 of the breast. §When performing a contralateral breast reduction for symmetry procedure only, allow for adequate time for the involved breast to achieve a steady state with regard to volume before performing the procedure. XRT, radiation therapy.

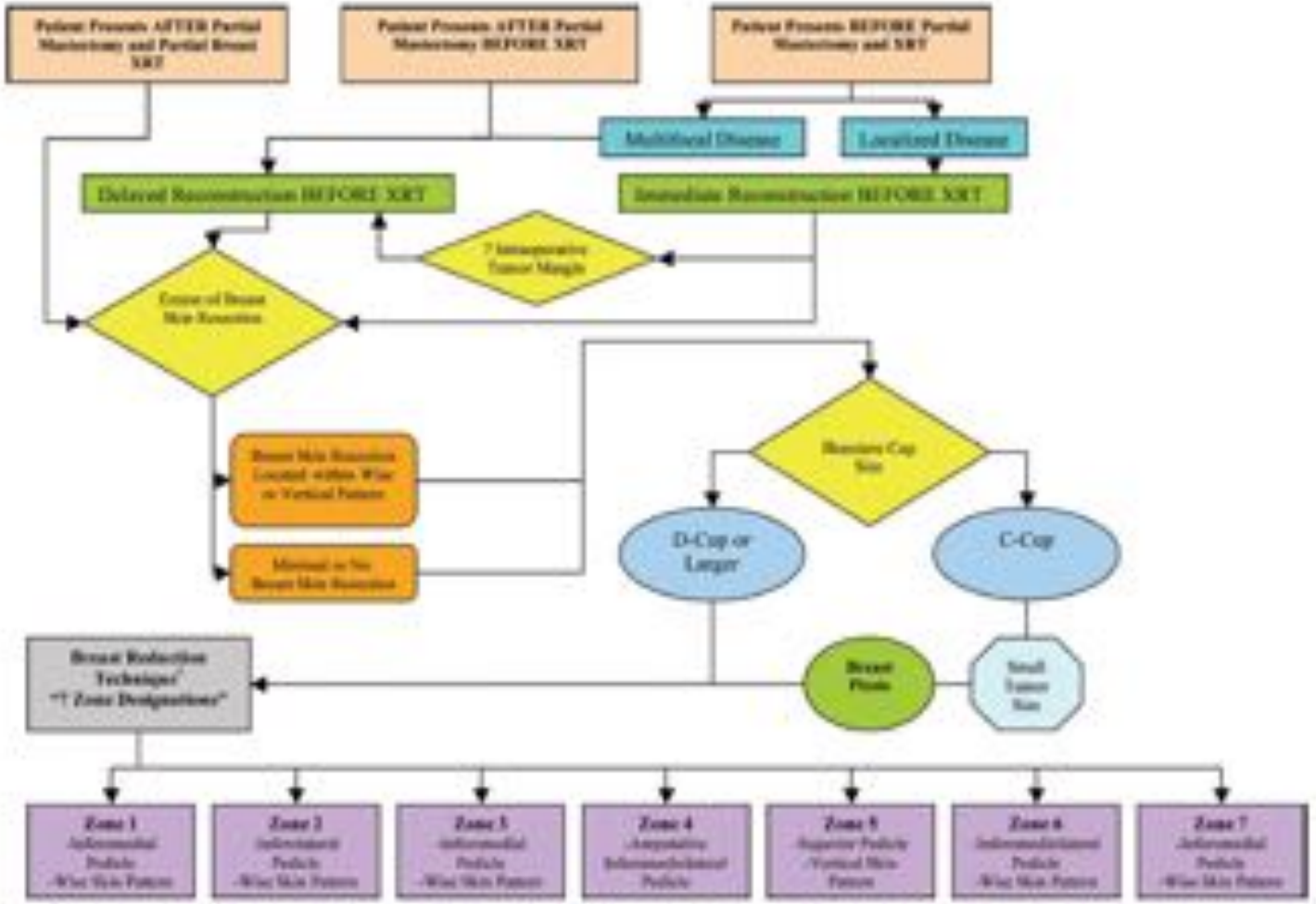
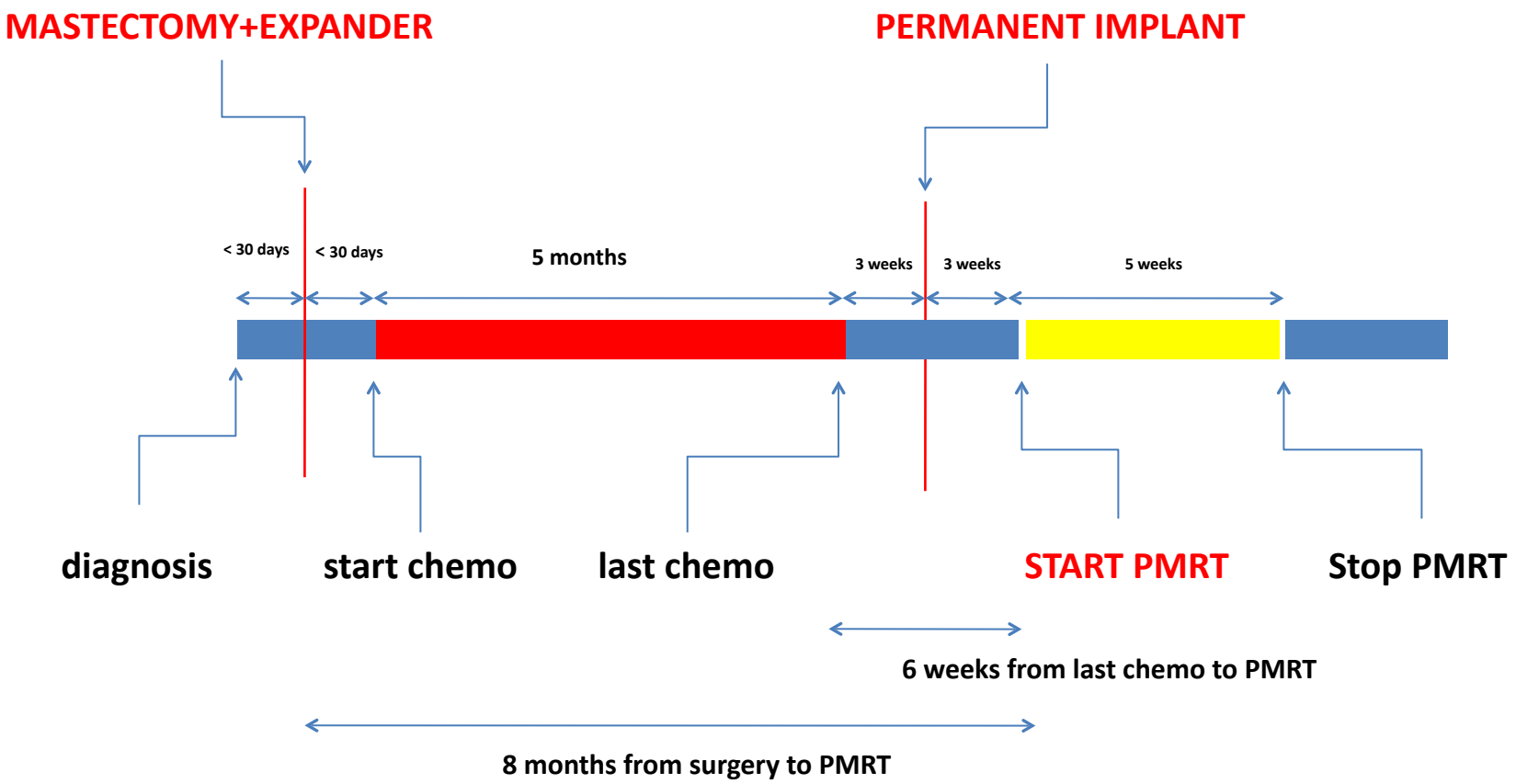


Fig. 2. Management algorithm for patients undergoing breast conservation therapy who may be candidates for oncoplastic breast reduction techniques. Many of the same considerations that are addressed in Figure 1 are also included within this algorithm, which was specifically designated for patients who are being considered for repair of a partial mastectomy defect with the breast reduction technique. However, absent are patients who present after partial mastectomy and whole-breast radiation therapy because of the high rate of associated wound healing complications. Another distinguishing feature of this algorithm is that it provides specific recommendations for design of the dermoglandular pedicle, based on tumor location. †Prior to radiation therapy, only perform the breast reduction on the ipsilateral involved breast, and then 6 months later, use the same pedicle design as used to repair the ipsilateral breast to perform the breast reduction for symmetry on the contralateral breast. XRT, radiation therapy.

The use of post-mastectomy radiotherapy and its integration with reconstructions



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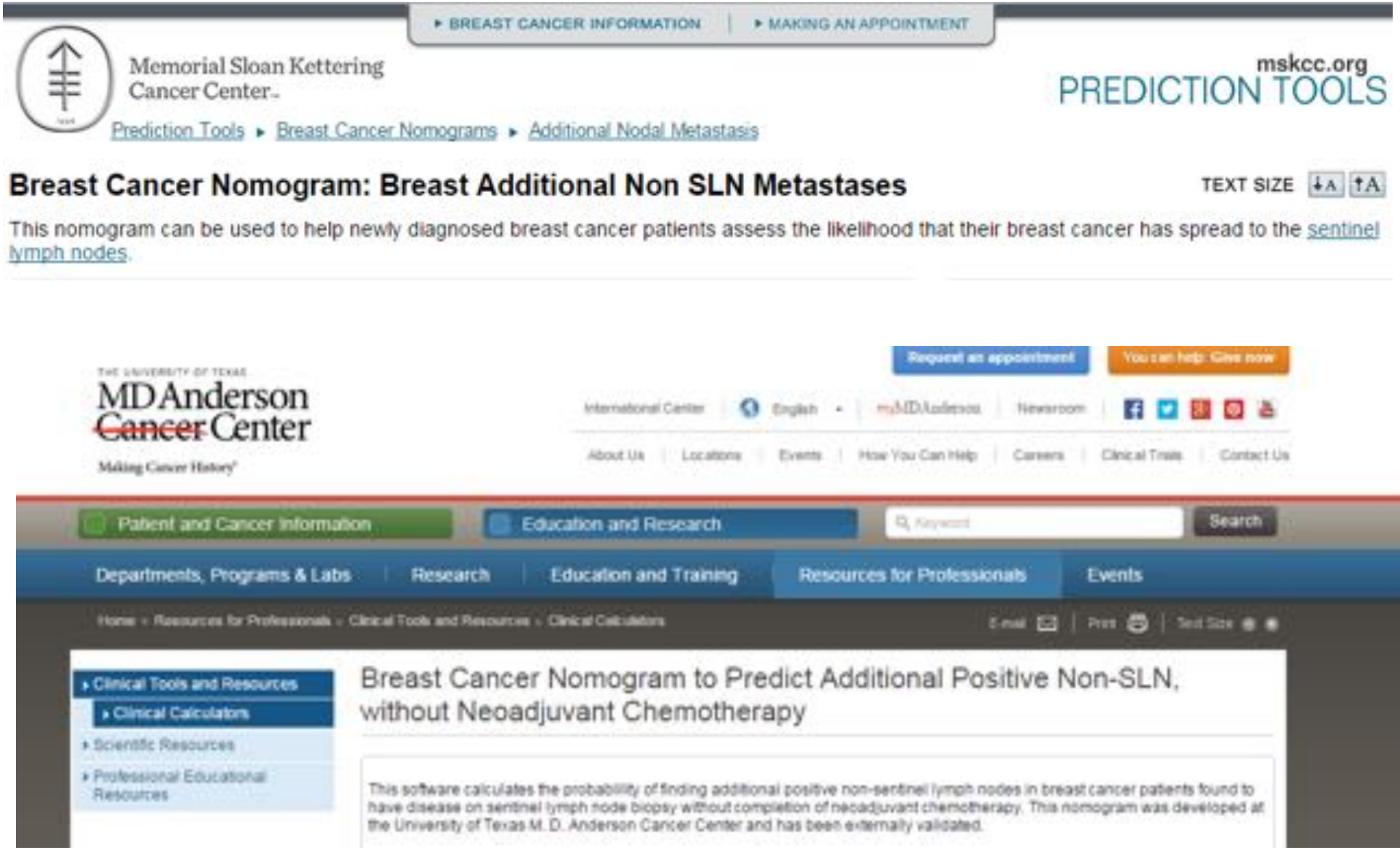
NCCN Guidelines Version 2.2015
Invasive Breast Cancer

NCCN Guidelines Index
Breast Cancer Table of Contents
Discussion

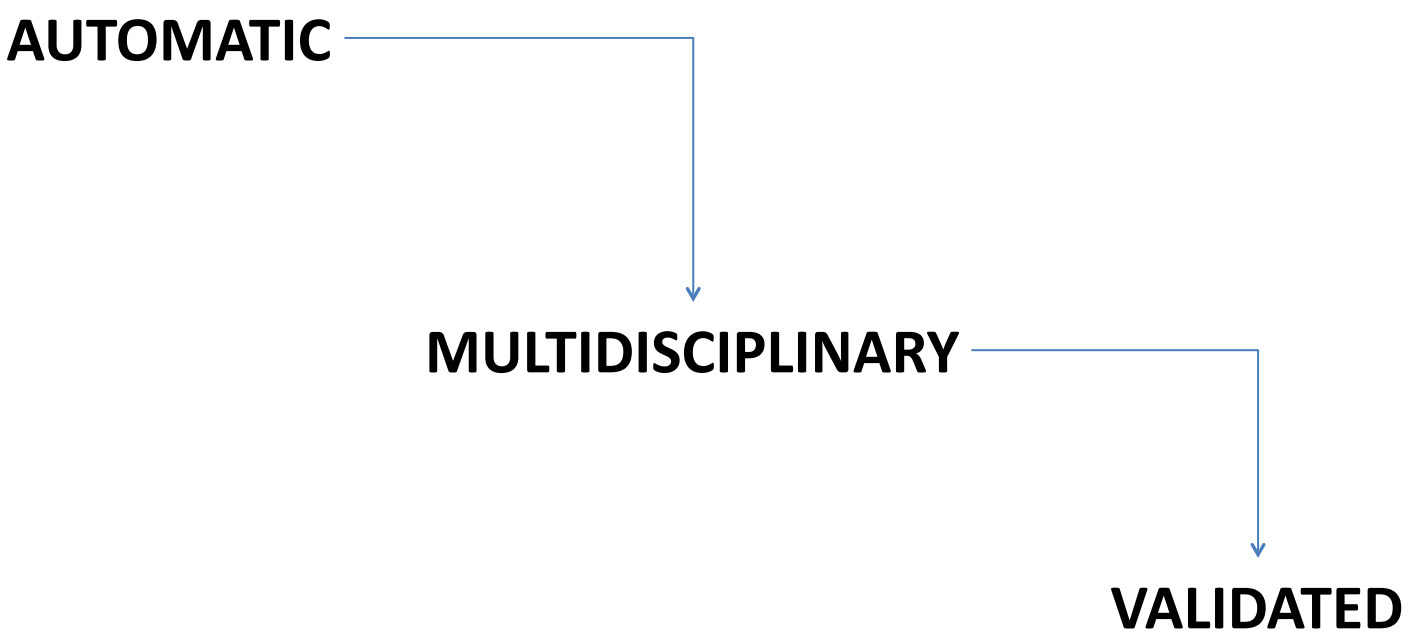
PREOPERATIVE SYSTEMIC THERAPY FOR LOCALLY ADVANCED INVASIVE BREAST CANCER (NON-INFLAMMATORY)

[n] See Principles of Breast Reconstruction Following Surgery (BINV-H).
[p] See Principles of Radiation Therapy (BINV-I).
[gg] A number of chemotherapy regimens have activity in the preoperative setting. In general, those chemotherapy regimens recommended in the adjuvant setting may be considered in the preoperative setting. See Neoadjuvant/Adjuvant Chemotherapy (BINV-K). If treated with endocrine therapy, an aromatase inhibitor is preferred for postmenopausal women.
[hh] Patients with HER2-positive tumors should be treated with preoperative systemic incorporating trastuzumab for at least 9 weeks of preoperative therapy. See Neoadjuvant/Adjuvant Chemotherapy (BINV-K).
[ii] A pertuzumab-containing regimen may be administered preoperatively to patients with greater than or equal to T2 or greater than or equal to N1, HER2-positive breast cancer.
[jj] Administration of all chemotherapy prior to surgery is preferred.
[kk] See Definition of Menopause (BINV-L).


BREAST CANCER INFORMATION
MAKING AN APPOINTMENT
Memorial Sloan Kettering Cancer Center
mskcc.org
PREDICTION TOOLS
Prediction Tools ▸ Breast Cancer Nomograms ▸ Additional Nodal Metastasis
Breast Cancer Nomogram: Breast Additional Non SLN Metastases
TEXT SIZE
This nomogram can be used to help newly diagnosed breast cancer patients assess the likelihood that their breast cancer has spread to the sentinel lymph nodes.
THE UNIVERSITY OF TEXAS
MD Anderson Cancer Center
Making Cancer History
Request an appointment
You can help: Give now
International Center
English
myMDAnderson
Newsroom
About Us
Locations
Events
How You Can Help
Careers
Clinical Trials
Contact Us
Patient and Cancer Information
Education and Research
Search
Departments, Programs & Labs
Research
Education and Training
Resources for Professionals
Events
Home › Resources for Professionals › Clinical Tools and Resources › Clinical Calculators
Email
Print
Text Size
Clinical Tools and Resources
Clinical Calculators
Scientific Resources
Professional Educational Resources
Breast Cancer Nomogram to Predict Additional Positive Non-SLN, without Neoadjuvant Chemotherapy
This software calculates the probability of finding additional positive non-sentinel lymph nodes in breast cancer patients found to have disease on sentinel lymph node biopsy without completion of neoadjuvant chemotherapy. This nomogram was developed at the University of Texas M. D. Anderson Cancer Center and has been externally validated.

THE ARCHITECTURE OF OUR PROJECT : The Oncoplastic Framework

How to deal with complexity in breast cancer surgery



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STEP 1: the selection of ENDPOINTS

Endpoint 1: Safe removal of breast cancer on negative margins

Endpoint 2: design surgery to preserve cosmetic outcome and Q.o.L

Endpoint 3: Let the patient be at the center of the process

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Step 2: How can we address these endpoints

1: Creation of a set of decisional drives

2: Combination according to current standards and previous personal studies: MANUAL COMBINATION

3.Visualization and analysis of the flow chart / creation of the DSS tool

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The cluster of decisional drivers

T- Stage or Multi-centric disease	Location*	Volume	Ptosis	Risk of margin+°	Pt wishes
T>2cm	Central	Minimal	Nil	High	Mastectomy
T<2cm	Upper	Medium	Moderate	Intermediate	Max. reshape
Extensive DCIS	Lower	Large	Severe	Low	Min. Aggressiveness
LABC	Upper outer	Very Large			
DCIS<4cm	Upper Inner				
MULTICENTRIC	Lower outer				
	Lower inner				

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Identification of FOUR subgroups

- **ESBC:** full set of drivers including risk of positive margins (2268 combinations)
- **Localized DCIS<4cm:** full set except risk of +margins (252 combinations)
- **Multicentric ESBC and ext. DCIS:** Exclusion of «Location» (36 combinations)
- **LABC:** Exclusion of «Location»- «Volume» - «Ptosis» (36 combinations)

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Information gain on the four subgroups

Unifocal invasive ESBC

T	GAIN= 0.858487793387
Sede	GAIN= 0.75121949299
Volume	GAIN= 0.99903913739
Ptosis	GAIN= 0.363660816584
Risk of margin+	GAIN= 0.0331718273945
Pt wishes	**GAIN= 1.18641558197**

localized DCIS

T	GAIN= 0.6248549757
Sede	GAIN= 0.5593845630
Volume	GAIN= 0.7905348966
Ptosis	GAIN= 0.219430856
Pt wishes	**GAIN=1.09847556**

Caso LABC

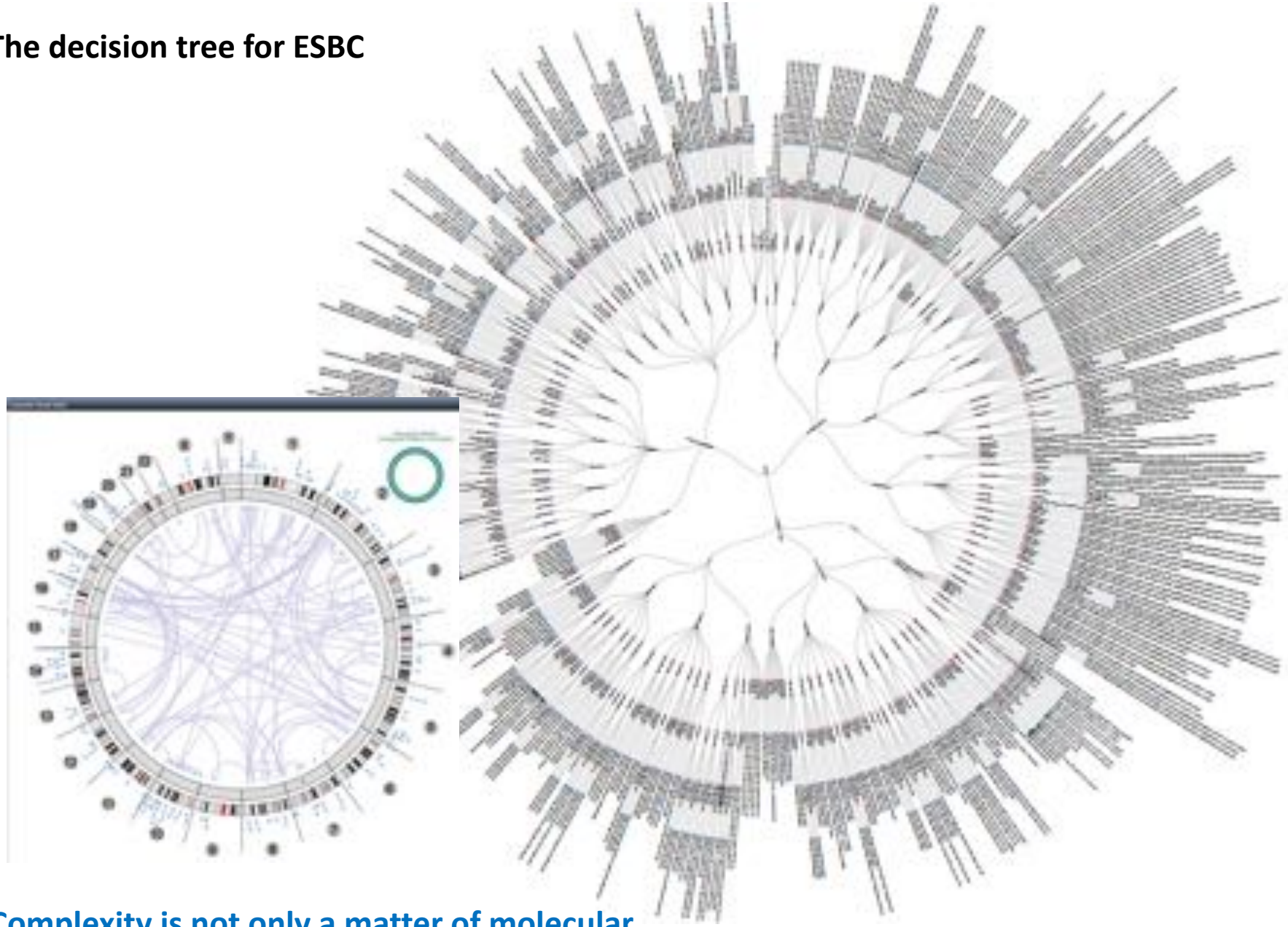
T	GAIN= 0.912948676
Volume	GAIN= 1.003948575755
Ptosis	GAIN= 0.459385976897
Pt wishes	**GAIN= 1.293848556676**

Caso Ext_DCIS

T	GAIN= 0.919838958
Volume	GAIN= 0.8927374758
Ptosis	GAIN= 0.23938598966
Pt wishes	**GAIN= 1.00011938596**

The formal analysis revealed that patients' whises are the root of The decision process

The decision tree for ESBC



Complexity is not only a matter of molecular biology

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Step 3: Can we really use this tool in clinical practice

1:Pilot study on a short cohort

2: inter/intraoperator concordance

3: Suggested decision actual decision concordance

4:Assessment of post breast conservation defects

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Clinical evaluation of drivers

T- Stage or Multi-centric disease	→ Standard triple assessment: C.E./imaging/Core B
Location*	→ Imaging/ C.E.
Volume Ptosis	→ Cup size/ Regnault Classification
Risk of margin+°	→ 

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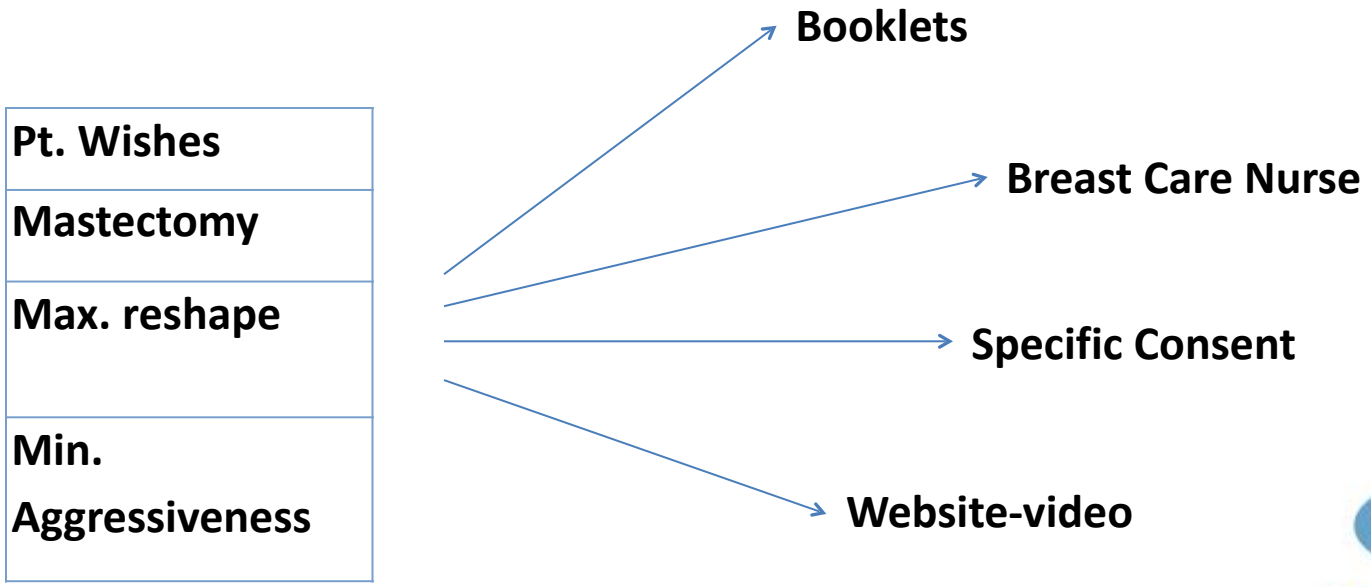
Clinical evaluation



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Clinical Testing: subgroups

SUBGROUPS Mean (%)	
ESBC	39 (77)
DCIS < 4 cm	2 (3.8)
MULTICENTRIC ESBC/ Extensive DCIS	8 (15.4)
LABC	2 (3.8)

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Clinical Testing: concordance

Comparison	Observed concordance (95% C.I.)
EXPERT TP1 vs. EXPERT TP2	0.98 (0.90 to 1.00)
EXPERT VS NON EXPERT	0.88 (0.77 to 0.96)
DSS SUGGESTION vs ACTUAL DECISION	0.69 (0.55 to 0.81)

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Clinical testing: Comparison of Baseline Characteristics of patients presenting concordance between Expert User "OF" assessment and Actual Decision and those without concordance (ESBC patients only).

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	Concordance (N=28)	No concordance (N=14)	P-value
Age years, mean (SD)	50.1 (12.8)	62.1 (16.0)	0,012
EXTENT OF DISEASE			0,256
Breast Location			0,176
Breast Volume			0,928
Ptosis			0,088
Risk of positive margins			**0,014**
LOW	12 (42.9)	13 (92.9)	
INTERMEDIATE	5 (17.9)	1 (7.1)	
HIGH	7 (25.0)	0 (0)	
N/A	4 (14.3)	0 (0)	
Patient's wishes			0,052
FITOUSSI SCORE			0,002
1	18 (64.3)	7 (50.0)	
2	2 (7.1)	3 (21.4)	
3	0 (0)	4 (28.6)	
N/A	8 (28.6)	0 (0)	

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N. of sessions to reach a decision: 3.4

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Strenghts of our system

Automatic tool - no more complex flowcharts

Patient's wishes at the center of the decision process

Integration with adjuvant and neo-adjuvant treatment

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Limitations of our system

More drivers to be introduced: Age-Comorbidities etc.

Lengthy process

Clinical validation still required with comparative trials including evaluation of cosmetic outcome, q.o.l. , safety and oncological outcome