Oncoplastic and Reconstructive Surgery
Plastic-reconstructive aspects after mastectomy

- **Versions 2002–2019:**
  Audretsche / Bauerfeind / Blohmer / Brunnert / Dall / Ditsch / Fersis / Friedrich / Gerber / Hanf / Kümmel / Lux / Nitz / Rezai / Rody / Scharl / Solbach / Thomssen

- **Version 2020:**
  Blohmer / Kühn

Pubmed 2003 - 2017
Cochrane data base (z.B. Cochrane Breast Cancer Specialised Register)
Suchbegriffe: breast reconstruction; ... AND random allocation, ... AND cohort study

Einteilung in EBM-Grade nach

Verwendete Guidelines zu Diagnostik und Therapie des Mammakarzinoms
National Institute of Health (NIH) – National Cancer Institute:
http://www.cancer.gov/cancertopics/pdq/treatment/breast/HealthProfessional/
American Association of Clinical Oncology (ASCO) and Technology Assessments:
http://www.asco.org/portal/site/ASCO/menuitem. (Practice Guidelines),
Canadian Medical Association (CMA): http://www.cmaj.ca/cgi/content/full/158/3/DC1
NCCN 2016
Regeln zur Überarbeitung der AGO Empfehlungsdihas_S tand 01/ 2019


3. Optimizing breast cancer adjuvant radiation and integration of breast and reconstructive surgery. Kuerer H, et al. ASCO Educational Book 2017; Memorial Sloan Kettering Cancer Center, Fig. 2 und 3

Breast Reconstruction
Principles - AGO: ++

1. AWMF Leitlinien: S3-LL. Brustrekonstruktion mit Eigengeweb. Registernummer 015 – 075, Stand: 01.04.2015 , gültig bis 31.03.2020


Cochrane Database Syst Rev. 2011; (7):CD008674.


Timing of implant Based Reconstruction and Radiotherapy

- **Implant Rekonstruktion (IR)**
  - IR without radiotherapy
  - IR prior to radiotherapy
  - IR following radiotherapy
  - IR following secondary mastectomy (after BCS* with radiotherapy)
  - Perioperative antibiotic prophylaxis
    - (at least 24 hours)

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* BCS: Breast Conserving Surgery


7. Prosthetic breast reconstruction in previously irradiated breasts: A meta-analysis. Lee KT, Mun GH. J


19. Patient-reported cosmetic satisfaction and the long-term association with quality of life in irradiated breast cancer patients.
patients M. C. T. Batenburg · M. L. Gregorowitsch · W. Maarse · A et al. behalf of the UMBRELLA study group. Breast Cancer Research and Treatment https://doi.org/10.1007/s10549-019-05470-y


Possible Associations between Implants and rare Diseases

- US FDA Breast Implant Postapproval Studies (LPAS)
  **Long-term Outcomes in 99,993 Patients**
  (Primary Augmentation: N= 71,937 / Primary Reconstruction: N= 9942)
  - 56% of implants were silicone implants
- Possible Associations:
  - Sjogren syndrome: (SIR*8.14)
  - scleroderma: (SIR 7.00)
  - rheumatoid arthritis: (SIR 5.96)
  - stillbirth: (SIR 4.50)
  - melanoma: (SIR 3.71)
- At 7 years, reoperation rate is 11.7% for primary augmentation, and 25% for primary/revision reconstruction.
- One case of BI-ALCL

*Standardized incidence ratio

Associations need to be further analyzed with patient-level data to provide conclusive evidence!

New Background slide

**Statistical Analysis:**

LPAS data is expressed relative to normative population rates using standardized incidence ratios (SIRs)

Systemic harm rates in the study population are calculated per 10,000 person-years.

Normative population rates for systemic harms, self-harm, and reproductive outcomes are obtained from the literature; rates reflect LPAS demographics for female sex, age, and race in the United States.

New Background slide

Breast Implant Associated Anaplastic Large Cell Lymphoma (BIA-ALCL)

- Rare disease, 3% of Non-Hodgkin Lymphomas, 0.04-0.5% of all malignant breast diseases
- Estimated incidence 0.6-1.2 / 100,000 women with implants (median age: 54 y)
- Mainly associated with textured implants
- Interval to diagnosis: 8 years (median)
- Clinical symptoms
  - Swelling and seroma (60%)
  - Solid tumor (17%)
  - Seroma and solid tumor (20%)
- Histology: CD30+ / ALK-T-Cell Lymphoma
- Compulsory registration as SAE (§3 MPSV to BfArM)

Reviews


Breast Implant-Associated Anaplastic Large-Cell Lymphoma (BIA-ALCL) - Summary of the Management (acc. to Noah 2017) -

1. Periprosthetic seroma or tumor mass > 1 year after implant placement
   - Exclude trauma or infection
   - Ultrasound / sonography
   - Seroma aspiration and cytology (when suspicious: CD30-IHC)
     - Suspicious
     - +ALCL
   - Operative exploration with biopsy of the capsule

2. Tumor mass
   - Tumor board discussion

3. Confirmed ALCL cases
   - Tumor board discussion
   - Complete operative capsulectomy, tumor excision according to oncological standards
   - Lymph node removal in case of suspicion, no new implants, possibly also contralaterally
   - Complete Resection
   - Clinical follow-up: Ultrasound and CT every 6 months for 2 years, then annually for 5 years
   - R3 or positive lymph nodes
   - Chemotherapy: CHOP, possibly Immunotherapy +/-...
Stage Adapted Therapy of BIA-ALCL

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<th>Stage</th>
<th>Description</th>
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<td>IA-IC/(IIB):</td>
<td>Surgical complete resection of capsula, implant, suspected nodular lesions and, only if suspicious, regional lymph nodes no indication for mastectomy, sentinel node extirpation or axillary dissection</td>
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<td>N1A/IIB-IV:</td>
<td>2-18%</td>
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<td>N1</td>
<td>Surgical complete resection (see above)</td>
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<td>N2</td>
<td>CHOEIP (Cyclophosphamide, Vincristin, Doxorubicin, Prednison) +/- Etoposid</td>
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<td>N3</td>
<td>Brentuximab Vedotin (Adcetris) antibody-drug-conjugate (ADC) containing monovalent antibody against human CD30 antigen and 3-5 molecules of cytostatic drug Monomethylauristatin E</td>
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<tr>
<td>M0</td>
<td>CHT &amp; stem cell transplantation</td>
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<tr>
<td>M1</td>
<td>Only in for patients with incomplete resection and advanced stages</td>
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Despite an increase of BIA-ALCL in association with texture implants the use of textured implants is still permitted!

„For the moment, textured implants can safely continue to be used with patient’s fully informed consent, and that women that have these type of implants already in place don’t need to remove or substitute them, which would undoubtedly cause harm to many tens of thousands of women, to prevent an exceptionally rare, largely curable and currently poorly understood disease.”

Cardoso MJ, Wyld L, Rubio IT, et al EUSOMA position regarding breast implant associated anaplastic large cell lymphoma (BIA-ALCL) and the use of textured implants.


7. Clinical outcome and patient satisfaction with the use of bovine-derived acellular dermal matrix


**Lipotransfer**

- Lipotransfer following mastectomy and reconstruction
- Lipotransfer after BCS*
- Autologous adipose derived stem cells (ASCs)-enriched fat grafting

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*BCS: Breast Conserving Surgery

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1. AWMF-Leitlinie „Autologe Fetttransplantation“, Klasse: S2k Registernummer: 009/017, 11/2015
8. Oncological outcomes of lipofilling breast reconstruction: 195 consecutive cases and literature


6. Tamoxifen may increase the risk of microvascular flap complications. Surgeons should consider


17. A Multicenter Analysis Examining Patients Undergoing Conversion of Implant-based Breast Reconstruction to

1. AWMF Leitlinien: S3-LL. Brustrekonstruktion mit Eigengewebe. Registernummer 015 – 075, Stand: 01.04.2015, gültig bis 31.03.2020


7. Autologous options for postmastectomy breast reconstruction: a comparison of outcomes based on muscle-sparing techniques and accuracy of abdominal wall closure lead to low rates of late donor site complications independent of method used. Autologous abdominal-based reconstructions have highest satisfaction rates (PROM) in all patient groups. Donor site morbidity (e.g. impaired muscle function) has to be taken into consideration with all flap techniques.


Flap-implant combination

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<td>IR following RT</td>
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<td>Additional flap techniques + implant</td>
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**Advantages:**
- TRAM: staged procedure preferable
- Improved implant coverage
- Suitable for irradiated tissue

**Disadvantage:**
- Muscle contraction (LDF)

* LDF = Latissimus dorsi flap


Skin-/nipple-sparing Mastectomy (SSM/NSM) and Reconstruction

- **Skin-/nipple-sparing Mastectomy (SSM/NSM)**
  - Safe (same recurrence rate as MX)
  - Higher QoL for patients
  - NAC can be preserved under special conditions
    - Feasible after mastectomy / reduction mammoplasty
    - Use of ICG* to predict necrosis of the skin
  - Skin incisions - different possibilities:
    - Periareolar
    - Hemi-periareolar with/without medial/ lateral extension
    - Reduction pattern: „inverted-T“ or vertical
    - Inferior lateral approach, inframammary fold
    - Lowest incidence of complications

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* ICG = Indocyanine Green


6. Nipple-sparing mastectomy using a hemi-periareolar incision with or without minimal medial-lateral extensions; clinical outcome and patient satisfaction: A single centre prospective observational study.


## Surgical Prevention for Healthy Female BRCA1/2 Mutation Carriers

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<td>- Reduces OvCa incidence and mortality</td>
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<td>- Reduces overall mortality</td>
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<td>Risk-reducing bilateral mastectomy (RR-BM)</td>
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<td>- Reduces BC incidence</td>
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<td>- Reduces BC mortality in BRCA1 mutation carriers***</td>
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**The RR-BSO is recommended from about 35 years for BRCA1 and from about 40 years for BRCA2 mutation carriers, taking into account the age of ovarian cancer diagnosis in the family and the family planning status.***

***No reduction in mortality could be shown for BRCA2 mutation carriers. RRM counselling should be individualised.

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Forms of risk-reducing (bilateral) mastectomy (RRBM)

RRBM reduces breast cancer incidence;** bc-spec mortality also likely reduced

- Simple mastectomy
- RRBM by SSM*
- RRBM by NSM* (NAC# sparing)
- Contralateral prophylactic mastectomy

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* SSM / NSM: Skin-/Nipple-Sparing Mastectomy
# NAC: nipple-areola complex
** depending on prior illnesses, e.g. pre-existing ovarian cancer 1-2% (stage III-IV)


