Diagnosis and Treatment of Patients with Primary and Metastatic Breast Cancer

Guidelines Breast
Version 2018.1

Breast Cancer Surgery
Oncological Aspects

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Oncological Aspects

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- **Versionen 2002–2017:**
  Bauerfeind / Blohmer / Böhme / Brunnert / Costa / Fersis / Gerber / Hanf / Janni / Junkermann / Kaufmann / Kühn / Kümmel / Nitz / Rezai / Simon / Solomayer / Thomssen / Thill / Untch / Kühn / Rezai
- **Version 2018:**
  Bauerfeind/Gerber

Breast Cancer Surgery
Oncological Aspects

AGO: ++

Surgery is one sub-step out of multiple steps in breast cancer treatment. Thus, both a diagnostic and an oncological expertise are indispensable and are an essential requirement.

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Pretherapeutic Assessment of the Breast and the Axilla

	Oxford LoE	Oxford GR	Oxford AGO
▪ Clinical examination	5	D	++
▪ Mammography	2b	B	++
▪ Mammography	3b	B	+
▪ Mammography + Tomosyntheses + Sonography	3b	B	+
▪ Mammography + Tomosyntheses + Sonography added MR	3b	B	-
▪ Sonography	2b	B	++
▪ Axilla + FNP/CNB	2b	B	++
▪ Minimally invasive biopsy*	1b	A	++
▪ MRI**	1b	B	+/-

* Histopathology of lesions if relevant for treatment

** MRI-guided vacuum biopsy is mandatory in case of MRI-detected additional lesions. Individual decision for patients at high familiar risk, with dense breast (density 3-4/diagnostic assessability C-D), lobular invasive tumors, suspicion of multilocular disease. No reduction in reexcision rate.

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Pretherapeutic Staging

	Oxford LoE	Oxford GR	AGO
▪ History and clinical examination	5	D	++
Only recommended in high metastatic potential and/or symptoms (in decision making for chemotherapy and/or Her 2 – therapy)			
▪ CT scan of thorax/abdomen	2b	B	+
▪ Bone scan	2b	B	+
▪ Chest X-ray	5	C	+/-
▪ Liver ultrasound	5	D	+/-
▪ FDG-PET or FDG-PET /CT	3a	C	+/-
▪ Whole body MRI	4	C	+/-
▪ Liver – MRI in case of suspected liver metastases	4	C	+

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Evidence of Surgical Procedure

	Oxford LoE	Oxford GR	AGO
▪ Survival rates after lumpectomy + XRT are equivalent to those after (modified) radical mastectomy	1a	A	
▪ Local recurrence rates after skin sparing mastectomy are equivalent to those after mastectomy	2b	B	
▪ Conservation of the NAC (nipple areola complex) is an adequate surgical procedure in tumors of the periphery of the gland and after tumor-free section of retroareolar tissue	2b	C	

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Breast Conservation: Surgical Technical Aspects

	Oxford LoE	Oxford GR	Oxford AGO
Non-palpable lesion			
▪ Wire guided localisation	2b	B	++
▪ Radionuclide guided localisation	2b	B	+/-
▪ Specimen radiography or ultrasound	2b	B	++
Tumor-free margins required (also in unfavorable biology „no ink on tumor“ are enough)	2a	A	++
Immediate intraoperative re-excision for close margins (specimen radiography and/or intra-operative pathology)	1c	B	++
Re-excision required for involved margins (paraffin section)	3b	C	+
Therapeutic stereotactic excision alone	4	D	--
Ultrasound guided surgery to prevent re-excision	1a	A	+/-
Intraop. margin evaluation with margin probe	1a	A	+

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Breast Conservation Surgery (BCS)

	Oxford LoE	Oxford GR	AGO
▪ Multicentricity	2b	B	+/-
▪ Positive microscopic margins after repeated excision	2b	B	--
▪ Inflammatory breast cancer	2b	B	--

Surgery after neoadjuvant chemotherapy
go to chapter „neoadjuvant chemotherapy“

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Axillary Lymph Node Dissection I

	Oxford LoE	Oxford GR	AGO
Axillary lymph node dissection			
To improve survival	3	D	-
For Staging	3	A	-
For local control	2a	A	+/-
Axillary lymph node dissection			
N+** (pre-surgery) without neoadjuvant systemic therapy	2a	B	+
DCIS	2b	B	-
SN + (cT1/2 cN*0; < 3 SN +, BCS + tangential radiation field, no subsequent axillary radiation, adequate systemic therapy)	1b	B	+/-
SN + (mic)	1b	A	--
SN (i+)	2b	B	--
SN + and mastectomy (no radiotherapy of the chestwall)	1b	B	+
SN + and mastectomy (radiotherapy of the chestwall)			
Only if T1, T2 and 1-2 pos. SLN	5	D	+/-
Axillary lymph node dissection indicated, but not feasible			
Irradiation according to AMAROS-trial	1b	B	+

* Study participation recommended ** histologically proven

Axillary Intervention Before or After NACT

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SLNB before or after NACT in cN0						
SLNB before NACT SLNB after NACT				**2b** **2b**	**B** **B**	**+/-** **+**
Further surgical procedures depending on SLNB status						
cN-Status (before NST)	pN-Status (before NST)	ycN-Status (after NST)	Surgical Procedure (after NST)			
cN0	pN0(sn)	-	nihil	**1a**	**A**	**+**
cN0	pN+(sn) (analog ACOSOG Z0011)	ycN0	nihil Re-SLNB alone ALND	**5** **2b** **3**	**D** **B** **B**	**+** **-** **+/-**
cN0	pN+(sn) (not analog ACOSOG Z0011)	ycN0	Re-SLNB alone ALND Axilla XRT	**2b** **2b** **2b**	**B** **B** **B**	**-** **+** **+**
cN0	not done	ypN0(SN) ycN0 ypN+(SN)	SLNB alone ALND ALND	**2b** **2b** **2b**	**B** **B** **B**	**+** **+/-** **+**
cN+	cN+ (CNB/FNA)	ycN0 ycN+	SLNB alone* ALND ALND	**2b** **2b** **2b**	**B** **B** **B**	**+/-** **+** **++**

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Improvement of the False-Negative Rate of SLNB after NACT in Patients with (cN+) (FNA/CNB)

	Oxford		
	LoE	GR	AGO
▪ Removal of > 2 SLNs	3b	C	+/-
▪ Combined tracer	3b	C	+/-
▪ IHC and serial sections	2b	B	+
▪ LN localisation (MARI* / TAD* / Tattoo)	3b	C	+/-**

* MARI = Marking Axillary LN with Radioactive Iodine Seeds;
TAD = Targeted Axillary Dissection;

** Study participation recommended

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Sentinel Lymph Node Biopsy (SLNB): Indications I

	Oxford LoE	Oxford GR	AGO
▪ Clinically / sonographically neg. axilla (cN0)	1b	A	++
▪ Add. FNA/CNB of LN (clinical/sonogr. suspicious) in order to enable SLNB	2a	B	+
▪ Presurgical lymphoscintigraphy	1b[a]	B	+/-
▪ T 1-2	2b	A	++
▪ T 3-4c	3b	B	+
▪ Multifocal / multicentric lesions	2b	B	+
▪ DCSI			
▪ Mastectomy	3b	B	+
▪ BCT	3b	B	-
▪ DCIS in male	5	D	+/-
▪ Male breast cancer	2b	B	+
▪ In the elderly	3b	B	+

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Sentinel Lymph Node Excision (SNE): Indications II

	Oxford LoE	Oxford GR	AGO
▪ During pregnancy and / or breast feeding (no blue dye)	3	C	+
▪ After previous tumor excision	2b	B	+
▪ Previous major breast surgery (e.g. reduction mammoplasty, mastectomy)	3b	C	+/-
▪ Ipsilateral breast recurrence after prior BCS and prior SNE	4	D	-
▪ SN in the mammarian internal chain	2b	B	-
▪ After axillary surgery	3b	B	+/-
▪ Prophylactic bilateral / contralateral mastectomy	3b	B	--
▪ Inflammatory breast cancer	3b	C	-

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Sentinel Lymph Node Excision (SNE): Marking

	Oxford		
	LoE	GR	AGO
▪ ^{99m}Tc Kolloid	1a	A	++
▪ Blue dye	1a	B	+/-
▪ Methylen blue	4	D	-
▪ Indocyanin green (ICG)*	2b	B	+/-
▪ SPIO#	2b	B	+/-

SPIO: Superparamagnetic Iron Oxide
* Study participation recommended

Procedure after Neoadjuvant Therapy

	Oxford		
	LoE	GR	AGO
▪ Clip & Coil marking of tumor in a timely manner	5	D	++
▪ Surgery	2b	C	++
▪ Microscopically clear margins	2	B	++
▪ Tumor resection in the new margins	2	C	+

For „Surgery after neoadjuvant chemotherapy“
see chapter „Neoadjuvant chemotherapy“

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Adjuvant Therapy after Primary Surgery

	Oxford LoE	Oxford GR	Oxford AGO
▪ Start adjuvant systemic therapy and Radiotherapy (RT) as soon as possible (a.s.a.p.) after surgery	1b	A	++
▪ Start of adjuvant chemotherapy +/- Her2 therapy after surgery a.s.a.p., and prior to RT	1b	A	++
Without cytotoxic therapy +/- anti-HER2 therapy:			
▪ Start RT 6-8 weeks after surgery	2b	B	++
▪ Start endocrine therapy after surgery and a.s.a.p.	5	D	++
▪ Endocrine therapy concurrent with radiotherapy	3b	C	+