Diagnosis and Treatment of Patients with early and advanced Breast Cancer

Guidelines Breast
Version 2022.1E

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Breast Cancer Surgery
Oncological Aspects

Breast Cancer Surgery
Oncological Aspects

Guidelines Breast
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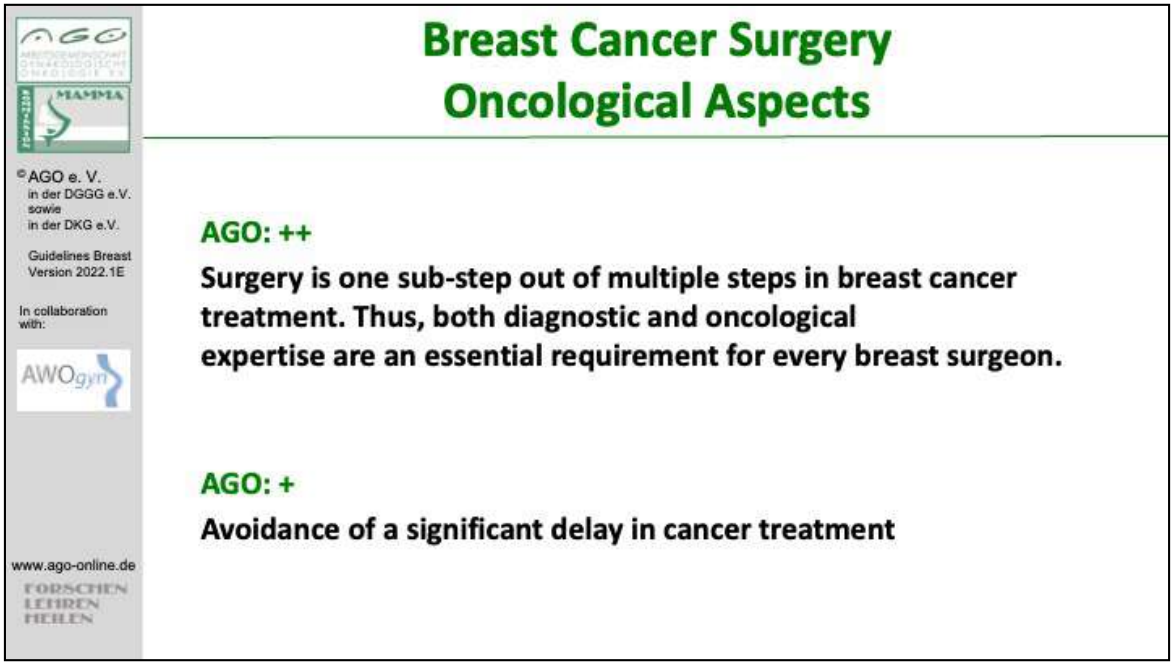
- **Versions 2002–2021:**
  Bauerfeind / Blohmer / Böhme / Brunnert / Costa / Ditsch / Fallenberg / Fersis / Friedrich / Gerber / Hanf / Janni / Junkermann / Kaufmann / Kühn / Kümmel / Möbus/ Nitz / Rezai / Simon / Solomayer / Thomssen / Thill / Thomssen / Untch / Wöckel

- **Version 2022:**
  Banys-Paluchowski / Gerber



Delay of surgical therapy:

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Surgeon:

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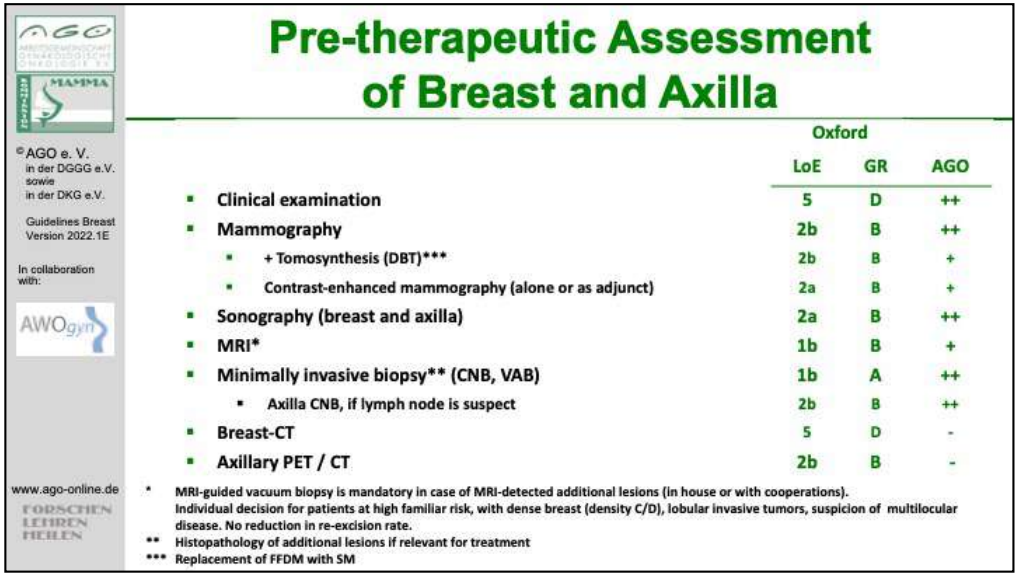

Combined DM + DBT + US + MRI

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US-Axilla +FNA/CNB

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Biopsie

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MRT

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Reviews CESM:

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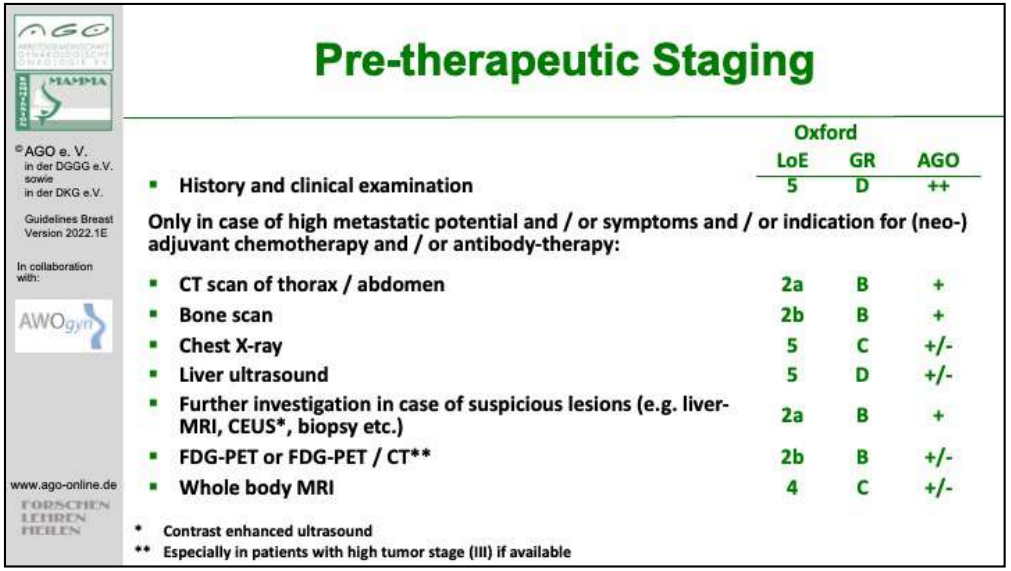

Pre-therapeutic Staging

	Oxford LoE	GR	AGO
▪ History and clinical examination	5	D	++
Only in case of high metastatic potential and / or symptoms and / or indication for (neo-) adjuvant chemotherapy and / or antibody-therapy:			
▪ CT scan of thorax / abdomen	2a	B	+
▪ Bone scan	2b	B	+
▪ Chest X-ray	5	C	+/-
▪ Liver ultrasound	5	D	+/-
▪ Further investigation in case of suspicious lesions (e.g. liver-MRI, CEUS*, biopsy etc.)	2a	B	+
▪ FDG-PET or FDG-PET / CT**	2b	B	+/-
▪ Whole body MRI	4	C	+/-

* Contrast enhanced ultrasound
** Especially in patients with high tumor stage (III) if available

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Statement: history and physical examination

1. GCP

Statement: high metastatic potential / symptoms

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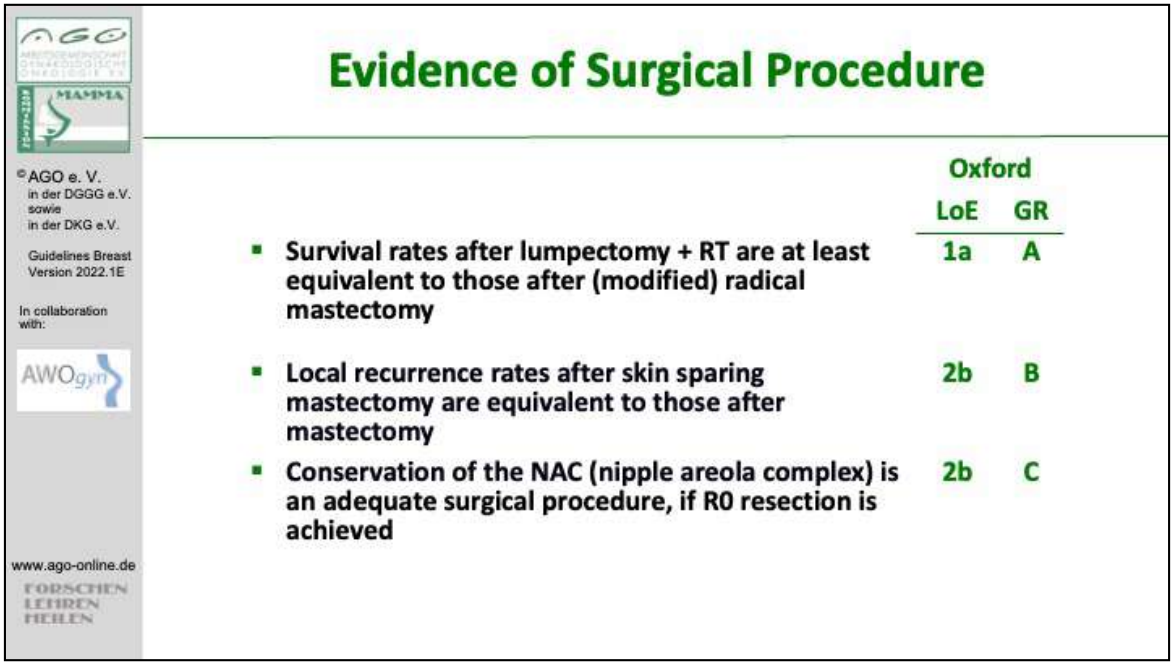

Statement: lumpectomy – mastectomy

1. Fisher B, Anderson S, Bryant J, et al. Twenty-year follow-up of a randomized trial comparing total mastectomy, lumpectomy, and lumpectomy plus irradiation for the treatment of invasive breast cancer (2002) N Engl J Med 347:1233-1241
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Statement: skin sparing mastectomy

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Statement: Nipple sparing mastectomy

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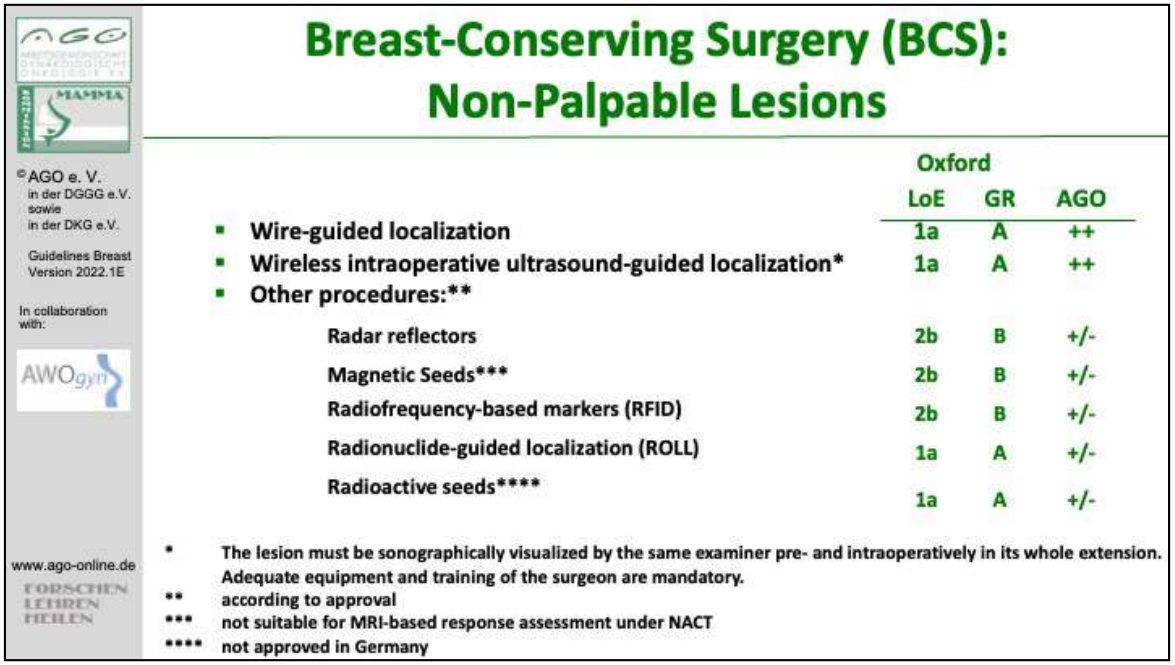

Meta-analyses of different techniques:

1. Athanasiou C, Mallidis E, Tuffaha H. Comparative effectiveness of different localization techniques for non-palpable breast cancer. A systematic review and network meta-analysis. Eur J Surg Oncol. 2021 Oct 11;S0748-7983(21)00751-4. doi: 10.1016/j.ejso.2021.10.001.
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Meta-analysis intraoperative ultrasound vs. wire-guided localization:

1. Ahmed M, Douek M. Intra-operative ultrasound versus wire-guided localization in the surgical management of non-palpable breast cancers: systematic review and meta-analysis. Breast Cancer Res Treat. 2013 Aug;140(3):435-46.
2. Pan H, Wu N, Ding H, et al. (2013) Intraoperative ultrasound guidance is associated with clear lumpectomy margins for breast cancer: a systematic review and meta-analysis. PLoS One 8:e74028. 10.1371/journal.pone.0074028
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RCTs intraoperative ultrasound vs. wire-guided localization:

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<u>Intraoperative ultrasound: cohort studies:</u>

1. Layeequr Rahman R, Puckett Y, et al. (2020) A decade of intraoperative ultrasound guided breast conservation for margin negative resection - Radioactive, and magnetic, and Infrared Oh My. Am J Surg 220:1410-1416. 10.1016/j.amjsurg.2020.09.008
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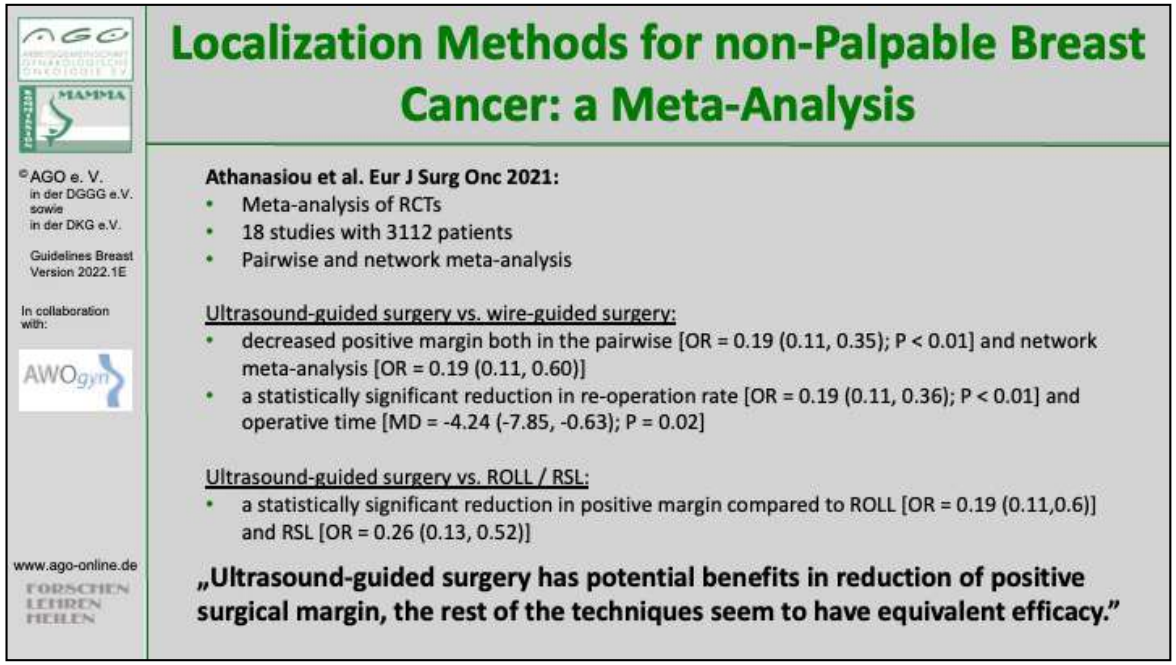

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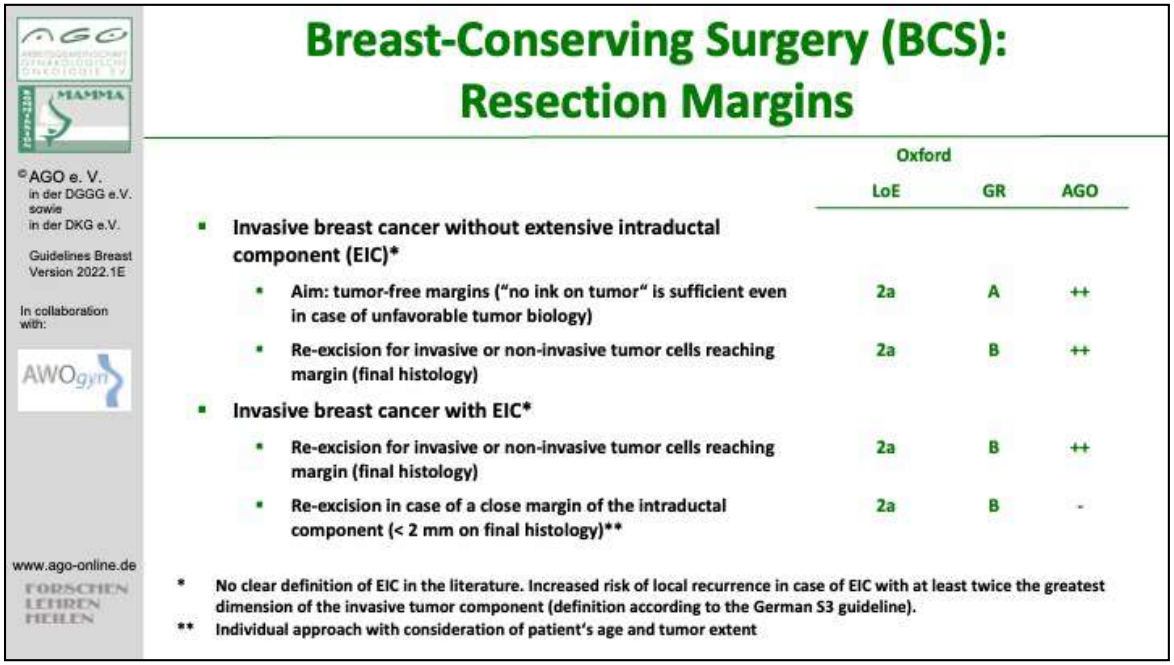

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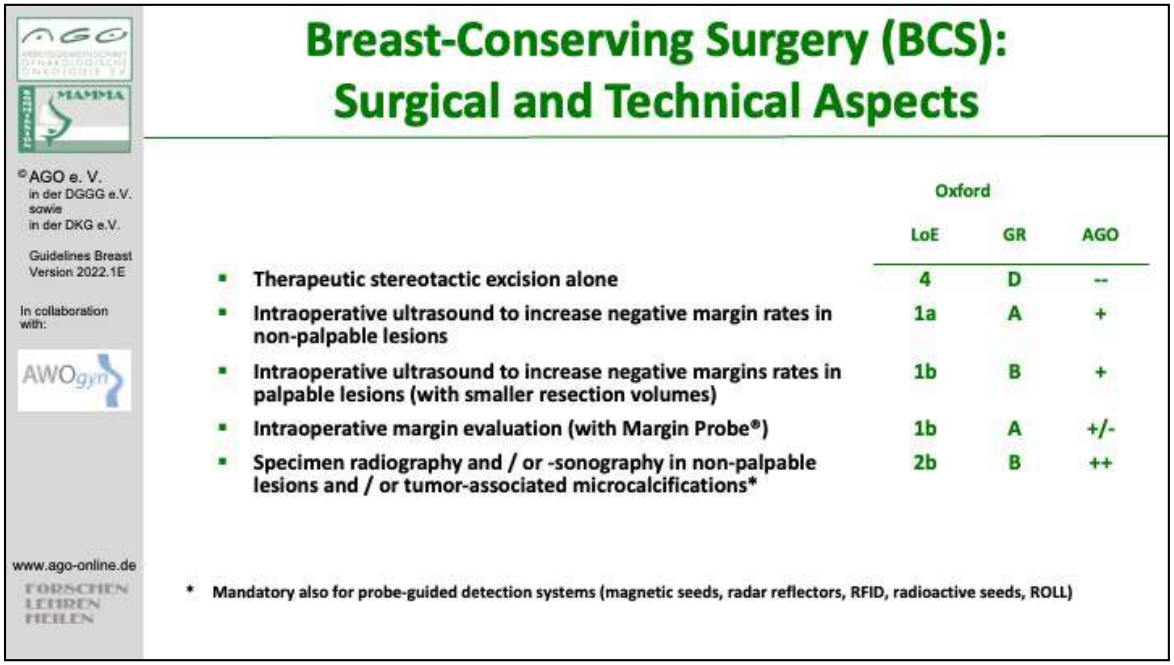

<u>Statement: stereotactic excision alone ...</u>

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1. Volders JH, Haloua MH, Krekel NM et al. (2017) Intraoperative ultrasound guidance in breast-conserving surgery shows superiority in oncological outcome, long-term cosmetic and patient-reported outcomes: Final outcomes of a randomized controlled trial (COBALT). Eur J Surg Oncol 43:649-657. 10.1016/j.ejso.2016.11.004
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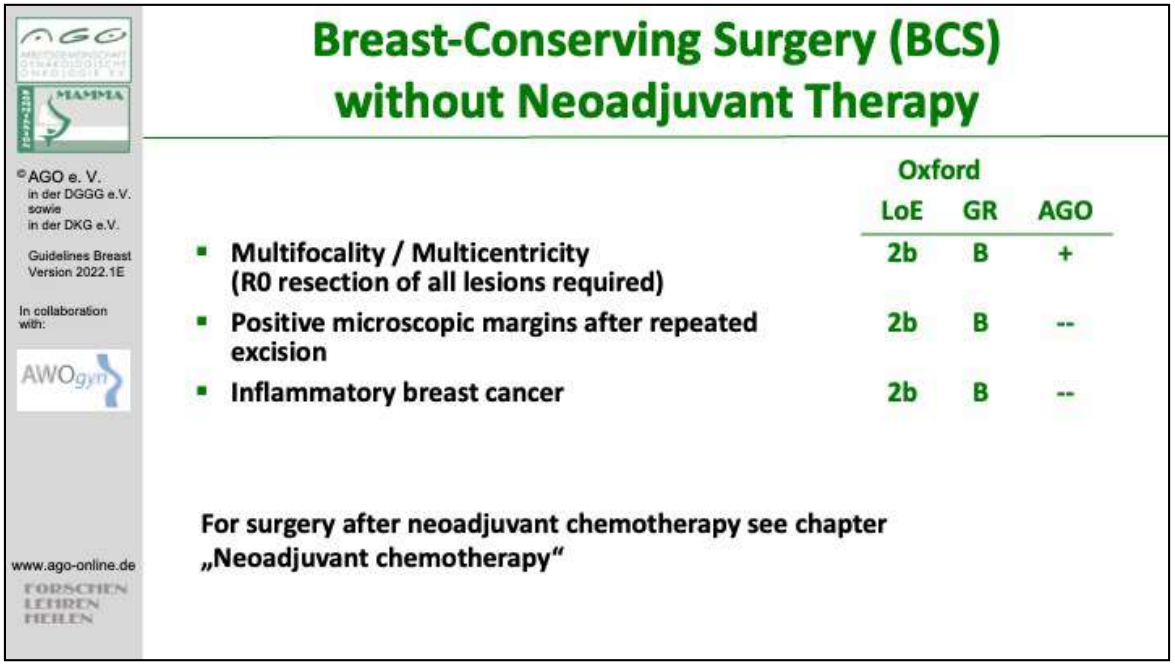

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3. Winters ZE, Horsnell J, Elvers KT et al. Systematic review of the impact of breast-conserving surgery on cancer outcomes of multiple ipsilateral breast cancers. BJS Open. 2018 May 22;2(4):162-174.
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Statement: Inflammatory Carcinoma

1. Coleman CN, Wallner PE, Abrams JS. Inflammatory breast issue. J Natl Cancer Inst. 2003 Aug 20;95(16):1182-3.
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Statement: general

1. Marret H, Perrotin F, Bougnoux P. Histologic multifocality is predictive of skin recurrences after conserving treatment of stage I and II breast cancers. Breast Cancer Res Treat. 2001 Jul;68(1):1-8.
2. Cho LC, Senzer N, Peters GN. Conservative surgery and radiation therapy for macroscopically multiple ipsilateral invasive breast cancers. Am J Surg. 2002 Jun;183(6):650-4.
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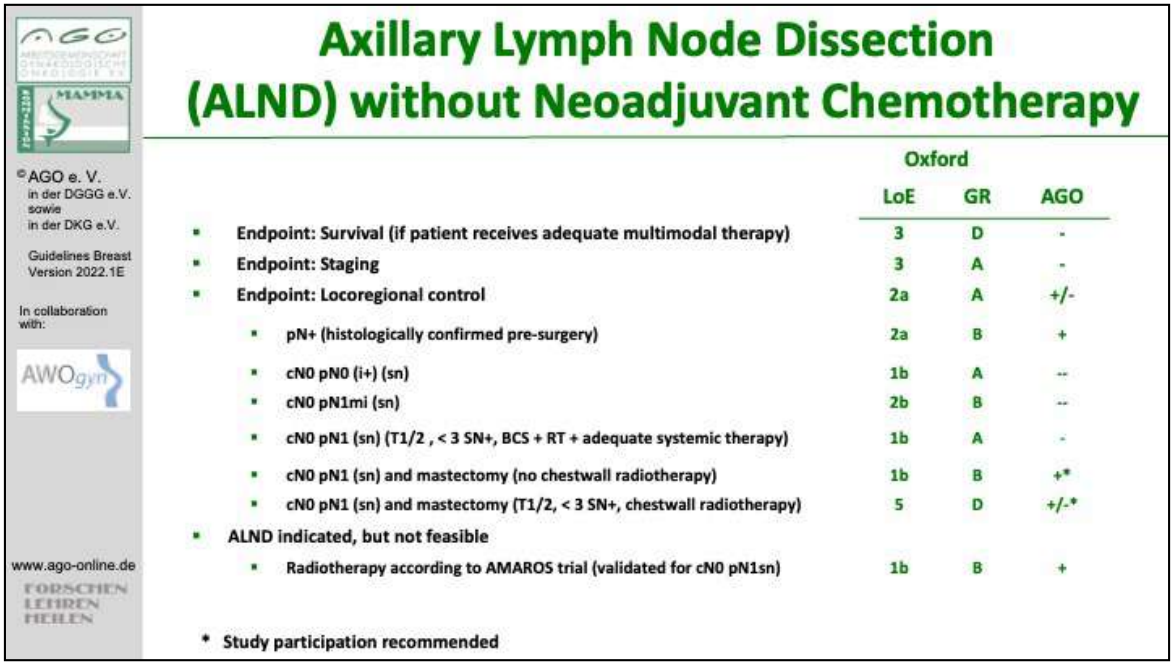

Axillary Lymph Node Dissection (ALND) without Neoadjuvant Chemotherapy

	Oxford LoE	Oxford GR	AGO
▪ Endpoint: Survival (if patient receives adequate multimodal therapy)	3	D	-
▪ Endpoint: Staging	3	A	-
▪ Endpoint: Locoregional control	2a	A	+/-
▪ pN+ (histologically confirmed pre-surgery)	2a	B	+
▪ cN0 pN0 (i+) (sn)	1b	A	--
▪ cN0 pN1mi (sn)	2b	B	--
▪ cN0 pN1 (sn) (T1/2 , < 3 SN+, BCS + RT + adequate systemic therapy)	1b	A	-
▪ cN0 pN1 (sn) and mastectomy (no chestwall radiotherapy)	1b	B	+*
▪ cN0 pN1 (sn) and mastectomy (T1/2, < 3 SN+, chestwall radiotherapy)	5	D	+/-*
▪ ALND indicated, but not feasible			
▪ Radiotherapy according to AMAROS trial (validated for cN0 pN1sn)	1b	B	+

* Study participation recommended

Statement: Axillary lymph node dissection

1. Brackstone M, Baldassarre FG, Perera FE et al. Management of the Axilla in Early-Stage Breast Cancer: Ontario Health (Cancer Care Ontario) and ASCO Guideline. J Clin Oncol. 2021 Sep 20;39(27):3056-3082. doi: 10.1200/JCO.21.00934
2. Kuehn T, Bembenek A, Decker T. A concept for the clinical implementation of sentinel lymph node biopsy in patients with breast carcinoma with special regard to quality assurance. Cancer. 2005 Feb 1;103(3):451-61
3. Rudenstam CM, Zahrieh D, Forbes JF: Randomized trial comparing axillary clearance versus no axillary clearance in older patients with breast cancer: first results of International Breast Cancer Study Group Trial 10-93. J Clin Oncol 24(3): 337-344, 2006.
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pN+ (pre-surgery) without neoadjuvant systemic therapy LoE 2a B AGO +

1. Euhus DM. Management of the clinically positive axilla. Breast J. 2020 Jan;26(1):35-38.

cN0 pN0(sn)(i+)LoE 1b A AGO –

1. Rutgers EJ. Sentinel node biopsy: interpretation and management of patients with immunohistochemistry-positive sentinel nodes and those with micrometastases. J Clin Oncol. 2008 Feb 10;26(5):698-702.
2. Li Y, Zhang H, Zhang W, et al: A competing risk analysis model to determine the prognostic value of isolated tumor cells in axillary lymph nodes for T1N0M0 breast cancer patients based on the surveillance, epidemiology, and end results database. Frontiers in Oncology 10:572316, 2020

cN0 pN1 (mi) LoE 2b B AGO --

1. Mamtani A, Patil S, Stempel M, et al. Axillary Micrometastases and Isolated Tumor Cells Are Not an Indication for Post-mastectomy Radiotherapy in Stage 1 and 2 Breast Cancer. Ann Surg Oncol. 2017 Aug;24(8):2182-2188.
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cN0 pN 1(sn) (cT1/2 , < 3 SN +, BCS + tangential radiation field, adequate systemic therapy) LoE 1b A AGO -

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cN0 pN1 (sn) and mastectomy (no chestwall radiotherapy) LoE 1b B AGO +*

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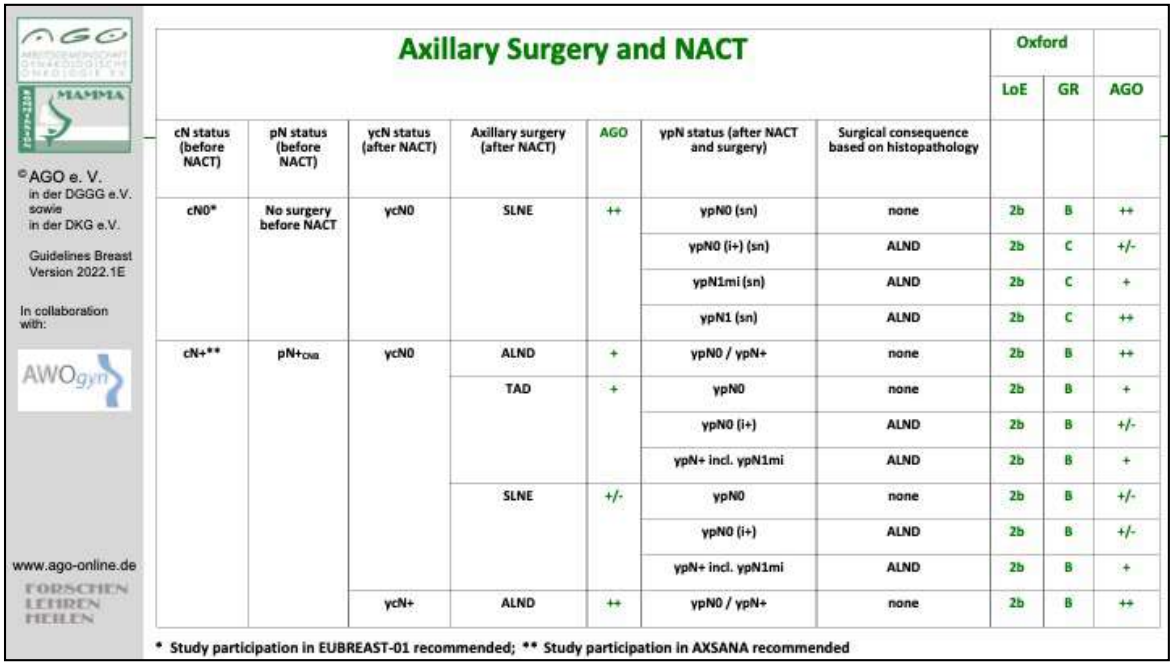

Axillary Surgery and NACT

cN status (before NACT)	pN status (before NACT)	ycN status (after NACT)	Axillary surgery (after NACT)	AGO	ypN status (after NACT and surgery)	Surgical consequence based on histopathology	Oxford LoE	Oxford GR	AGO
cN0*	No surgery before NACT	ycN0	SLNE	++	ypN0 (sn)	none	2b	B	++
					ypN0 (i+) (sn)	ALND	2b	C	+/-
					ypN1mi (sn)	ALND	2b	C	+
					ypN1 (sn)	ALND	2b	C	++
cN+**	$pN+_{(s)}$	ycN0	ALND	+	ypN0 / ypN+	none	2b	B	++
			TAD	+	ypN0	none	2b	B	+
					ypN0 (i+)	ALND	2b	B	+/-
					ypN+ incl. ypN1mi	ALND	2b	B	+
			SLNE	+/-	ypN0	none	2b	B	+/-
					ypN0 (i+)	ALND	2b	B	+/-
					ypN+ incl. ypN1mi	ALND	2b	B	+
		ycN+	ALND	++	ypN0 / ypN+	none	2b	B	++

* Study participation in EUBREAST-01 recommended; ** Study participation in AXSANA recommended

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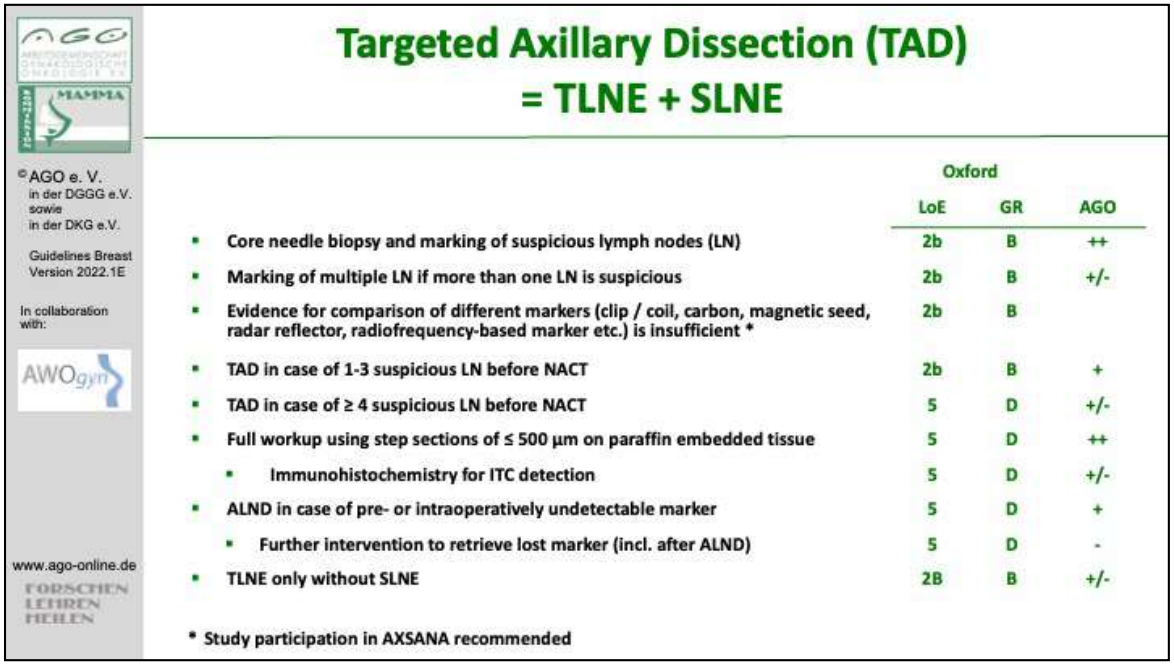

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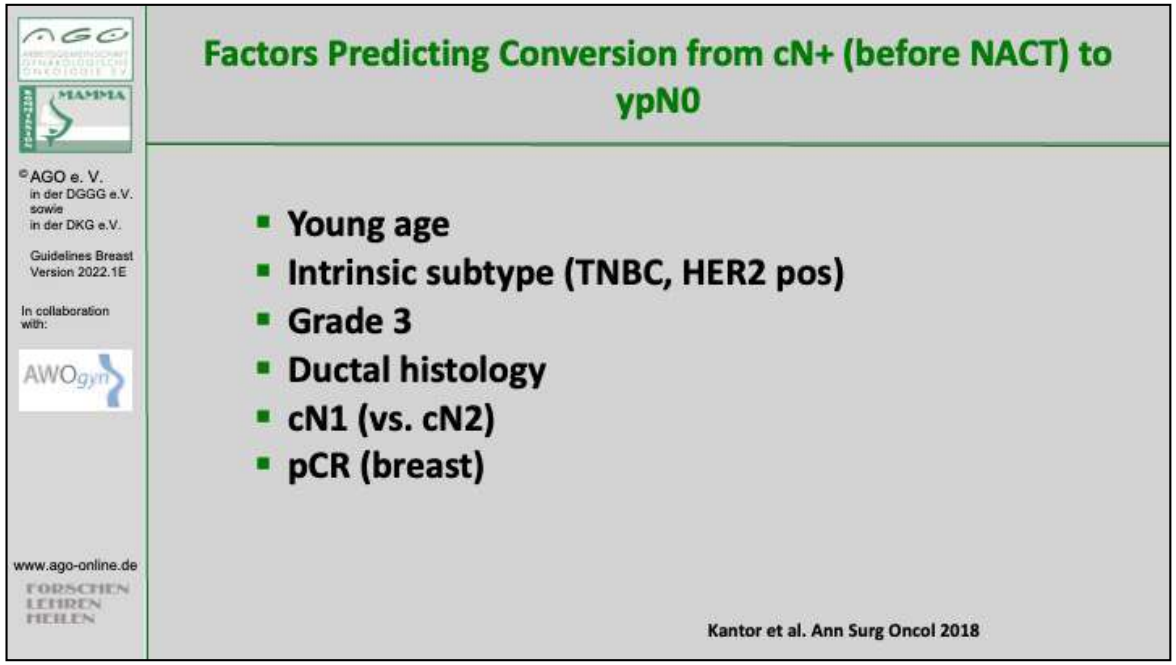

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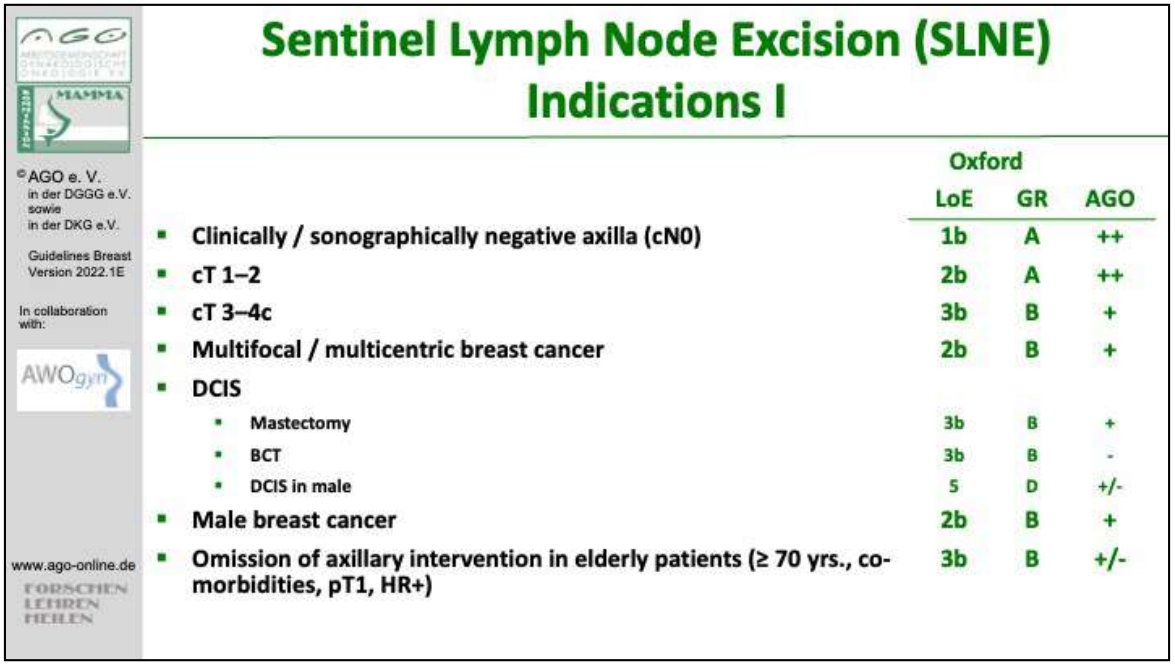

Statement: SLNE

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<u>Statement: preoperative FNA / CNB (core needle biopsy) of suspicious lymph nodes</u>

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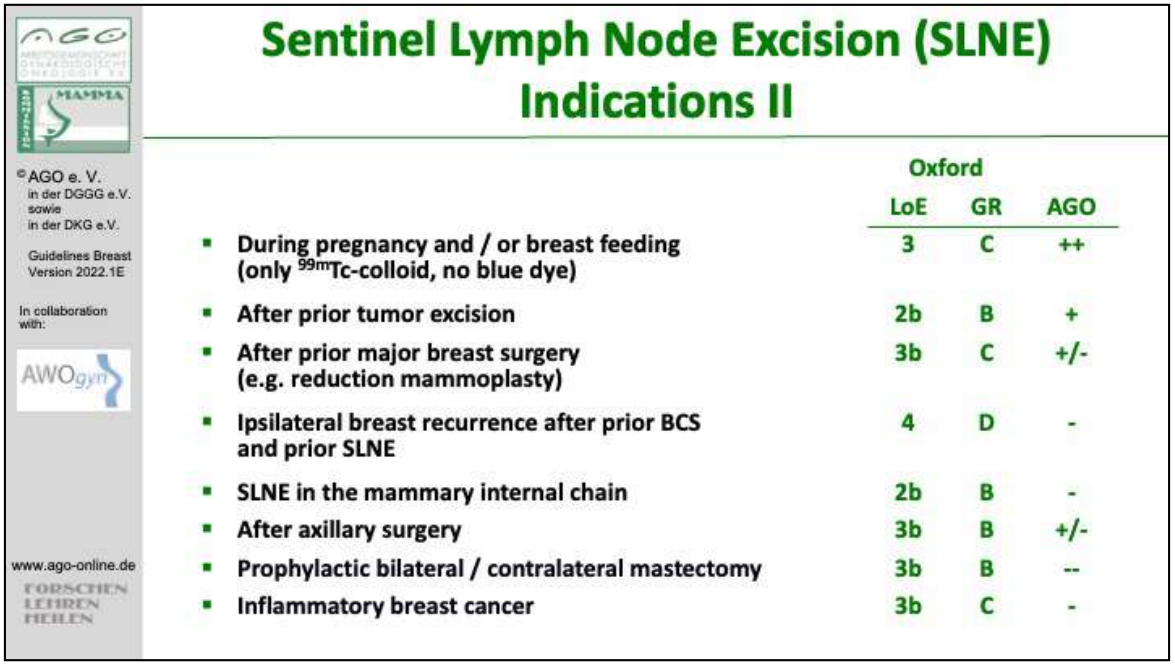

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Statement: previous major breast surgery

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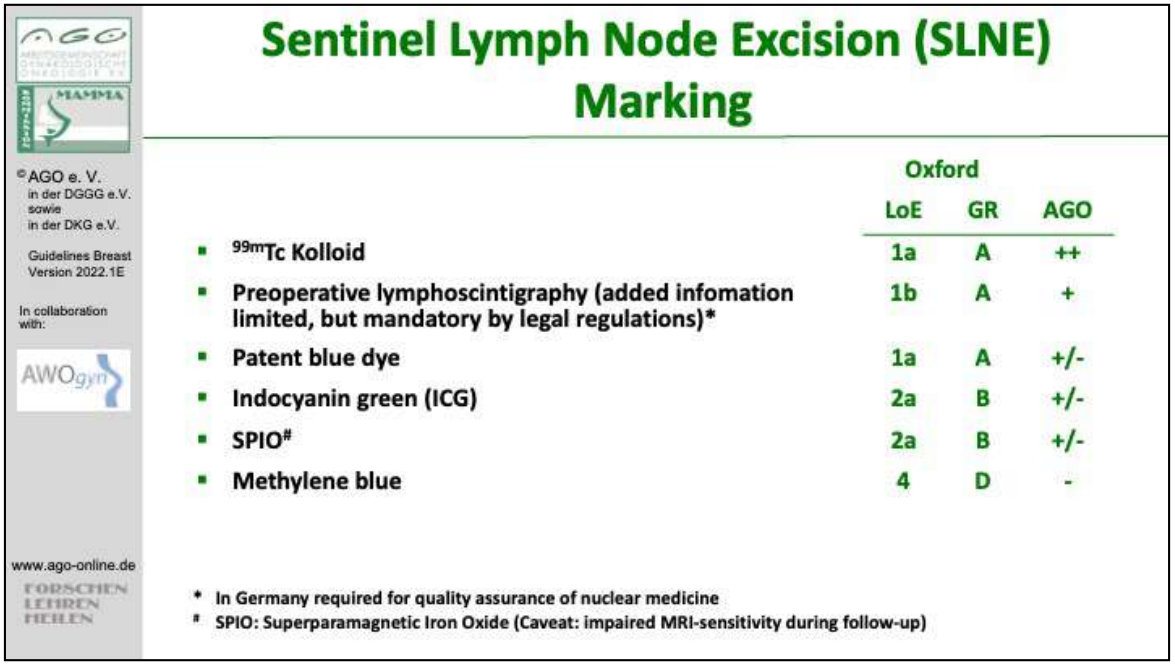

Statement radiotracer/blue dye:

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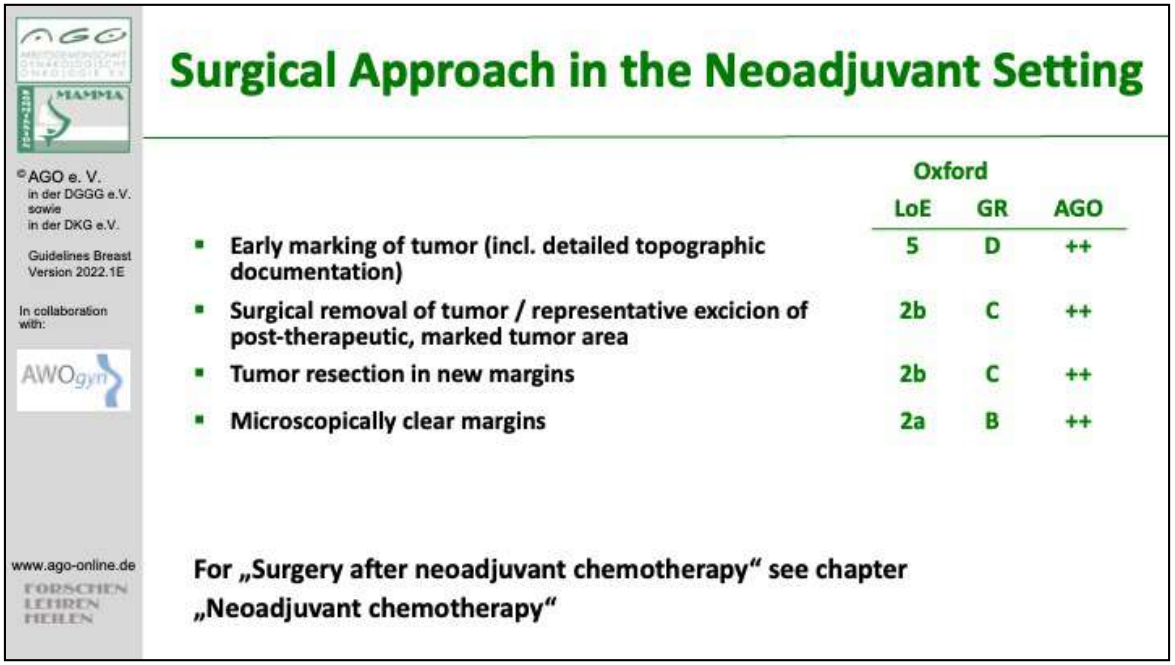

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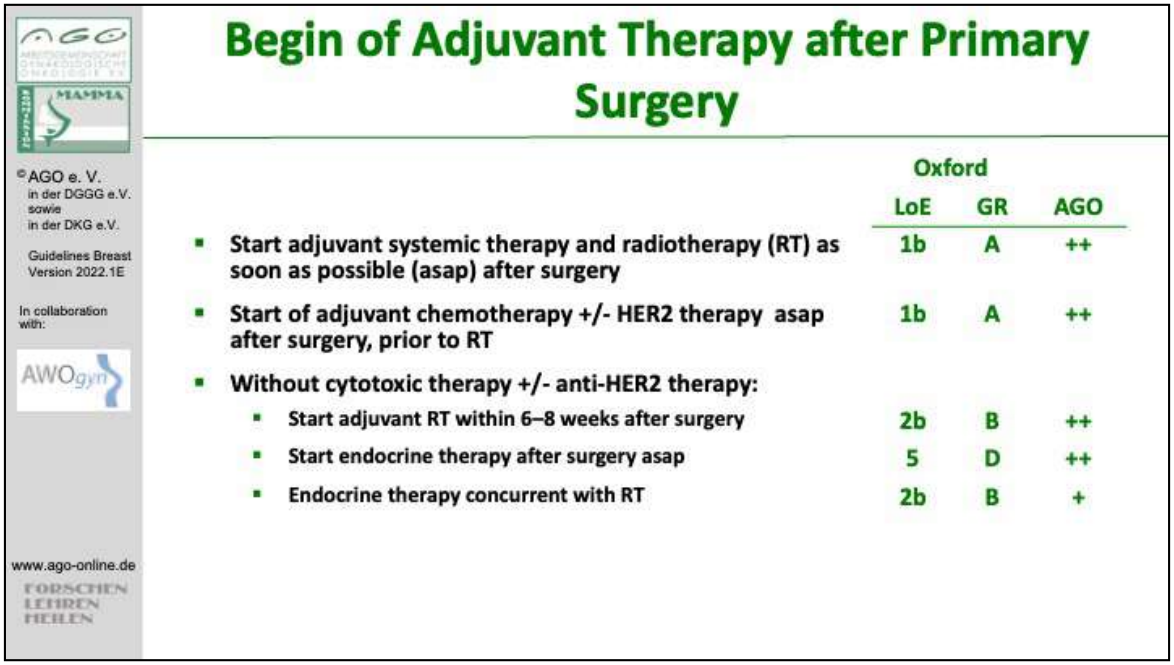

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