Specific Sites of Metastases
### Specific Sites Of Metastases
### Local Approaches to Metastatic Disease

**Versions 2002–2019:**

Albert / Bauerfeind / Bischoff / Böhme / Brunnert / Dall / Diel / Fehm / Fersis / Friedrich / Friedrichs / Gerber / Hanf / Janni / Kolberg-Liedtke / Kreipe / Lück / Lux / Maass / Oberhoff / Rezai / Schaller / Schütz / Seegenschmiedt / Solomayer / Souchon / Thommsen

**Version 2020:**

Loibl / Rody

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Cochrane database

<table>
<thead>
<tr>
<th>Specific Sites of Metastases</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Liver and lung metastases</td>
</tr>
<tr>
<td>▪ Malignant pleural and pericardial effusions</td>
</tr>
<tr>
<td>▪ Ascites</td>
</tr>
<tr>
<td>▪ Bone marrow involvement</td>
</tr>
<tr>
<td>▪ Soft tissue metastases</td>
</tr>
<tr>
<td>▪ Any other organs</td>
</tr>
</tbody>
</table>

See also chapters „CNS Metastases“ and „Locoregional Recurrence (Loco-Regional Recurrence Treatment Options in Non Curative Cases)“

5. Soran A et al. Early follow up of a randomized trial evaluating resection of the primary breast tumor in women presenting with de novo stage IV breast cancer; Turkish study (protocol MF07-01) SABCS [S2-03], 2013
General Treatment Aspects of Metastases

- **Histological / cytological verification**
  - Oxford LoE: 3
  - GR: B
  - AGO: +

- **Systemic therapy preferred**
  - Oxford LoE: 2a
  - GR: B
  - AGO: ++*

- **Consider surgery only in case of good response to palliative treatment**
  - Oxford LoE: 2b
  - GR: C
  - AGO: +

- **Radiation for patients in good physical condition with late onset of oligometastases**
  - Oxford LoE: 3a
  - GR: B
  - AGO: +

- **Local treatment in the case of pain, exulceration, persistence after systemic treatment, bowel obstruction, hydrocephalus occlusus, spinal cord compression**
  - Oxford LoE: 5
  - GR: D
  - AGO: +/-

- **Systemic treatment after surgery**
  - Oxford LoE: 5
  - GR: D
  - AGO: ++

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**Local surgical**

4. Soran A et al. A randomized controlled trial evaluating resection of the primary tumor in women presenting with de novo stage IV breast cancer; Turkish study (MF07-01). J Clin Oncol 34, 2016 (suppl; abstr 1005)

## Local Therapy in Primary Metastatic Disease

<table>
<thead>
<tr>
<th>Operation (R0) des Primärtumors</th>
<th>Oxford LoE</th>
<th>GR</th>
<th>AGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery (R0) of the primary tumor</td>
<td>2b&lt;sup&gt;a&lt;/sup&gt;</td>
<td>B</td>
<td>+/-</td>
</tr>
<tr>
<td>Axillary surgery for cN1</td>
<td>5</td>
<td>D</td>
<td>+/-</td>
</tr>
<tr>
<td>Sentinel if cN0</td>
<td>5</td>
<td>D</td>
<td>-</td>
</tr>
<tr>
<td>Radiotherapy of the primary tumor</td>
<td>3a</td>
<td>C</td>
<td>+/-</td>
</tr>
<tr>
<td>Alone (without surgery)</td>
<td>3a</td>
<td>C</td>
<td>+</td>
</tr>
<tr>
<td>After local surgical treatment with BCS or mastectomy (according to adjuvant indication)</td>
<td>3a</td>
<td>C</td>
<td>+</td>
</tr>
</tbody>
</table>

### Operation (R0) des Primärtumors


### Radiotherapy

Liver Metastases
Local Therapy

<table>
<thead>
<tr>
<th>Oxford</th>
<th>LoE</th>
<th>GR</th>
<th>AGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resection of liver metastases (R0)</td>
<td>3a</td>
<td>B</td>
<td>+/-</td>
</tr>
<tr>
<td>HR-positive: chemotherapy-sensitive, long disease-free interval, absence of extrahepatic disease, ≤ 3 metastases HER2-positive: age &lt; 50y, metastasis &lt; 5 cm, no further metastasis</td>
<td>3b</td>
<td>C</td>
<td>+/-</td>
</tr>
<tr>
<td>Regional chemotherapy</td>
<td>3b</td>
<td>C</td>
<td>+/-</td>
</tr>
<tr>
<td>Regional radiotherapy</td>
<td>[SIRT, stereotactic body radiosurgery with volumetric intensity modulated arc therapy (SRS-VMAT), radiochemo-embolization, other modalities]</td>
<td>3b</td>
<td>C</td>
</tr>
<tr>
<td>Thermoablation</td>
<td>(RFA, LITT, cryotherapy)</td>
<td>3b</td>
<td>C</td>
</tr>
</tbody>
</table>

Statements:

Resection of liver metastasis (R0)
HR positive: chemotherapy sensible, long disease-free interval, absence of extrahepatic disease, ≤ 3 metastases
Her2 positive: age < 50y, metastasis < 5 cm, no further metastases

Diagnostics

Local surgery


Statement: Regional chemotherapy


Statement: Regional radiotherapy
1. Hoffmann RT, et al: Radiofrequency ablation after selective internal radiation therapy with Yttrium90 microspheres in metastastic

Statement: Thermoablation
### Pulmonary Metastases Local Therapy

<table>
<thead>
<tr>
<th>Oxford LoE</th>
<th>GR</th>
<th>AGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>3a</td>
<td>B</td>
<td>+</td>
</tr>
</tbody>
</table>

- **Before any surgery: staging and biopsy**
  (CT-guided FNA / CNB or transbronchial FNA)

- **Resection of pulmonary metastases by VATS or conventional resection**
  - In case of multi-locular metastatic disease
  - In case of single / few unilateral metastasis with curative intent

- **Thermoablation (CT-guided RFA, LIIT)**
- **Regional radiotherapy**
  (e.g. stereotactic body radiosurgery with volumetric intensity modulated arc therapy (SRS-VMAT))

* VATS = video-assisted thoracic surgery

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**Before surgery: staging and biopsy (fine-needle aspiration with CT-guidance or transbronchial needle aspiration)**

**Resection of pulmonary metastases by VATS or conventional resection**

**In case of multilocular metastatic disease**

**In case of single metastases on one side with curative intent**


Statement: Thermoablation (CT-guided RFA, LITT)

Statement: Regional radiotherapy
Malignant Pleural Effusions (MPE)

Incidence:
- ~ 10% of all breast cancer patients
- ~ 50% of patients with advanced breast cancer
- ~ 30% of all MPE are caused by breast cancer

Clinical presentation:
- Extensive MPE are mostly due to malignancy
- The majority of MPE are symptomatic (dyspnea 80%, dull chest pain 30%, nonproductive cough 10%)
- Survival is related to the presence of additional metastases, age, ECOG PS and extent of involving the pleural surface

Diagnostic procedures:
- Clinical examination
- Imaging techniques (chest X-Ray, US, CT-Scan)
- Proven malignant effusion [cytology (→ 50% false negative), histology by thoracoscopy]

If expected survival is short, less invasive procedures should be considered

**VATS and Talcum-pleurodesis**

**Chemical pleurodesis**
- Talcum powder
- Bleomycin, Doxycycline, Mitoxantrone
- Povidone-iodine (20 ml of 10% solution)

**Continuous pleural drainage**

**Systemic treatment after pleurodesis**

**Serial thoracocentesis**

* Adequate pain-relief
VATS: video-assisted thoracoscopic surgery

**Malignant Pleural Effusion (MPE)**

**Local Therapy**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Oxford</th>
<th>LoE</th>
<th>GR</th>
<th>AGO</th>
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<tbody>
<tr>
<td>If short life expectancy, less invasive procedures should be considered</td>
<td>4</td>
<td>C</td>
<td>++</td>
<td></td>
</tr>
<tr>
<td>VATS and Talcum-pleurodesis*</td>
<td>1b</td>
<td>B</td>
<td>++</td>
<td></td>
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<td>Chemical pleurodesis*</td>
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<td>Povidone-iodine (20 ml of 10% solution)</td>
<td>2a</td>
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**Statement: Continuous pleural drainage**

**Statement: Systemic treatment after pleurodesis**


