



Sentinel Lymph Node Biopsy

Pathological difficulties

Manosmed Tartous Oct 2009

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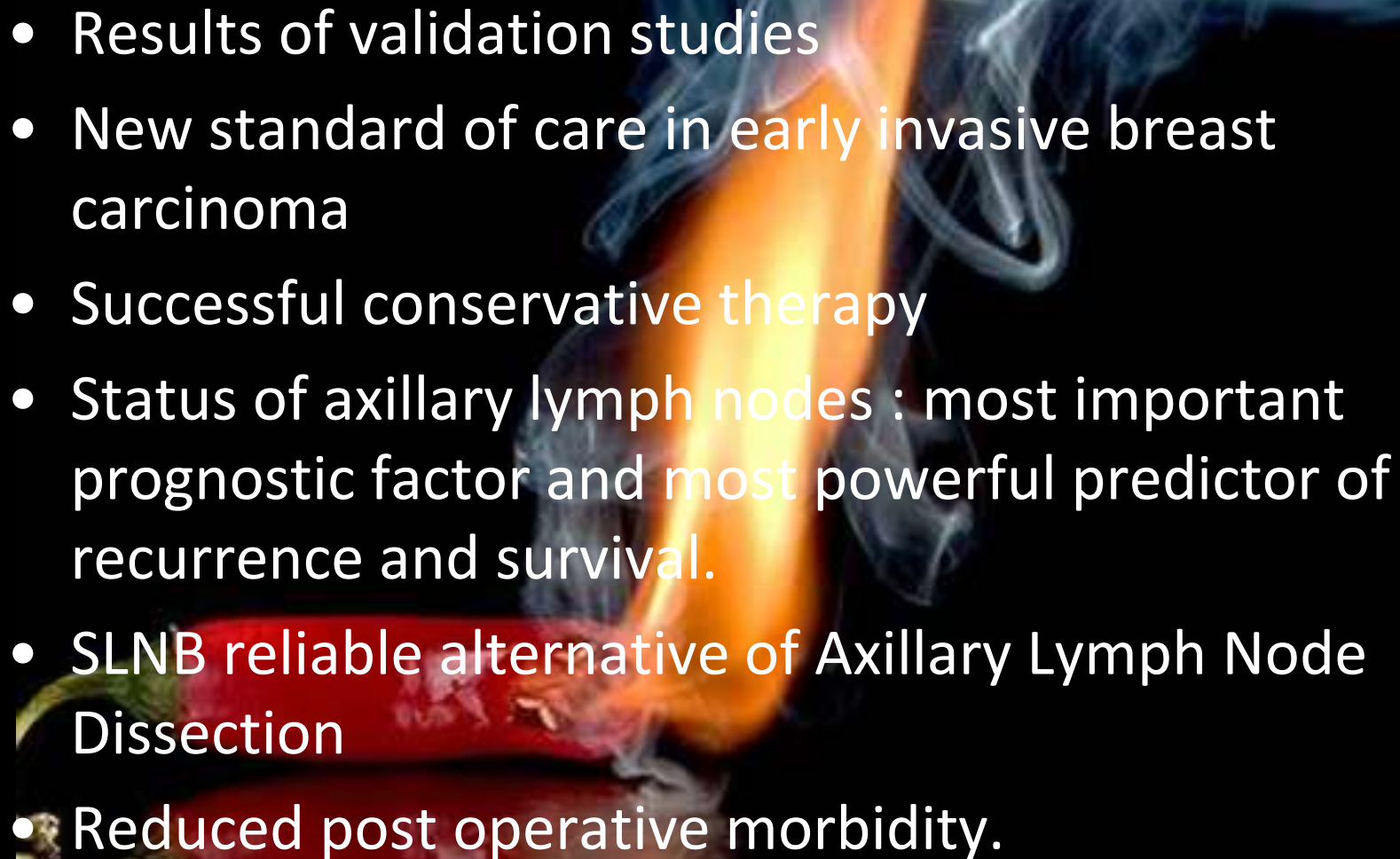
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Sentinel Lymph Node Biopsy

1. Introduction: Concept
2. Technical aspect
 - Localization
 - Material submitted for pathology
3. Pathological study
 - Results
 - Pitfalls and Recommendations

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- Results of validation studies
 - New standard of care in early invasive breast carcinoma
 - Successful conservative therapy
 - Status of axillary lymph nodes : most important prognostic factor and most powerful predictor of recurrence and survival.
 - SLNB reliable alternative of Axillary Lymph Node Dissection
 - Reduced post operative morbidity.

Indications

- Ductal carcinoma invasive highly suspected on clinical and imaging findings
- Extensive or high grade DCIS
- Clinically no lymph node by palpation
- T < 3 cm

Not discussed

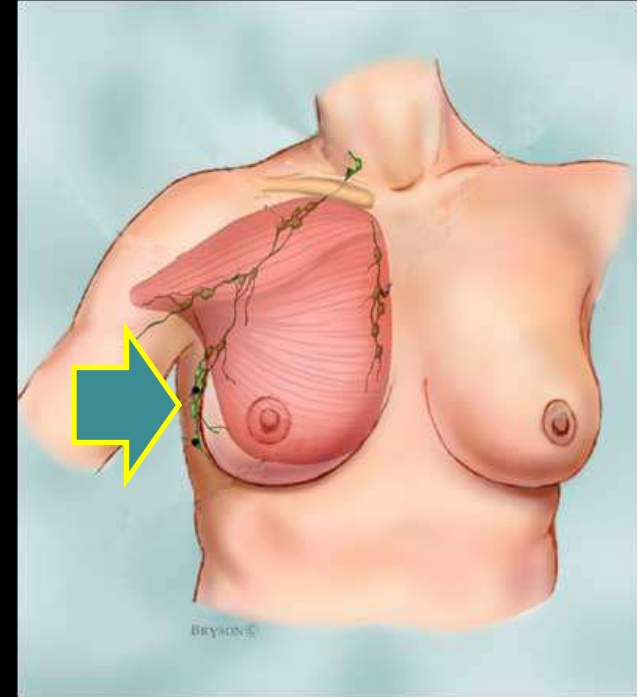
Contraindications

- Tumor size : ~ T1-T2 ? T3
- Inflammatory breast carcinoma
- Clinically positive axilla
- Neoadjuvant chemotherapy
 - SLNB proposed for T2/T3 without clinical or imaging evidence of N+ before chemotherapy
- Multicentric disease
 - no enough studies or data
- DCIS low grade
- Prior breast or axillary surgery

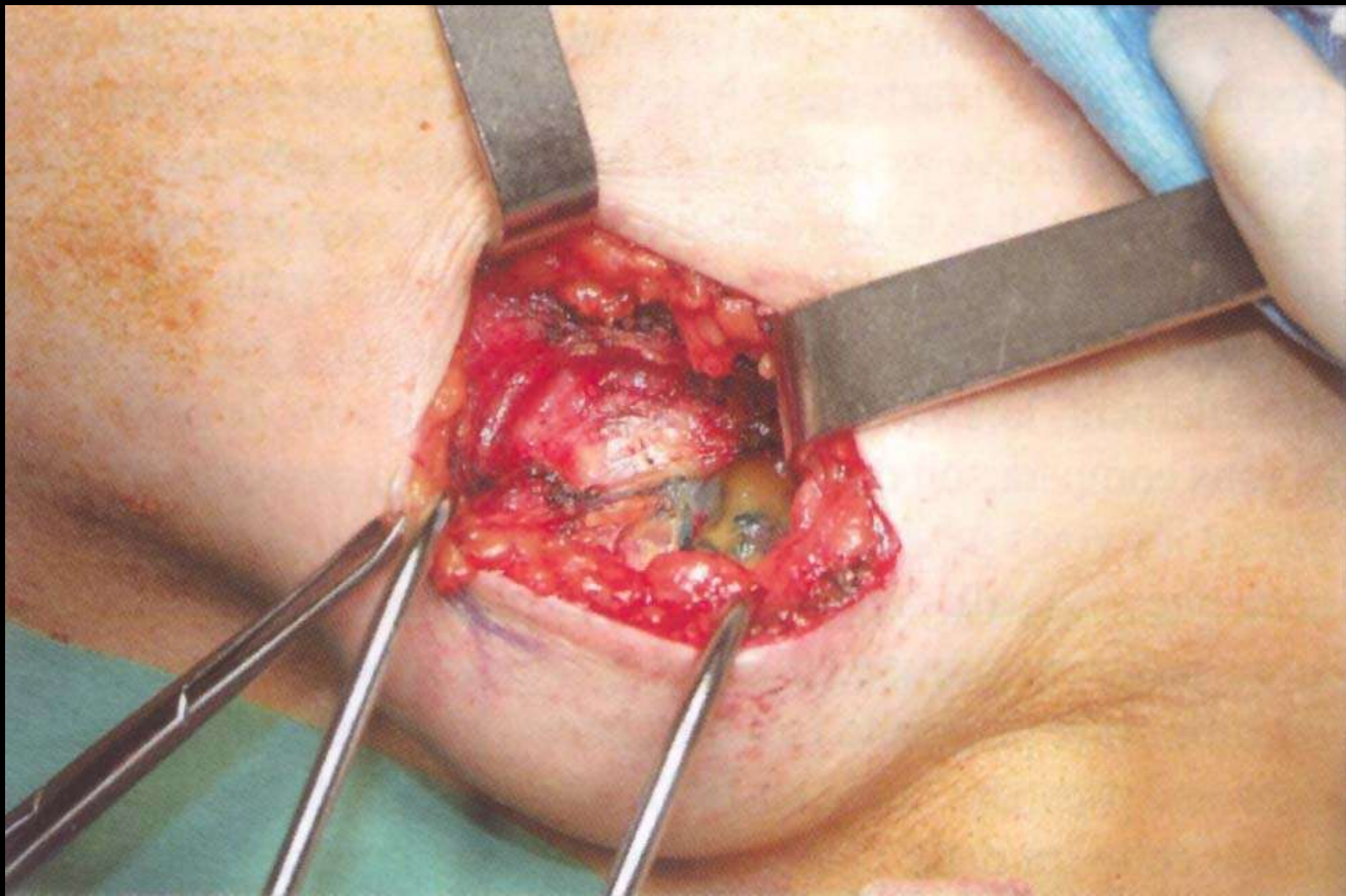
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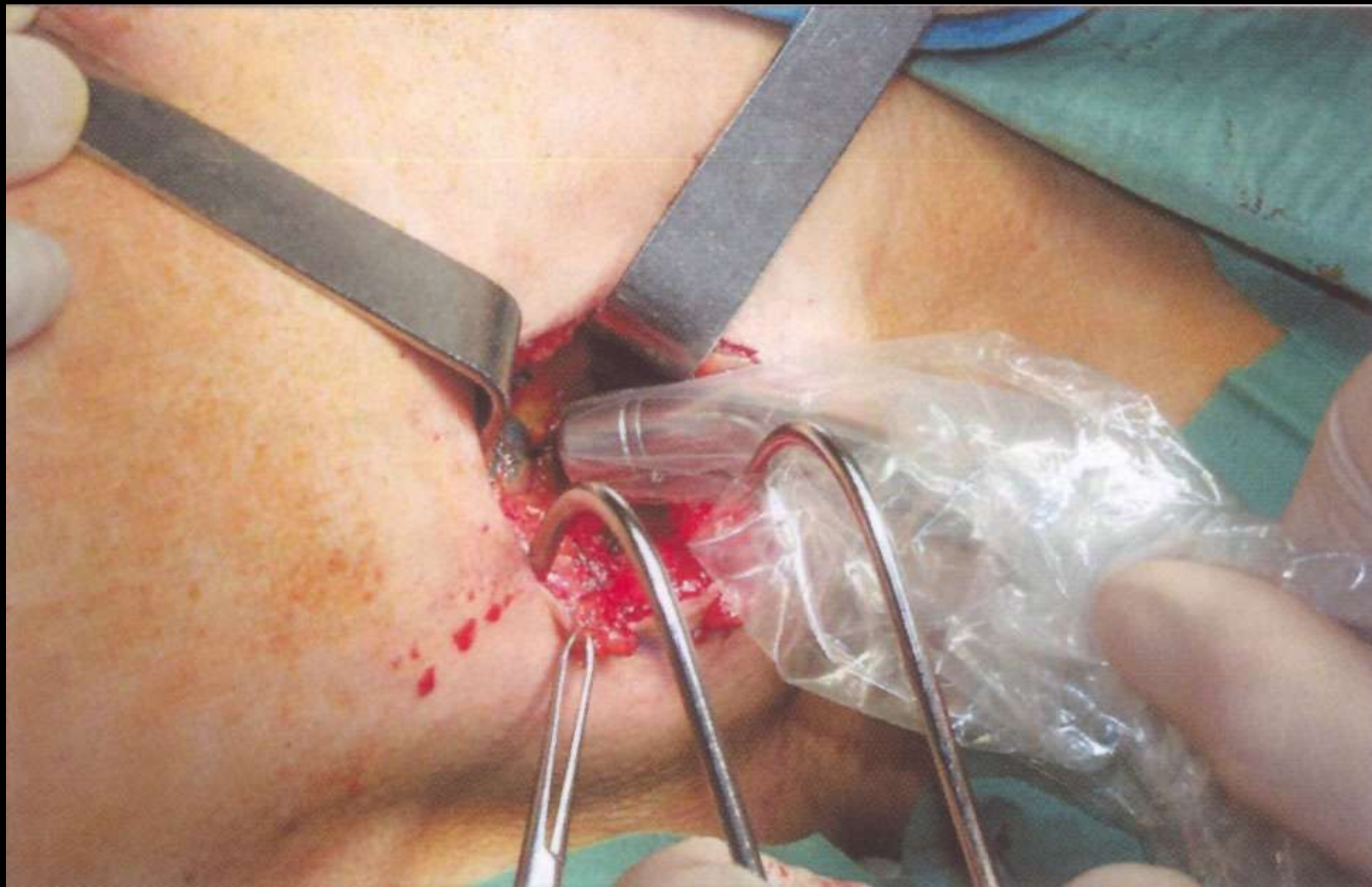
Techniques

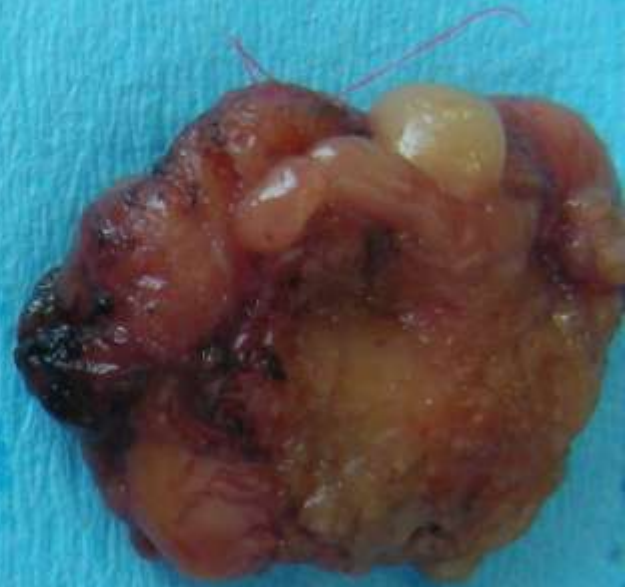
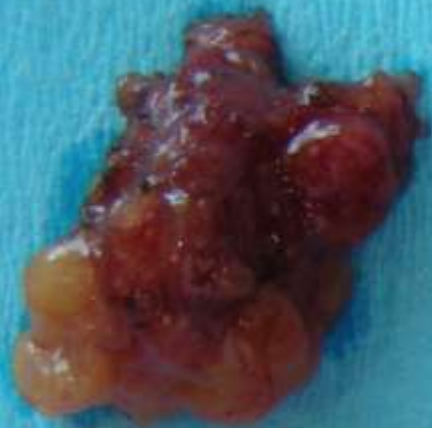
- Identifying the lymph nodes
 - Technetium labeled albumin
 - Patent blue dye
- Appropriate training and experience
- Different sites of injection (+/- biopsy)
- Delay in biopsy: 30 mn to 4 h











Pathology

- Number of lymph nodes submitted
- Each lymph node (Intraoperative study)
 - Measured, described (gross pattern, blue or not, consistency)
 - Cut in 2 mm thickness (usually 2 sections)
 - Suspect cut surface reported (Imprints)





- Totally submitted (Routine)
 - 3 step sections HE (Hematoxylin-Eosin)
 - 1 Immunohistochemistry (Cytokeratin)
- (Each study puts a lot of strain on the pathology lab, significant load increase not accompanied by an increase of resources)

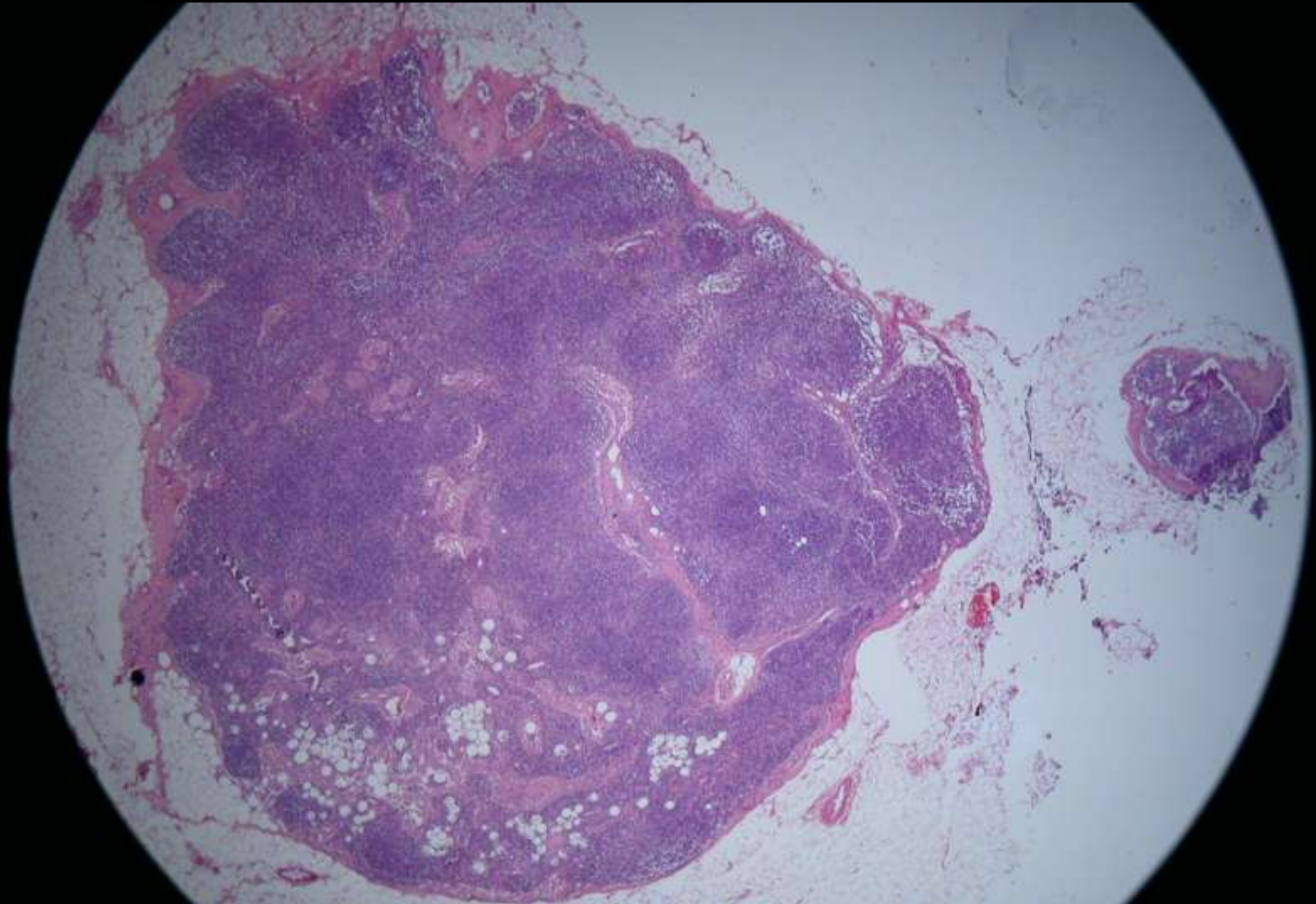
Results

- SLNB reliable axillary staging
- Accuracy reported 90-95%
 - False negative 5 to 15 %
- On going randomized trials comparing ALND vs SLNB



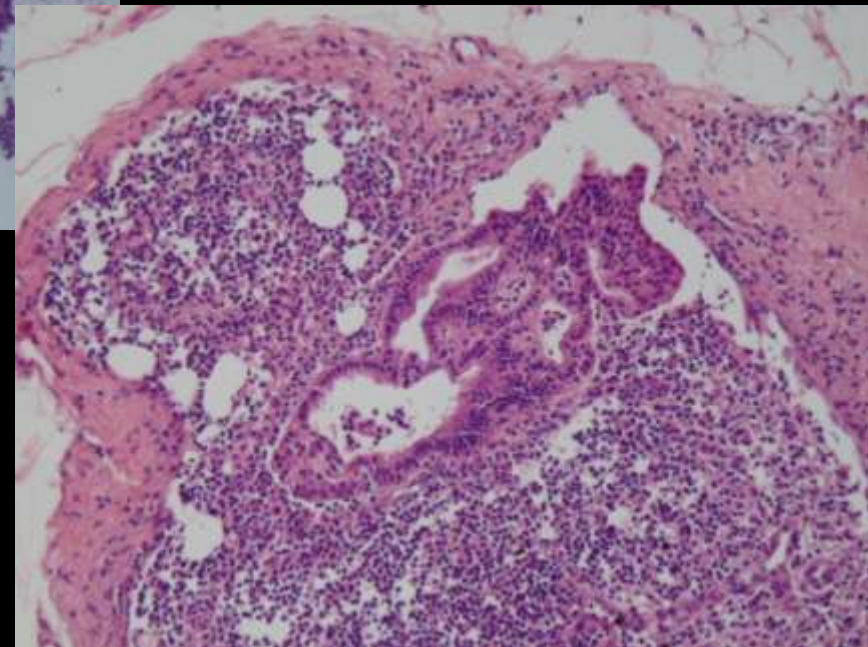
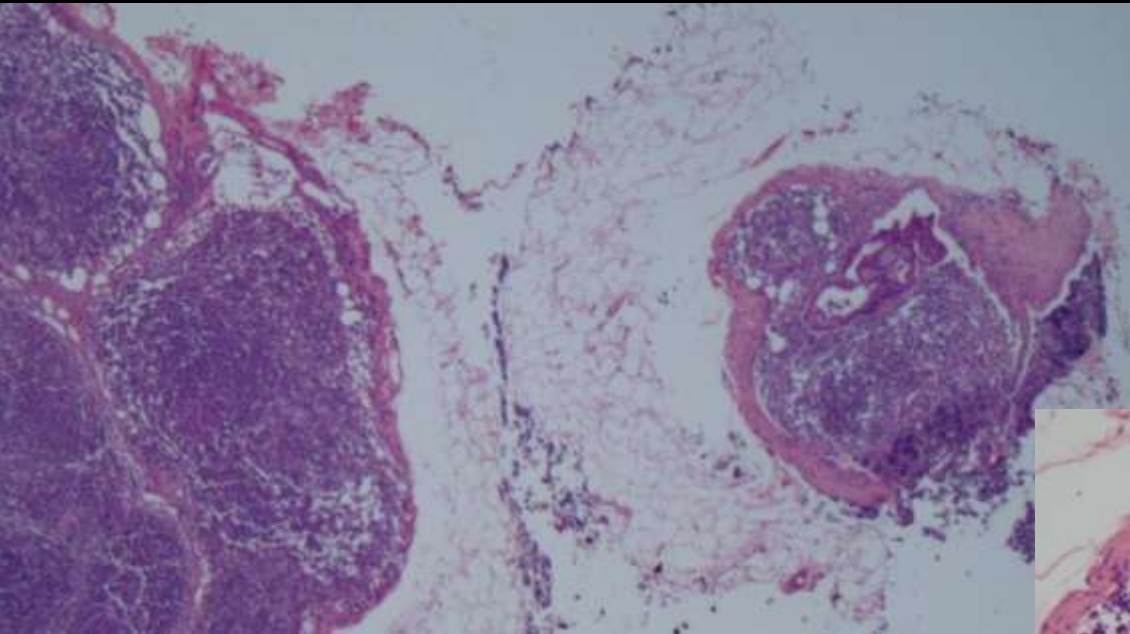
Pitfalls

- Discovering a micrometastasis in routine



Pitfalls

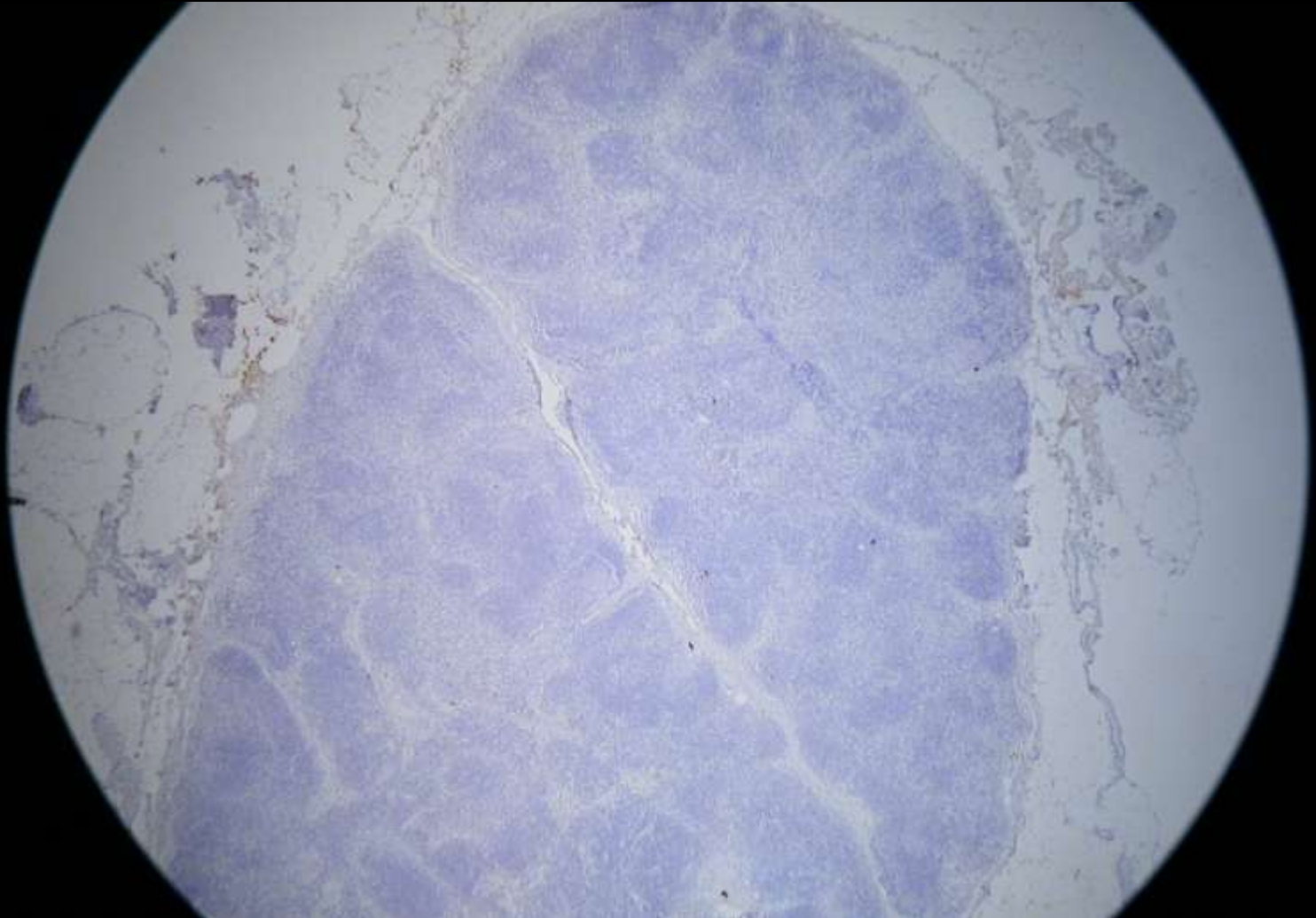
- Discovering a micrometastasis in routine



Cluster of tumor cells $> 0,2$ mm
and not larger than 2 mm

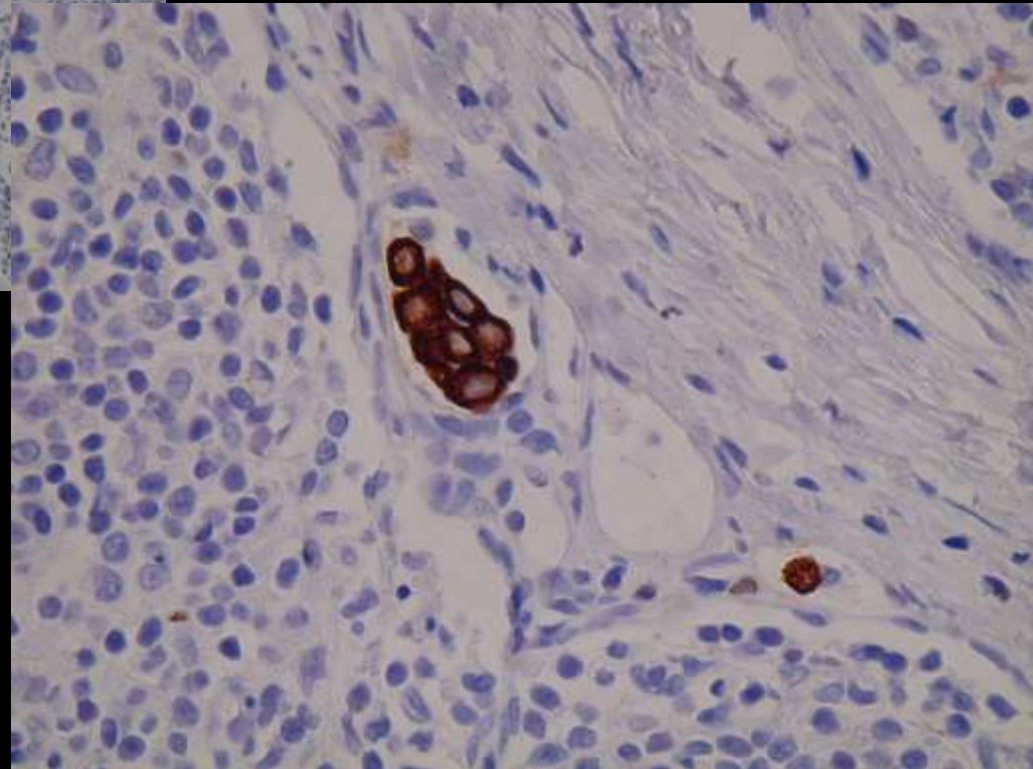
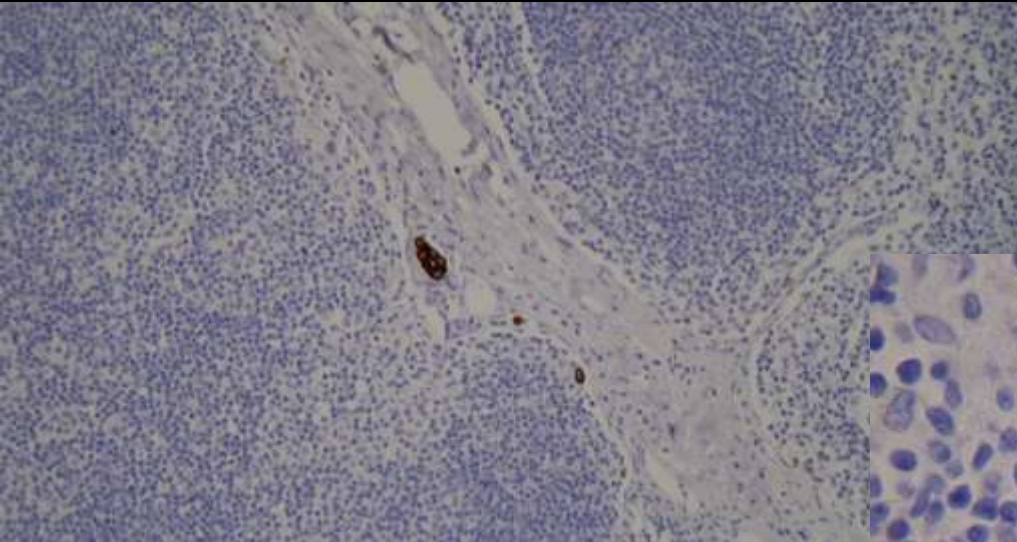
Pitfalls

- Discovering Isolated tumor cells in routine



Pitfalls

- Discovering Isolated tumor cells in routine

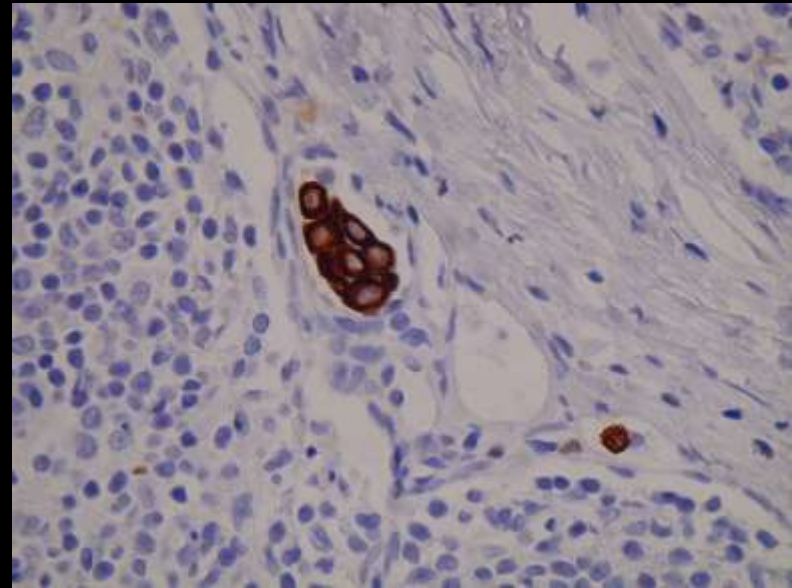


Cluster of tumor cells
< 0,2 mm

Pitfalls

- Discovering tumor cells
 - in routine
 - Immunohistochemistry:
 - Sinus macrophages +
 - Ectopic breast tissue
 - Displacement of breast tissue induced by biopsy procedures

Recommendation:
No interpretation of IHC
without evidence on HE stains



Pitfalls and recommendations

- Isolated tumor cells in SLN :
10% metastasis in nonsentinel LN
- Micrometastasis in SLN :
20-35% metastasis in nonsentinel LN
- Recommendations:
 - Routine axillary dissection for micrometastasis
- False negative SLN on frozen section:
 - Veronesi et al. proposal
 - Intraoperative complete and extensive examination
 - SLNB local anesthesia, outpatient basis, and complete few days later

Axillary sentinel lymph node biopsy: an overview

F Rovera et al International Journal of Surgery 6 (2008) S109-S112

Pitfalls and recommendations

Significance of micrometastases: unsolved question

(D Page USCAP 2006)...

- Micrometastases or Isolated Tumor Cells and the Outcome of Breast Cancer
de Boer M et al. N Engl J Med. 2009 Aug 13;361(7):653-63.
- Background
 - The association of isolated tumor cells (ITC) and micrometastases (MM) in regional lymph nodes with the clinical outcome of breast cancer is unclear.
- Study
 - 856 patients (the node-negative, no-adjuvant-therapy cohort)
 - 856 patients with ITC or MM (the node-positive, no-adjuvant-therapy cohort)
 - 995 patients with ITC or MM who had received such treatment (the nodepositive, adjuvant-therapy cohort).
- Conclusion
 - ITC or MM in regional lymph nodes were associated with a reduced 5-year rate of disease-free survival among women with favorable early-stage breast cancer who did not receive adjuvant therapy. In patients with ITC or MM s who received adjuvant therapy, disease-free survival was improved.



Pitfalls and recommendations

Axillary lymph node dissection can be avoided in women with breast cancer with Intraoperative, false-negative sentinel lymph node biopsies. Takei H et al. Breast Cancer. 2009 Aug 22.

- **BACKGROUND:** It is currently unclear which patients with breast cancer with sentinel lymph node (SLN) metastases do not need axillary lymph node dissection (ALND).
- **STUDY:** Cohort of 1,132 women who had unilateral invasive breast cancer were intraoperatively diagnosed as having negative SLNs, and did not undergo an immediate ALND. **132 (11.7%)** were postoperatively diagnosed as having positive SLNs. median follow-up period of 58.1 months, none of these patients exhibited recurrence in the axillary nodes.
- **CONCLUSIONS:** ALND can be avoided in most patients with breast cancer with intraoperative, false-negative SLNB.



End of Presentation

Thank you for your Attention