**Conclusion:** The hook-wire localization of nonpalpable breast lesions is simple, accurate and safe method for detection of early breast cancers. Frozen section is feasible and accurate in the majority of these lesions, and therefore, diagnostic and therapeutic one step surgical procedure could be performed.

**337** POSTER

**Clinical implications of tumour-positive internal mammary lymph nodes in breast cancer**

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**Background:** Since the introduction of the sentinel lymph node biopsy in breast cancer patients there has been a renewed interest in the lymphatic drainage pattern to the internal mammary chain nodes. In this study we evaluated the frequency of lymphatic drainage to the internal mammary chain, the rate of positive nodes and the clinical implications of its presence.
**Material and methods:** Between May 1999 and December 2004 494 consecutive patients underwent a sentinel lymph node procedure for primary breast cancer, clinically stage T1–2N0. In all patients preoperative lymphoscintigraphy was combined with intraoperative gammaprobe use. In patients with internal mammary sentinel lymph nodes on lymphoscintigraphy, lymph node extirpation was attempted through an intercostal parasternal incision.
**Results:** The sentinel lymph node identification rate was 99.2%% (490/494). In 87 patients (17.6%) ipsilateral internal mammary lymph nodes were visualised, in 76 of them (87.5%) the lymph node(s) could be removed. In all 88 patients with sentinel nodes in the internal mammary chain we found concomitant axillary sentinel lymph nodes. In sixteen of the 76 patients in whom internal mammary sentinel nodes could be retrieved, metastasis were found (21.1%). In 12 of these patients this resulted in expansion of the radiotherapy field, while in only six patients internal mammary lymph node metastasis was the indication for adjuvant systemic therapy. In the remaining 10 patients systemic therapy was indicated based on primary tumour features and/or axillary lymph node positivity. More extensive radiotherapy and adjuvant systemic treatment was indicated solely on internal mammary lymph node positivity in 12/88 13.6% and 6/88 6.8% respectively of the patients in whom internal mammary sentinel nodes were visualised. This means 2.4% and 1.2% for all patients.
**Conclusions:** Sentinel lymph nodes in the internal mammary chain are a common feature and can be excised successfully in the majority of patients. The implications of sentinel node positivity are limited. The proportion of patients in whom adjuvant systemic therapy is indicated is negligible and the proportion of patients in whom the radiotherapy field is expanded is comparable to or even lower than the false negativity rate of the (axillary) sentinel lymph node procedure.

**338** POSTER

**Intraoperative radiotherapy with electrons (ELIOT) for breast carcinoma: the preliminary study on treatment tolerance at the European Institute of Oncology**

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**Background:** At present, radiation therapy after breast-conserving surgery is generally delivered to the whole breast over a period of 5 to 6 weeks. Such a prolonged postoperative radiotherapy is a burden to patients and hospitals and forces many women with difficult access to Radiotherapy Centers to chose mastectomy instead. Furthermore, for patients receiving chemotherapy, the start of conventional radiotherapy may be delayed so long as to increase the risk of local relapse. These problems might be eliminated if effective radiotherapy could be given as a single treatment intraoperatively, immediately after surgery. Since the majority of local recurrences in selected patients occur close to the former tumor bed, even when radiotherapy is omitted, the question arises whether a sole tumor bed irradiation might be a therapeutic alternative to total breast irradiation.
**Material and methods:** One hundred and one consecutive patients with invasive breast cancer of tumor size up to 2.5 cm were prospectively treated at European Institute of Oncology with ELIOT directed only at the region of the tumor bed as part of their breast-conserving therapy from 1999 to 2000. The trial was based on a dose-escalation starting from 10 Gy: we tested the dose levels of 10, 15, 17, 19 and 21 Gy. The dose-levels of 10 and 15 Gy were followed by a reduced course of external fractionated radiotherapy. Most patients received 21 Gy intraoperatively. The focus of this study was the early and intermediate results of treatment in terms of toxicity, complications, cosmetics, local control.
**Results:** After a mean follow-up of 42 months, only 23 patients of the 84 patients who received a dose of 17 to 21 Gy had experienced mild or moderate side effects, including breast fibrosis 16 patients, mild in 15, severe in 1, which resolved within 24 months. Postoperative infection 2 patients, hematoma 3 patients and lyponecrosis in the treated area 3 patients.
**Conclusions:** Early results on treatment tolerance suggest, that ELIOT could be offered to the patients a potential advantage of reduced treatment-related toxicities and improvements in the quality of life. Less exposure of normal breast tissue, greater accessibility for elderly or frail patients, a more convenient schedule for working patients, the ability to deliver radiation before chemotherapy without a potential delay in local therapy, and possibly less cost, should lead to greater appropriate use of ELIOT in patients with breast carcinoma.

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**Reduction of ipsilateral breast tumor recurrence rate by Intraoperative Radiotherapy (IORT) boost technique**

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**Introduction:** Ipsilateral breast tumor recurrence (IBTR) after breast conserving surgery is rare (1–2% per year), but can be further reduced by proper surgery and modern radiotherapy techniques. The Salzburg Concept of intraoperative radiotherapy (IORT) applies the combination of IORT in boost modality and postoperative whole breast irradiation.
**Patients and Methods:** 378 women with stage I or II breast cancer were included in this study. All patients had breast conserving surgery and received 51 Gy to 56.1 Gy of postoperative radiation to the whole breast in 1.7 Gy fractions, but patients received different boost strategies. Group 1 (n = 188) received electron boost radiation of 12 Gy subsequent to the irradiation to the whole breast, group 2 (n = 190) received electron boost radiation of 9 Gy directly to the tumor bed intraoperatively, followed by whole breast irradiation. The groups were treated sequentially, group 1 from January 1996 to October 1998 and group 2 from November 1998 to March 2001. The groups are comparable looking at age, menopausal status, tumor size, grading and nodal status. All statistical tests are two-sided.
**Results:** After a median follow up period of 81.0 months in group 1 and a median follow up period of 51.1 months in group 2, 12 IBTRs (6.4%) could be observed in group 1 and no IBTR could be observed in group 2 (0.0%). The five year actuarial rates of IBTR were 4.3% (95%CI: 1.9% to 8.3%) and 0.0% (95%CI: 0.0% to 1.9%) respectively (P = 0.0018). Distant recurrences occurred in 24 patients (12.8%) in group 1 and in 8 patients (4.2%) in group 2. The five year actuarial rates of distant recurrence were 8.6% (95%CI: 4.9% to 13.5%) and 4.2% (95%CI: 1.8% to 8.2%) respectively (P = 0.08). The five year disease-free survival rates were 90.9% (95%CI: 85.8% to 94.7%) in group 1 and 95.8% (95%CI: 91.8% to 98.2%) in group 2 (P = 0.064).
**Conclusions:** Immediate IORT-boost yields excellent local control and results in statistically significant lower IBTR rates compared to the treatment with conventional postoperative electron boost after five years of follow-up.

**340** POSTER

**Population analysis of the randomised EORTC trial 22922/10925 investigating internal mammary and medial supraclavicular (IM-MS) lymph node Irradiation**

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**Purpose:** To describe the patient population that has been included in the large prospective multicentre EORTC "IM-MS" trial 22922/10925.