

Results: In the previous 12 months to 2010 April, we have recorded 146 SLND in patients with breast cancer, and 156 in the 12 month after that date. Both groups have similar patients characteristics.

There is no significant differences in micrometastasis detection between the intraoperative OSNA method (21/156) and the classical HE intraoperative plus delayed method (18/146) – $p = 0.3$.

In the same period the macrometastasis fall down a 30% due to a better preoperative evaluation by means of axillary echography $\pm$ puncture, that exclude from SLND cytological positive axillary nodes.

Conclusions: The OSNA method provides similar results, about micrometastasis, than manual intraoperative plus delayed HE method.

Conclusions of the recently published ACOSOG Z0011 trial, as well as many papers that are questioning the therapeutic value of complete axillary dissection after sentinel lymph node positive, let's safety avoid it in most of cases of micrometastasis. When the result is a macrometastasis we proceed conform the patient wishes, after discuss the possibilities with her, before surgery, and after to analyze the theoretical benefit in each real circumstances.

Further studies are necessary to analyze the cost-efficacy of OSNA method in expertise pathologist centers.

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Poster

Development of New Generation of Breast Implant Using Silsesquioxane Nanocomposites Shell

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Introduction: Silicone implants are being used increasingly worldwide, in breast reconstruction after cancer surgery or breast augmentation procedures. Various complications have been associated to the use of breast implants in which capsular contracture and implant failure are the most common.

To overcome the complications, our group have developed a novel nanocomposite material based on polyhedral oligomeric silsesquioxane-poly (carbonate-urea) urethane (POSS-PCU) for use as tissue implants.

Method: To investigate capsular contracture, we performed in vitro and in vivo experiments as follows:

In vitro: Human monocyte derived macrophages (MDMs) were seeded on the wells of culture plates that were already covered with nanocomposite; equal number of wells covered with silicone used as control. These culture plates were maintained in culture for up to 4 days.

In vivo: we implanted nanocomposite polymers in six healthy sheep for 36 months and a silicone implant served as control. After explantation, we looked for signs of surface degradation on the polymer by performing attenuated total reflectance Fourier transform infrared spectroscopy analysis. Histopathologic and electron microscopic examinations were performed in order to study the interaction between the biomaterial and the host environment in greater detail.

All mechanical property experiments (Shell ultimate elongation, Tensile and Tear test) were conducted with an Instron electromechanical testing system for nanocomposite and silicone with the same protocol in the same environment.

Result: macrophage stimulation on the samples exposed to silicone was more than the nanocomposite, implying more foreign body reaction with silicone. The viability of macrophages cultured on different substrates was not affected.

In vivo tests showed minimal inflammatory reaction of the nanocomposite within the sheep model as compared with the silicone control. The increased fibrinogen adsorption on POSS-PCU, its amphiphilicity, and large contact-angle hysteresis indicated that our nanocomposite inhibits inflammation by adsorbing and inactivating fibrinogen on its surface. In complete contrast, the control silicone in the same setting demonstrated very significant inflammation and degradation, resulting in capsular formation. Naturally, there was no evidence of degradation of the nanocomposite compared with the silicone control.

Tensile test showed that mechanical strength of our nanocomposite polymer is about 7 times higher than silicone control with half the silicone thickness.

Conclusion: POSS-PCU nanocomposites have enhanced interfacial biocompatibility, better biological stability and stronger mechanical properties as compared with conventional silicone biomaterials, thus making them safer as tissue implants.

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Poster

Validation of Three Different Nomograms to Predict the Risk of Non-Sentinel Lymph Node Involvement in Turkish Breast Cancer Patients with Sentinel Lymph Node Metastasis

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Background: The sentinel lymph node biopsy after having proven its efficacy and reliability by many randomized controlled studies has become an alternative of axillary lymph node dissection (ALND) in convenient patients. ALND still remains as "the gold standard" for patients with positive SLN. However only 30–50% of the breast cancer patients with positive sentinel lymph nodes (SLN) have non-sentinel lymph node involvement in the axilla. Nomogram accuracies for predicting non-SLN involvement vary between different patient populations. Our aim is to put these nomograms to test on our patient population and determine our individual predictive parameters effecting SLN and non-SLN involvement for our patient population.

Methods: Data collected from 932 early breast cancer patients who underwent SLN biopsy between 2003 and 2011 was retrospectively analyzed. Nomogram values calculated for each patient utilizing Memorial Sloan Kettering Cancer Center (MSKCC), Tenon and MHDf (Turkish) models. Nomograms' accuracies were tested with the calculation of AUC values of ROC curves. Moreover, using our own patient and tumor depended parameters, we established a unique predictivity formula for SLN and non-SLN involvement. Statistics Package for Social Sciences version 16.0 was utilized for statistical analyses. The tests used for statistical analyses were; Chi Square, analysis of variance (ANOVA), receiver-operating characteristic (ROC) curve, Fisher's exact test, Mann-Whitney test and logistic regression. P values under 0.05 were accepted as statistically significant.

Results: All the patients except one were female. Median age was 51.9 ± 11.6 (19–85) years. A total of 2565 SLN were excised. A median number of 2.75 (1–10) SLN was found to have been excised for each patient. Median tumor size was 18 ± 8.9 mm (0.1–50 mm). SLN invasion was present in 271 of the patients. Complementary AD was performed in 244 of these patients and 100 (40.9%) had non-SLN metastasis. The median follow up time was 34 (1–93) months. The calculated AUC values for MSKCC, Tenon and MHDf models were 0.727 (95% CI 0.64–0.8), 0.665 (95% CI 0.59–0.73) and 0.696 (95% CI 0.59–0.79) respectively. In the multivariate regression analyses of the factors effecting the positivity of SLN and non-SLN; tumor size ($p = 0$), presence of lymphovascular invasion ($p = 0$) and progesterone receptor positivity ($p = 0.012$) were found to be correlated with SLN positivity while Cerb-2 positivity ($p = 0.004$) and size of the metastasis in the lymph node ($p = 0.006$) were found to correlate with non-SLN involvement in our study group. The AUC value of the predictivity formula established using these parameters was 0.722 (95% CI 0.63–0.81).

Conclusion: The most accurate nomogram for our patient group was the MSKCC nomogram. Our unique predictivity formula using only two predictive variables, proved to be as equally effective and competent as the MSKCC nomogram. However, likewise other nomograms our predictivity formula needs future validation studies.

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Poster

A New Predictive Model for Predicting the Non-sentinel Lymph Node Metastases in Breast Cancer Patients with Positive Sentinel Lymph Node Biopsy

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Background: Completion Axillary Lymph Nodes Dissections (CALND) performed in breast cancer (BC) patients with positive Sentinel Lymph Node (SNL) at definitive histology show additional nodal metastases in only 35% to 50%. Some institutions proposed statistical methods to identify patient's risk for non-SLN metastases. Aim of this paper was developing a new tool with the final goal of avoiding unnecessary CALND.

Materials and Methods: We retrospectively evaluated 593 primary BC patients. 139 positive SLN underwent CALND. The predictive accuracy of five published nomograms (MSKCC, Tenon, Cambridge, Stanford and Gur) was measured by the AU ROC curve. Then we developed a new logistic regression model comparing the performances. Our model was validated by the leave-one-out cross validation method.