

incision for all wire guided breast excisions regardless of location within the breast.

**Material and Methods:** A list of all patients who had wire guided breast excisions between 2001 and 2011 was compiled from theatre records. Patients' notes, histology and imaging were reviewed.

**Results:** 227 wire guided excisions were carried out by a single surgeon using the peri-areolar approach. The mean age of patients with cancer was 59.5 years ( $\pm 9.77$ ), and those with benign disease was 53.0 years ( $\pm 10.45$ ). Forty seven (20.5%) lesions were located in the upper inner, 95 (42.1%) in the upper outer, 40 (17.7%) in the lower outer, 34 (15%) in the lower inner quadrant and 5 (4.7%) centrally. 156 (68.7%) cases were carcinoma and/or carcinoma in situ, 62 (27.3%) were benign and in 9 (4%) cases histology was inadequate.

Of those with cancer, sixteen (10.3%) patients went on to have a mastectomy after initial breast conserving surgery, due to the multifocal disease. Thirty two (20.5%) patients underwent re-excision of margins, of which 16 (50%) contained no cancer and 16 (50%) did contain cancer. Of this subgroup of patients who had re-excisions, 1 had further margins excised and 4 had a mastectomy for multifocal disease. In total 43 (27.6%) of patients required a second operation, and 5 (3.2%) required a third operation. There were no patients requiring a fourth operation.

There were 2 patients with local recurrence. Both had DCIS with full excision of the tumour. Mean time from first operation to recurrence was 20.6 months. Both patients underwent mastectomy and are currently disease free.

**Conclusions:** Using the peri-areolar incision not only gives a superior cosmetic result, but also give excellent outcomes in terms number of therapeutic operations required and recurrence. We recommend that the peri-areolar incision can be used for all quadrants of the breast.

564

Poster

#### **Surgical Conservation Therapy in Breast Cancer Combined with Intraoperative Radiotherapy – a New Challenge for Surgery**

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**Background:** The popularity of intraoperative radiotherapy (IORT) in breast cancer conservation therapy is increasing. IORT may be used in surgical conservation therapy as a boost to the bed of the resected tumour and it is defined as 'the best gold standard'.

The aim of the study was to present the author's own experience in the application of IORT as a boost to the bed in breast cancer conservation therapy.

**Material and Methodology:** From May 2008 to March 2010 118 patients with breast cancer underwent conservation therapy with IORT applied to the tumour bed. On average the observation period was 22.81 months. Different aspects of surgical procedure were subjected to analysis as preparation for IORT (ROLL/SNOLL, sentinel node biopsy, tissue margins, resected tissue volume). The results of oncological treatment in the presented period were evaluated. The toxicity of the technique was evaluated by means of the LENT-SOMA scale and the cosmetic effect – by means of the Harris/Limbergen scale.

**Results:** IORT requires modified surgical procedure during operation. Appropriate, wide dissection of tissues around the tumour and subsequent resection with intraoperative examination guarantee achieving correct margins. Thanks to the intraoperative examination in the analysed group as many as 40 patients (33.7%) had their margins radicalised. The evaluation of the volume of resected tissues did not reveal differences between palpable lesions and the non-palpable lesions where the SNOLL technique was applied. Thanks to the intraoperative sentinel node biopsy 16 patients avoided another surgery. No relapse of the neoplastic process was diagnosed during the period of observation subject to analysis. Late toxicity was specified as grade zero in 50 patients (42.4%). Due to the ambiguous and suspicious image in radiological examinations 6 patients (5.08%) underwent resection of the lesion or biopsy. Good or very good cosmetic effect was achieved in 80% of the patients.

**Conclusions:** IORT as a boost is a technique ensuring very good results of treatment of patients with breast cancer both in terms of the oncological aspect and the cosmetic effect. The technique is characterised by a small number of complications. However, it requires certain modification of the surgical procedure during the operation and consideration of such accompanying techniques as ROLL/SNOLL, sentinel node biopsy and intraoperative examination.

565

Poster

#### **Does Immediate Breast Reconstruction Technique Influence True Local Recurrence Rate After Skin-sparing Mastectomy?**

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**Background:** Skin-sparing mastectomy (SSM) followed by immediate reconstruction (IR) is a generally accepted oncosurgical treatment. However, association between local recurrence and breast reconstructive techniques has not been widely investigated yet. Therefore, we determined local recurrence rate of breast cancer patients treated with SSM and IR with autologous flaps or implant-based techniques.

**Methods:** 207 patients (Stage0–IIIB) underwent SSM and IR (1995–2000) for invasive cancer (n = 153) or DCIS (n = 54) were followed-up for 111.9 [8–163] months. Reconstructive techniques were the following: LD: 70, LD+implant: 38, implant only: 54, DIEP: 29, TRAM: 8, SIEA: 5, SGAP: 3. Statistical associations were calculated by two proportions Z-test.

**Results:** 6 patients (2.9%) were detected with true local recurrence in 10 years. While 5 patients developed local recurrence with implant only reconstruction, only 1 was diagnosed with the same after autologous reconstruction (p = 0.038). However, a comparison of implant-based (LD & LD+implant) to autologous techniques showed no significant association (p = 0.07).

**Conclusion:** Implant only reconstructions may be associated with higher local recurrence rate after SSM, although the overall detected events were relatively few. These data however urge further investigations to determine whether implant reconstructions increase local recurrence rate.

566

Poster

#### **Safety of Fat Grafting in Secondary Breast Reconstruction After Cancer**

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**Background:** Fat grafting is largely used to correct soft-tissue defects in any region of the human body. This study analysed its safety when the technique is used to correct defects after breast-cancer reconstruction.

**Material and Methods:** A total of 158 patients who underwent 194 breast fat grafting procedures were analysed. Almost all patients (98%) had a personal history of breast cancer: conservative surgery or mastectomy with breast reconstruction. In all cases, fat grafting was performed according to the Coleman's technique by a single surgeon.

**Results:** Immediate complications included liponecrosis and infection in seven cases (3.6%) that required only daily dressings and oral antibiotics administration. In cases of fat grafting after conservative surgery, only four patients (5.9%) showed minor alterations in the postoperative mammograms, consisting of the appearance of benign images.

**Conclusion:** Breast fat grafting can be a good solution to repair defects after breast-cancer treatment and reconstruction, and can reduce the indication for more extensive surgeries such as myocutaneous flaps. Postoperative complication rates are very low and there is little alteration in follow-up mammograms. Two points remain unclear—how much of the fat is absorbed after grafting and the potential risk of local 'dormant' tumour cells being stimulated to induce a local recurrence.

567

Poster

#### **Sentinel Lymph Node (SLN) Biopsy in Early Breast Cancer Guided by Indocyanine Green (ICG) Fluorescence Imaging Method – Preliminary Experience and Ongoing Trial**

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**Background:** SLN biopsy with radioisotope (RI) and blue dye method are being used successfully for axillary staging in breast cancer patients. These methods show good results but some drawbacks are remaining. Indocyanine green (ICG) fluorescence imaging method is being evaluated as a new method for SLN biopsy in breast cancer allowing both transcutaneous visualization of lymphatic vessels and intraoperative identification of SLN without using a radioactive methodology.

**Material and Methods:** Thirty women with clinically node negative breast cancer received subdermal peritumoral injection of ICG for fluorescence detection of SLN using a near-infrared camera (1 patient had bilateral injection). All of them also received (99m) Tc-labelled sulphur radiocolloid for SLN scintigraphy. All patients underwent SLN biopsy. SLN was first identified with the fluorescence method and then reconfirmed with the standard method (RI method). Detection rate, sensitivity and clinical feasibility between the 2 methods were the study endpoints.

**Results:** SLNs were successfully visualized in all patients (detection rate 100%). The mean number of fluorescence SLN and radioisotope SLN were 2 and 1.9. Ten patients were found to have lymph node metastasis pathologically. All of them were recognized by the fluorescent method (Sensitivity 100%). There were 4 SLN identified by the ICG fluorescence method that were not detected by the RI method. All pathologically negative. There were not SLN detected by the RI method not identified by the ICG fluorescent method.

**Conclusions:** Our preliminary data show that ICG fluorescence imaging method allowed transcutaneous imaging of lymphatic vessels and SLN detection in a feasible way with acceptable sensitivity comparable to the RI method. In order to validate this technique, at the European Institute of Oncology, we have started an equivalence comparative study that compares the RI detection method with the ICG fluorescence imaging detection method.

568

Poster

### Nipple Sparing Mastectomy – Sant'Andrea Hospital Experience

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**Background:** Despite in the last 20 years, with the introduction of conservative techniques, breast surgery has become less mutilating, mastectomy is indicated in approximately 30% of cases. It is indicated not only for large invasive carcinoma but also for multicentric tumors and intraductal carcinoma. The loss of the nipple is experienced like a mutilation.

Can we preserve the NAC?

**Materials and Methods:** From December 2004 to September 2011 we performed 103 nipple sparing mastectomy (NSM) with immediate breast reconstruction.

Selection criteria included women with preoperative diagnosis of breast cancer, tumour at least 1 cm from the NAC without bloody discharge and NAC retraction.

NSM was performed through inframammary fold incision. In few cases we used skin incision above the tumour or periareolar incision.

**Histological Results:** invasive carcinoma in 70 cases, intraductal carcinoma in 21 cases, malignant phyllodes tumor in 2 cases, negative for carcinoma (prophylactic mastectomy) in 10 cases.

We removed the nipple in 8 cases because the histological examination of the retroareolar tissue was positive.

Local recurrences: 2 (1.9%).

No recurrences were observed in the NAC.

Total necrosis of the nipple: 1/103 patients (0.9%).

Partial necrosis: 6/103 patients (5.8%).

Local infection: 1 (0.9%).

**Conclusions:** In several retrospective studies the involvement of the nipple ranges from 0 to 58%, some of these case studies relate to old cases with large tumors. The use of these techniques has had a positive impact on psychology and quality of life of patients with breast cancer but longer follow-up is needed.

569

Poster

### Effectiveness of a New Ultrasonic Device in the Axillary Dissection

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**Background:** With the introduction of Biopsy of Sentinel Lymph Node (SNLB), cases of axillary dissection have become generally more technically complex than before.

In these cases the e ultrasonic device is very useful. The aim of this study is to estimate the effectiveness of the new ultrasonic device in the reduction of seroma, haematic loss and time of surgery.

**Materials and Methods:** Since March 2008 to April 2011 we enrolled in our study 200 patients with breast cancer requiring an axillary dissection (positive Lymph-nodes at the beginning or after sentinel-node biopsy).

We randomized the patients in two arms (A and B).

A: 105 axillary dissection using ultrasonic device

B: 95 axillary dissection using usual technique.

We recorded the following data of the patients enrolled: age weight, height BMI, pre and post operative value of hemoglobin.

A closed suction drain was placed; it was removed in the second or in the third postoperative day.

Drain volume was daily recorded. We analyzed data from a subgroup (140) of patients underwent axillary dissection without breast reconstruction (A82, B58).

**Results:** The median age of the sample was 56 (range 33–89). The BMI calculated was 20.06 (range 19.53–42.97). We had 9/82 (10.9%) seroma in the A group and 7/58 (12.3%) in the B group. Clinical seroma was treated

by needle aspiration and medication with steroid. We recorded reduction of bleeding and of time of surgery in the A group. We calculated the difference of value of pre and post operative Hemoglobin (Pre-post op HB0 and time of surgery in a subgroup. We obtained the following data:

A arm (82 pt): 1.01 Pre–post op HB

B arm (58 pt): 1.46 Pre–post op HB

**Conclusions:** The results are encouraging. This new ultrasonic device is ergonomic, comfortable. It allows to dissect, coagulate, cut and it reduces damage of vital structures. It's very useful and safe in patients with pacemaker where electrosurgery can not be used.

570

Poster

### National Audit of Breast Cancer Specimen Orientation Markers

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Accurate orientation of breast wide local excision specimens is vital if re-excision of positive margins is required. In the UK, national health breast screening programme (NHSBSP), clearly recommend that breast screening units have a protocol for marking specimens to aid pathologists with specimen orientation.

A postal questionnaire was sent to the lead breast pathologist of all breast units identified in England. Questions addressed the method and protocol of orientation. Do such protocols vary within units? What is the frequency of need to contact the operating surgeon for clarity, and whether pathologists would prefer a national, standardised protocol?

Of units orientating specimens with sutures (n=88), the most commonly used method was short length superior, medium length medial and long length lateral by 52% units. Of units orientating specimens with clips (n=22), the most common form of orientation was, one clip superior, two lateral, three inferior and 4 medial, 27%.

Pathologists in 47% units are unclear whether there is a protocol for surgical excision such as 'all tissue from skin to pectoral fascia.' Four (3%) pathologists report the need to contact surgeons for clarification of specimen orientation more frequently than 'rarely'.

Three pathologists highlighted the risk of specimen mis-orientation with similar techniques (eg suture / clip) but different protocols (eg short superior versus short superficial), particularly when considering rotating surgical and pathology trainees or locums, who may not know or follow local protocols.

There was a clear wish by nearly half of all responding pathologists to have a nationally standardised system for specimen marking.

We suggest that specimen orientation protocol should form part of NHSBSP guidelines, with sutures orientated: short length superior, medium length medial and long length lateral and clips orientated: one clip superior, two lateral, three inferior and four medial {the most commonly used methods}. However it should be acknowledged that units can adopt their own system if preferred.

We suggest that all breast surgery units should have specimen marking protocols clearly visible in theatres where breast surgery is performed. There should be increased awareness of specimen orientation protocols amongst trainees and locums, as these surgeons are likely to be at increased risk of breaking protocol.

571

Poster

### Results and Complications of Autologous Latissimus Dorsi Flap Breast Reconstruction

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**Background:** Use of an autologous latissimus dorsi (LD) flap in breast reconstruction accounts for a flexible and natural look of reconstructed breast and has maintained a strong popularity because of its ease of harvest, reliability, and ability to provide additional prosthetic coverage. Different complications (hematoma, seroma, flap necrosis, infection, hypertrophic scarring, and postoperative back pain) linked to this type of breast reconstruction. The aim of this study was to evaluate the complications and aesthetic outcome of (LD) flap breast reconstruction after breast cancer surgery.

**Materials and Methods:** From January 2009 till January 2011, 40 patients underwent breast reconstruction using (LD) flap with a follow-up period ranged from 6 to 18 months. Patients with small to medium sized breasts underwent complete reconstruction by extended (LD) flap after mastectomy either subcutaneous or skin sparing mastectomy while patients with large pendulous breast underwent Augmentation by (LD) miniflap after conservative surgery by wide local excision (WLE) with safety margin. All patients gave their informed consent for the procedure and were aware of the potential complications and the possibility of secondary procedures.

**Results:** The ages of the patients in our study ranged from 25 to 65 years old. 28 (70%) patients underwent (WLE) and reconstruction with