well as infectious complications. Hence, we felt it prudent to perform a matched-pair analysis of clinical outcomes following pre-pectoral and sub-pectoral tissue expander placement.

**METHODS:** A retrospective study of patients who underwent immediate breast reconstruction by means of pre-pectoral (Group 1) and sub-pectoral (Group 2) tissue expander placement was performed. Patients in each group were matched for age, BMI, history of neoadjuvant radiotherapy, and type of ADM. Of note, patients in Group 1 received perioperative antibiotic prophylaxis for less than 24 hours while patients in Group 2 received antibiotic prophylaxis for at least 1 week.

**RESULTS:** A total of 80 patients (138 breast reconstructions) were included in the study (Group 1: N=40; Group 2: N=40). No difference in total postoperative complication rate (p=0.356) and mastectomy skin necrosis rate (p=1.0) was noted. A trend towards a higher rate of major complications was seen in Group 2 (p=0.06). Similarly, while not statistically significant, a trend towards a higher rate of major infection (p=0.09) and loss of reconstruction (p=0.09) was noted in Group 2.

**CONCLUSION:** Immediate pre-pectoral tissue expander insertion with anterior ADM coverage and less than 24 hours of antibiotic prophylaxis is safe and compares favorably to sub-pectoral tissue expander placement with an inferior ADM sling and a prolonged course of antibiotics.

### The Impact of Delaying Breast Reconstruction on Patient Expectations and Health Related Quality of Life: An Analysis Using the Breast-Q

**Presenter:** Alexander Morzycki, MSc

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**BACKGROUND:** An understanding of patient expectations predicts better health outcomes following breast reconstruction. No study to date has examined how patient expectations for breast reconstruction and pre-operative health-related quality of life vary with time since breast cancer diagnosis.

**METHODS:** Women consulting for breast reconstruction to a single surgeon’s practice over a thirteen-month period were enrolled in this cross-sectional study. Patients were asked to prospectively complete the BREAST-Q expectations and pre-operative reconstruction modules. A retrospective chart review then performed on eligible patients, and patient demographics, cancer-related factors, and co-morbidities, were collected. Scores were transformed using the Rasch method. Multivariate linear regression models were constructed to assess the association between BREAST-Q scores and time since diagnosis.

**RESULTS:** Sixty-five patients met inclusion criteria for analysis and are characterized by a mean age of 53±11 (33–79) and a mean BMI of 28±6 (19–49). Most patients were treated by mastectomy (58%), or lumpectomy (23%). At the time of retrospective review, 29 patients (43%) had undergone reconstruction, most of which were delayed (59%). The mean latency from diagnosis to reconstruction was 685±867 days (range: 28–3322 days). Latency from diagnosis to reconstruction was associated with greater expectation of pain (β=0.5; SE=0.005; 95% CI: 0.003 – 0.002; p<0.05), and slower expectation for recovery (β= -0.5; SE=0.004; 95% CI: -0.021 – -0.001; p<0.05). Latency from diagnosis to reconstruction was associated with increased pre-operative psychosocial wellbeing (β =0.578;SE 0.009; CI: 0.002 –0.046; p<0.05).

**CONCLUSION:** Delaying breast reconstruction may negatively impact patient expectations of post-operative pain and recovery. Educational interventions aimed at understanding and managing patient expectations in the pre-operative period may improve health-related quality of life and patient-related outcomes following initial breast cancer surgery.

**Persistent Animation Deformity in the Denervated Latissimus Dorsi Pedicled Flap**

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**BACKGROUND:** Optimal management of the thoracodorsal nerve in pedicled latissimus dorsi flaps for mastectomy reconstruction is controversial. The incidence and etiology of animation deformity despite muscle denervation remain poorly-understood. This study examines the incidence and risk factors of persistent animation to guide patient management.

**METHODS:** A retrospective review of a single surgeon’s practice identified breasts reconstructed with a pedicled latissimus dorsi flap including transection of a single branch of the thoracodorsal nerve. The incidence and severity of postoperative animation deformity were examined with identification of potential causative factors: age, BMI, indication for mastectomy, radiation therapy, chemotherapy, hormone therapy, and timing to reconstruction. Patients completed a survey to assess lifestyle implications. A cadaveric dissection of ten latissimus muscles identified anatomical causes of persistent muscle innervation.

**RESULTS:** Forty-one reconstructions with a minimum follow-up of two years (average 6.25 years) identified no significant relationship between postoperative animation and patient or treatment factors. While absent in the first postoperative year, animation deformity was identified in 90% of patients on long-term follow-up, with 32% reporting pain, and 25% indicating lifestyle interferences. This high frequency of animation correlated with cadaveric results that identified multiple branches of thoracodorsal nerve innervating the latissimus in 9/10 specimens. The distance between nerve branches was $5.4 \pm 0.7$mm, with the point of bifurcation (5/10) or trifurcation (4/10) located $19.7 \pm 2.3$mm proximal to the superior muscle margin.

**CONCLUSION:** Persistent animation deformity, despite nerve transection, is likely attributable to anatomical differences in the branching patterns of the thoracodorsal nerve, rather than patient or therapeutic factors. While early follow-up may imply adequate denervation, transection of a single nerve branch is insufficient for long-term prevention of animation deformity in most patients. Exploration for additional nerve branches is suggested; however, not at the risk of endangering the vascular pedicle. Preoperative patient counselling is therefore recommended.

**Neoadjuvant Chemotherapy Is Not Associated with Increased Risk of Complications in Immediate Breast Reconstruction**

**Presenter: Andrew Karam, BSc**

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**PURPOSE:** Advances in the treatment of breast cancer have resulted in the increased use of neoadjuvant chemotherapy (NAC). Women who undergo NAC tend to be younger and have higher rates of mastectomy. These women are also having immediate breast reconstruction (IBR) but there is a paucity of literature evaluating the safety of this practice. The purpose of this study is to evaluate the impact of NAC on complication rates in women undergoing IBR.

**METHODS:** The National Surgical Quality Improvement Program (NSQIP) database was queried to retrospectively evaluate the nature and incidence of postoperative complications of IBR following mastectomy. The study population consisted of two cohorts; one where women had IBR with abdominal flaps and the other consisted of women who had IBR with expanders or implants. To establish the cohort of IBR, patients who didn’t have a mastectomy listed as either a primary or secondary procedure, were excluded. In all, the records of 13833 procedures across NSQIP-participating sites were reviewed for demographics, patient clinical characteristics, preoperative lab values, intraoperative practices, and postoperative complications including incidences of surgical site infection (SSI), reoperation or readmission, need for transfusion, and incidence of a cardiopulmonary or thromboembolic event. Univariate and multivariate regression analyses were used to compare complication rates between NAC and non-NAC populations, and to determine if complication rates were impacted by the receipt of NAC. Independent variables for the regression analysis included patient demographics, medical history, and intraoperative factors.

**RESULTS:** 12000 patients were identified as having implant based IBR; 648 of them received NAC. Patients receiving NAC were younger (p<0.001), had lower