Treatment of Breast Cancer-Related Lymphedema with Adipose-Derived Regenerative Cells and Lipotransfer: A double-blinded placebo-controlled phase-II trial

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Abstract

Background: Breast cancer-related lymphedema (BCRL) is a debilitating sequela affecting up to one in three breast cancer survivors. Current treatments are palliative and does not address the underlying lymphatic injury. Recently, preclinical and non-randomized studies have shown promising results using Adipose-Derived Regenerative Cells (ADRCs) and lipotransfer in alleviating BCRL through regeneration of lymphatic tissue. However no randomized controlled trial has been performed in an attempt to eliminate a placebo effect.

Methods: This randomized, double-blinded, placebo-controlled trial included patients with no-option, persistent disabling unilateral BCRL. Patients were randomly assigned in a 1:1 ratio to receive either autologous ADRCs ($4.20x10^7 \pm 1.75x10^7$ cells) and 30cc lipotransfer or placebo (saline) to the axilla. The primary outcome was a change in BCRL volume one year after treatment. Secondary outcomes included changes in the quality of life, indocyanine green lymphangiography stage, bioimpedance, and safety.

Results: Eighty patients were included, of which 39 were allocated to ADRCs and lipotransfer treatment and 41 to placebo treatment. Baseline characteristics were similar in both groups. One year after treatment, no objective improvements were observed in the treatment or placebo groups. In contrast, significant subjective improvements were noted for both the treatment and placebo groups.

Conclusion: This trial failed to confirm a benefit of ADRCs and lipotransfer in the treatment of BCRL. These non-confirmatory results suggest that ADRC and lipotransfer should not be recommended for alleviating BCRL at this time.

Molecular Targeted Imaging for Near-Infrared Fluorescence-Guided Surgery of Cutaneous Squamous Cell Carcinoma – Preclinical Studies in Orthotopic Xenografts

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Introduction

Cutaneous squamous cell carcinoma (cSCC), the second most common cancer in humans, requires radical surgical resection for curative treatment. However, precise demarcation, particularly of the invasive border, poses a challenge, hindering differentiation between cancerous and healthy tissue visually and tactilely. Current assessment methods, such as Mohs surgery or cryosectioning, are time-consuming and lack real-time visualization, necessitating a need for intraoperative guidance.
The cell surface receptor urokinase-type plasminogen activator receptor (uPAR), expressed in most solid cancers including cSCC[1], holds promise for targeted imaging. Here, we investigate the potential of uPAR-targeted near-infrared (NIR) fluorescence imaging for precise intraoperative cancer demarcation.

Methods

Our previously developed probe, IRDye800CW-AE344[2], was intravenously administered to 11 nude mice bearing human cSCC xenografts in dosage arms of 3, 6, and 12 nmol with 4, 5, and 2 animals, respectively. All animals were imaged at 1, 3, 6, 12, 24 and 48 hours post injection and the tumor-to-background ratio (TBR) assessed.

Results

Our probe showed feasible to visualize cSCC with high intensity and a maximum TBR of 4.3 at a dose of 6 nmol at 12 hours (figure 1A + B). At 3 nmol TBR_{max} = 2.5 was achieved 12 hours post injection and for the 12 nmol dose TBR_{max} = 2.3 was achieved after 24 hours.

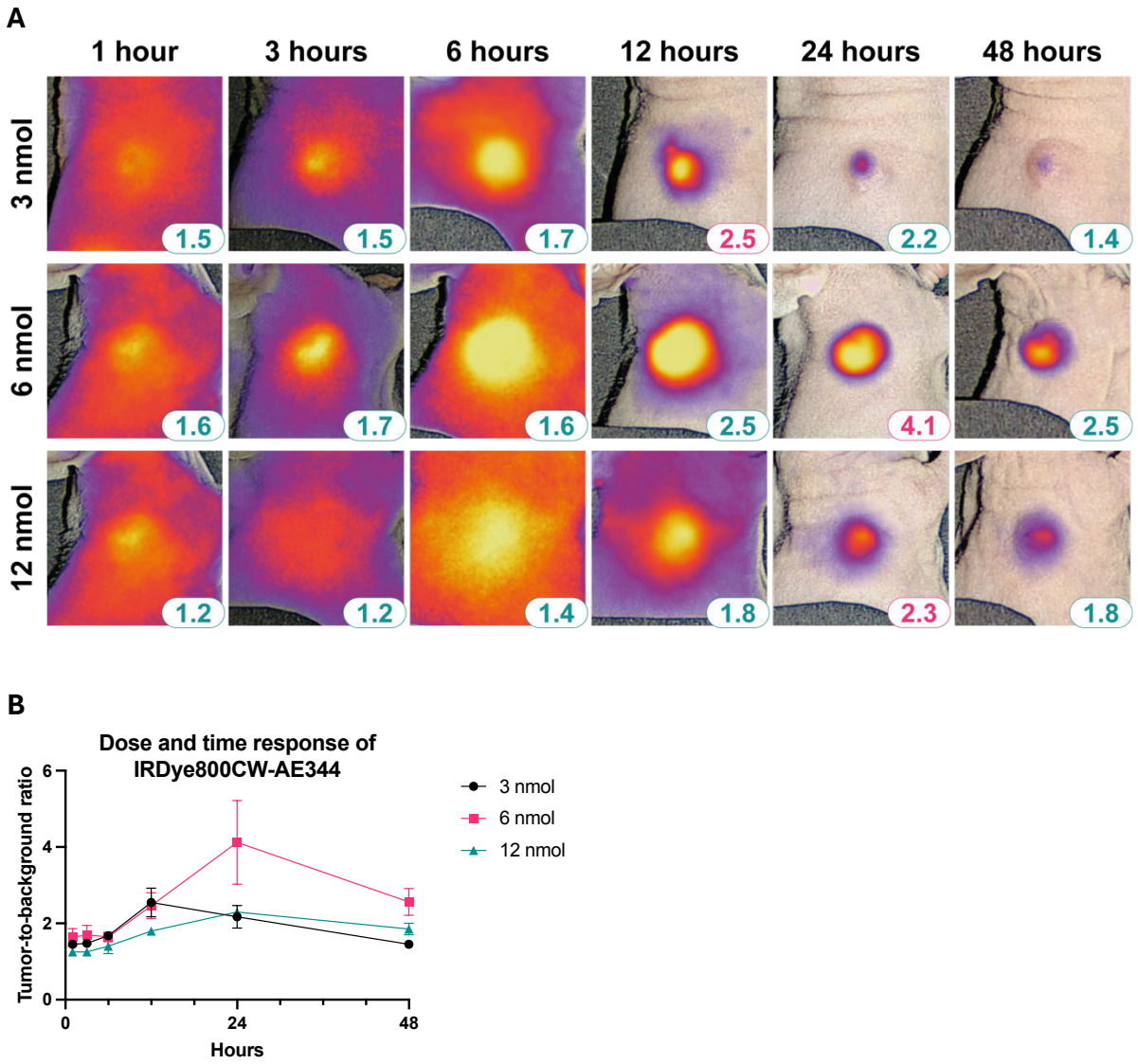

Figure 1 *– **A** The panels depict cSCC visualized with the IRDye800CW-AE344 near-infrared fluorescence probe with the visual light image with near-infrared overlay. The numbers in lower left corner are mean TBR values for all animals in the dose group. For each dose the images correspond to the same animal. **B** Chart illustrating the time dependent dose-TBR response (error bars are SEM). **C** Comparison of demarcation using visible light and using NIR light.*

Discussion

Our findings support the utility of uPAR-targeted NIR fluorescence imaging in guiding resection of cSCC. The probe effectively visualizes tumors in nude mice, demonstrating high signal intensity and TBR. Moreover, preliminary comparisons with visible light demarcation show promising results, with all areas delineated by visible light included in the NIR light demarcated area, along with additional cancerous regions undetected by visible light. However, limitations exist, including reliance on pending histological evaluation and the use of xenograft models, underscoring the need for further validation in clinical settings and with more representative animal models.

Conclusion

In conclusion, our study highlights the potential of uPAR-targeted near-infrared fluorescence imaging to improve surgical outcomes for cSCC by enabling real-time identification of tumor margins.

1. Minaei, E.*, et al.* Cancer Progression Gene Expression Profiling Identifies the Urokinase Plasminogen Activator Receptor as a Biomarker of Metastasis in Cutaneous Squamous Cell Carcinoma. *Front Oncol* **12**, 835929 (2022).
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Abstract

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Title: Topical Tranexamic acid in mastectomies on hematoma formation: A prospective cohort study

Background: Tranexamic acid (TXA) has been suggested to reduce hematoma formation after breast surgery. Existing literature, however, presents inconsistencies regarding the methods of administration and dosages for topical application.

This study aims to investigate the effect of perioperative administration of topical TXA on mastectomy procedures, focusing on postoperative hematoma formation and drain output.

Methods: The study cohort was included during October 2020 until September 2023 and comprised two consecutive periods. In the first, the control group, included women undergoing mastectomy and receiving no TXA. In the second period, all women undergoing mastectomy received 20ml of 50mg/ml TXA retrogradely into the drain immediately after closure of the cavity. In both groups most women had either axillary clearance or sentinel node biopsy done in addition to the mastectomy. All medical records were thoroughly scrutinized for information on the primary outcomes; hematoma formation requiring surgical intervention and mean drain output 24 hours postoperatively. Several other possible confounders as age, BMI, smoking, and use of anticoagulant were also registered. This study was designed in accordance with STROBE guidelines.

Results: Among 271 women (297 breasts) receiving topical TXA and 264 women (278 breasts) serving as a control group, 4 (1.4%) and 19 (6.8%) women, respectively had surgical revisions due to hematoma. This was statistically significant (p=0.005). Furthermore, the TXA group demonstrated a significantly lower mean drain output within the first 24 hours postoperatively, averaging 67.6ml compared to 103.9ml in the control group (p=0.001).

Conclusion: Administering 20ml of 50mg/ml topical TXA retrogradely into the drain after skin closure significantly reduces the incidence of hematoma formation by approximately 79%, as well as the mean drain output within the first 24 hours following a mastectomy.

Title: Locally applied single-dose antibiotic prophylaxis for implant-based breast reconstruction: Pharmacokinetic evaluation of the duration of effect

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Abstract (265/300)

Background Antibiotic irrigation of breast implants in women undergoing implant-based breast reconstruction is widely used internationally, but no clinical study has investigated the pharmacokinetics in the breast implant pocket. In this prospective study, we determine how long locally applied gentamicin, cefazolin, and vancomycin maintain concentrations in the implant pocket above the minimum inhibitory concentration (MIC) for common infective bacteria and measure systemic uptake in women undergoing breast reconstruction with implants.

Material and methods Patients undergoing breast reconstruction with implants were recruited from the ongoing BREAST-AB trial, in which they were randomized to implant- and pocket irrigation with 160 µg/mL gentamicin, 2000 µg/mL cefazolin, and 2000 µg/mL vancomycin in a 200 mL saline solution or placebo at Rigshospitalet, Denmark. Samples from the breast drain and blood were obtained up to 10 days postoperatively. Antibiotic concentrations in drain fluid and blood were analyzed using High-Performance Liquid Chromatography-Mass Spectrometry (HPLC-MS).

Results We included 40 patients who contributed with 146 drain samples and 66 blood samples between October 2021 and September 2022. Only 26/40 patients contributed with blood samples. Vancomycin and cefazolin remained above the MIC for *S aureus* significantly longer than gentamicin (gentamicin: 0.9 days versus vancomycin: 6.9 days, $P<0.05$, and cefazolin: 3.7 days, $P<0.01$). Gentamicin remained above the MIC for *Pseudomonas aeruginosa* for 1.3 days. Only cefazolin was detectable in blood samples, albeit in very low concentrations (median: 0.04 µg/mL).

Conclusion This study indicates that patients treated with triple-antibiotic implant irrigation during breast reconstruction with implants receive adequate prophylaxis for *S aureus* and other common implant-associated gram-positive bacteria. However, the protection against *P aeruginosa* may be inadequate.

Fear of developing breast cancer following a bilateral risk-reducing mastectomy and immediate breast reconstruction- results from the HEBRECA study

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Aim/Background: Women with high-risk hereditary predisposition to breast cancer have a risk of developing breast cancer of 45–90%. A bilateral risk-reducing mastectomy (BRRM) effectively decreases this risk with approximately 98%, and in Denmark 50% of this patient population opts for the surgery. Most often, an immediate breast reconstruction is performed simultaneously. A tailored radiologic surveillance program is offered as an alternative. Fear of developing breast cancer plays a big role in the decision process. The aim of this study was to evaluate the changes in fear of developing breast cancer following a BRRM and IBR and compare the findings to women attending a surveillance program.

Material and methods: Eligible patients were included from April 2019 to July 2023 at multiple departments of plastic surgery, radiology and clinical genetics and placed in either of two groups: *surgery* or *surveillance*. Patient-reported outcomes were collected electronically at baseline and at 3, 12, and 24 months post-surgery/post-baseline. The validated questionnaire CARQ-3 was used to measure fear of developing breast cancer. Additionally, information on sociodemographic factors, parity, and more were collected.

Results: In the two groups, 35 and 37 patients were included. Analyses of the sociodemographic information disclosed significant difference between the groups in terms of level of education and parity. The baseline score of the CARQ-3 was significantly higher in the *surgery* group (difference in means 5.5, p=0.003), and in the *surgery* group the scores at timepoints <6, 8–18 and >18 months post-surgery were all significantly lower than the baseline score.

Discussion/Conclusion: The results indicate that women with hereditary predisposition to breast cancer who choose a BRRM and IBR have a higher level of baseline fear of developing breast cancer compared to women in a surveillance program, and that the surgery effectively reduces this fear both on short-term and long-term.

Psychometric validation of the Danish BREAST-Q reconstruction module

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Aim/Background: Patient-reported outcome measures (PROMs) collect subjective information directly from the patient and add to clinical and functional outcomes. PROMs are essential for assessing the impact of breast reconstruction on quality of life. It is paramount that a PROM has been psychometrically validated for use in the relevant patient population.

The BREAST-Q is a specific, validated questionnaire for breast surgery outcomes that has been translated from English to Danish. It consists of 167 items in 7 pre-operative scales and 15 post-operative scales. This validation study aims to evaluate the reliability, validity, and utility in clinical practice and research.

Material and methods: Eligible women were included from January 2019 to June 2020. The BREAST-Q was administered electronically. Psychometric analyses examined reliability and validity using both Rasch Analyses and Classical Test Theory. Multiple-item scales with more than 40 complete responses were eligible for psychometric validation. Measurements included test for local response dependence, item fit, differential item functioning, and more. Clinical validity was assessed using known-groups hypotheses.

Results: The participation rate at Herlev Hospital was 71%. We obtained 115 complete pre-operative responses (response rate 82%) and 201 complete post-operative responses (response rate 78%). Missing data was ≥5% in 23 of the 167 items (14%).

We validated 120 items in four pre-operative and nine post-operative scales. The Rasch analyses disclosed evidence of local response dependence in eight scales. The estimated reliability using Chronbach's α was however adequate after adjustment with range 0.81–0.95. Item fit was evaluated using item-restscore correlations and showed good fit in 97% of items. Differential Item Functioning was found in four items but had very little effect on the model. Clinical validity was supported by the know-group analyses.

Discussion/Conclusion: The Danish version of the BREAST-Q reconstruction module has good acceptability, feasibility and validity, and adequate reliability. The results support the use in a Danish population.

Gamification of training in skin cancer diagnosis: A nationwide, randomized, controlled trial

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Background: With rising incidence of melanoma and other skin cancers, there is increasing need for competence in skin cancer diagnosis across sectors and specialties. Currently, reaching proficiency in diagnostic skills requires years of experience; alternative approaches steepening this learning curve are required. A proposed solution is gamification—the integration of game-like mechanics—to retain training engagement. Here, we aimed to evaluate the effects of gamification on skill acquisition through self-regulated training of skin cancer diagnosis.

Materials and Methods: This was a nationwide randomized controlled trial (RCT). Participants were given three weeks unlimited access to a mobile application for training skin cancer diagnosis, where points were granted or removed depending on diagnostic performance. Participants were randomized to either an interventional group, who received a daily leaderboard (scoreboard), ranking them by their accumulated points, or a control group, who received no leaderboard.

Results: This trial is currently ongoing. Participants comprise 103 medical students year 1–6 (mean age 25.02 years), with no prior skin cancer diagnostic experience, who were recruited from all four Danish medical schools. Preliminary findings show a mean end-of-course diagnostic accuracy of 44.5%, equivalent to a doctor with 4–11 months of diagnostic experience. There was no difference between groups. Full results will be presented at the meeting.

Discussion: Studies on gamified learning within plastic surgery and dermatology seemingly demonstrate a positive effect. However, most contain methodological shortcomings, such as using self-assessed outcomes and examining multiple, pooled game elements. In this well-designed and -powered nationwide RCT, leaderboards had no effect on skills acquisition, implying that educators should not design interventions solely using leaderboards. Methodologically, this trial raises the bar for educational research in plastic surgery, and more educational RCTs are necessary to improve effective clinical skill acquisition, allowing for higher quality patient treatment.

Squamous cell carcinoma of the skin: Recurrence and risk of metastasis

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Background:
Squamous cell carcinoma (SCC) is the second most prevalent cancer in the world with a worldwide increase of 310% from 1997 to 2017. The prognosis is usually good; however, metastases occur in up to 5% and are linked to high mortality rates. Even though the risk of metastasis and death is low, due to the sheer numbers, the mortality now exceeds that of melanoma. We wanted to investigate the latest tendencies of SCC regarding recurrence and metastasis in Central Denmark Region.

Materials & Methods:
The study was a retrospective, single-centre, cohort study of patients in Central Denmark Region. The purpose was to evaluate all patients receiving surgery for SCC in 2018 and 2019. We evaluated all patients receiving the diagnostic code ´skin cancer´ DC44XX. Demographic data were obtained from the electronic patient journal.

Results:
The cohort consisted of 2300 patients, some with multiple tumours. After excluding 1519 patients with other types of skin cancer, we were left with 781 patients with SCC. Of the 781 patients, 63 (12%) were recurrent tumours. Recurrent tumours were more likely to metastasise later. Of the 63 patients that had a recurrent tumour, 19 (30.2%) patients were primarily treated with curettage or cryotherapy. The remaining recurrent tumours were treated with surgical excision. Of these, 7 (11.1%) were treated with undisclosed margins and 8 (12.7%) with positive margins. Late lymph node metastases were present in 12 (1.6%) patients and six (0.8%) patients had lymph node metastases at the time of diagnosis. Patients were diagnosed with locoregional late metastasis approximately 1.5 years after excision of their primary tumour.

Discussion/conclusion:
Our investigation showed the importance of wide negative excision margins when treating SCC. The higher prevalence of late metastases than metastases at diagnosis may suggest lymph node examination in routine controls after excision of SCC and better patient instructions regarding self-examination.

Incidence and surgical treatment trends of non-melanoma skin cancer in Denmark 2002-2021

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Introduction

Because of the large and increasing number of non-melanoma skin cancer (NMSC) in Denmark, surgical treatment of NMSC may cause a significant burden on healthcare resources. Knowledge on the recent incidence rates of basal cell carcinoma (BCC) and squamous cell carcinoma (SCC) and current trends in treatment is crucial to improve the care and specialized management of NMSC in the future. The objective of this study is to assess incidence rates and development in surgical treatment of BCC and SCC.

Methods

This is a nationwide cohort study. Information on all incident cases of BCC and SCC in Denmark from 2002-2021 were extracted from Danish health registries. Age-adjusted incidence rates and annual percentage change (APC) for BCC and SCC cases were calculated using Joinpoint regression models. Likewise, we analyzed trends in surgical treatment, including reconstructive procedures.

Results

We found 457,080 cases of BCC and 89,054 cases of SCC in the 20-year period. The age-adjusted incidence rates increased from 380 to 620 per 100,000 for BCC and from 72 to 175 per 100,000 for SCC. The APC for the entire period was 1.8 % for BCC and 4.3 % for SCC. In the last two years, the APC was 14 % for SCC.

Surgery was performed in 90,541 BCC cases and 35,496 SCC cases. The age-adjusted incidence rate increased from 38 to 145 per 100,000 for BCC and from 15 to 69 per 100,000 for SCC. Among those treated surgically, 25,571 (28 %) BCC cases and 13,688 (39 %) SCC cases underwent reconstructive procedures.

Conclusion

The number of NMSC cases in Denmark is considerable. SCC incidence has increased dramatically the last few years and combined with a substantial demand for reconstructive surgery, this emphasizes the importance of effective treatment management for NMSC now and in the future.

DSPR abstract

Title

Incidence, local recurrence, metastasis, disease-specific survival, and overall survival in patients with cutaneous rhabdomyosarcoma: A nationwide cohort study of 24 patients

Authors

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Introduction
Cutaneous rhabdomyosarcoma (cRMS) is a rare and aggressive type of mesenchymal derived tumour associated with a high risk of metastasis. The incidence, prognosis, and follow-up of patients with cRMS is unknown as the current knowledge is sparse and primarily based on case-reports. The purpose of this study is to describe the epidemiology of cRMS in terms of incidence, patient demographics, prognosis, and follow-up.

Methods
All patients with diagnosed cRMS in Denmark between 1982-2023 were identified in the Danish National Pathology Register. Risks of local recurrence, metastasis, and disease-specific survival were estimated with cumulative incidence functions with all-cause death considered a competing risk. Overall survival was estimated with the Kaplan-Meier method.

Results
A total of 24 patients with cRMS were included providing an incidence rate of 0.1468/1.000.000/year. The ages of diagnosed patients varied from 16,8 years to 90,8 years, and with a gender ratio with 37.5% females and 62.5% males. Four patients experienced metastasis resulting in a 5-year risk of 24.4% (95%CI 3.5 - 45.3). Seven patients had metastases at the presentation of the diagnosis. Distant metastasis occurred in 17 patients (54%) and included the lungs, lymph nodes, brain, and GI-tract. Regional lymph node metastasis occurred in eight cases and local metastasis occurred in six cases including skin and bone invasion. Ten patients died from cRMS giving a 5-year disease specific survival of 56.2% (95%CI 35.1 - 76.8).

Conclusions
cRMS is an aggressive cutaneous sarcoma with a high risk of metastasis and a low disease-specific survival. We propose that patients with cRMS should be followed with clinical visits and PET/CT every 4^{th} month for three years followed by semi-annual visits the next two years. We suggest PET/CT as the distant metastasis localisations included both lungs, brain, viscera, and lymph nodes suggesting both hematogenous as well as lymphatic spread.

Tissue Reconstruction of Osteomyelitis Defects: Creating a Novel, Human-Scale Porcine Flap Model

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Aim: Management of bone infections includes debridement, specific antibiotic therapy, and effective wound coverage, often requiring flap surgery. Experimental, human-scale models for evaluation of treatment effects of different flap tissues are lacking. We developed a novel, reliable, and reproducible large animal model to assess the antibacterial and wound healing effects of tissue flaps used in osteomyelitis treatment.
Method: In 10 female pigs, we created bilateral 1x1cm bone defects in the proximal tibia, with elevation of the surrounding 1x3cm periosteum.
Group I: six pigs received paired gracilis muscle and saphenous fasciocutaneous flaps for wound coverage over the tibial bone defect.
Group II: four pigs received a flap on one leg (n=2 muscle; n=2 fasciocutaneous) and a sham procedure (skin incision and simple closure) on the other leg. We placed microdialysis catheters for sampling (8 h) in the bone tissue, in the bone/flap or bone/skin interface, and within the tissue flaps or overlying subcutaneous tissue. We sampled ischaemic parameters ensuring flap vitality, antibiotic concentrations (vancomycin and meropenem), and inflammatory proteins. Post-mortem histology was performed.
Results: All pigs (n=10) and flaps (n=16) completed the study period. Data including real-time ischaemic parameters, and post-mortem histology will be presented at the conference.
Conclusion: A novel porcine flap model was successfully established. This project will bring important new knowledge regarding the microenvironment underneath soft tissue flaps with osseous defect reconstruction. Next, we will apply the model to assess fasciocutaneous versus muscle flaps in a long-term- and osteomyelitis setup.

Factors limiting the discharge of patients treated with microvascular reconstruction after oral cancer: A 13-year retrospective study

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Aim/background: Patients with oral cancer frequently suffer from multiple comorbidities, making them prone to prolonged hospitalization. This retrospective study aimed to identify factors contributing to prolonged hospitalization in patients who underwent microvascular reconstruction of the oral cavity after cancer resection. Furthermore, it sought to establish functional discharge criteria that patients must meet before being discharged.

Materials and Methods: A review of 95 patient records from April 2009 to December 2022 was conducted, focusing on length of stay (LOS) and factors limiting discharge. Data were collected on demographic details, surgical procedures, hospitalization, and 30-days after discharge. Spearman's rank correlation, simple and multiple linear regression, were used to assess the impact of different variables on LOS.

Results: The mean LOS was 13.98 days, with the most common limiting factors for discharge being insufficient nutritional intake, tracheostomy, infection, immobilization, and ICU stay. Achieving sufficient nutritional intake, was the predominant factor, with an average achievement after 12.63 days. A significant correlation was found between the severity of complications and extended LOS ($p < 0.0001$), but no correlation between comorbidities and LOS ($p = 0.37$) was found. The use of tracheostomy ($p < 0.0001$) and ambulation later than the first postoperative day ($p < 0.035$) was significantly associated with increased LOS.

Conclusion: The study recommends adopting functional discharge criteria that include adequate nutrition, effective pain management, no suspected infections, tracheostomy closure, and normal bowel function. Early ambulation and a selective, individualized approach to tracheostomy are suggested to decrease LOS. Targeted reductions in infections and enhanced nutritional support could decrease LOS, although further research is needed to confirm these findings.

The Correlation Between Clinical and Pathological Tumor Size in Cutaneous Squamous Cell Carcinoma and the Risk of Erroneous Downstaging

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Introduction & Objectives

Clinical tumor size is pivotal for AJCC-staging of cutaneous squamous cell carcinoma (cSCC). However, in registry-based studies or when pre-operative clinical data is absent, challenges emerge. AJCC-staging based on pathological tumor sizes (pT stage) offers an alternative. Yet, uncertainty persists due to tissue shrinkage during fixation, affecting the correlation between clinical and pathological tumor sizes. This study aims to determine this correlation and evaluate the potential use of pathological tumor sizes for AJCC-staging without the risk of erroneous downstaging.

Methods

Eligible patients from Copenhagen, Denmark with excised cSCC and registered clinical and pathological tumor sizes were included (2012-2018). Data was extracted from medical charts. The correlation between clinical and pathological tumor size was estimated as the mean difference and the correlation was assessed with a simple linear regression reported as R^2. The risk of erroneous downstaging was investigated by comparing clinical T-stage (cT) and (pT) in two separate classifications of stage: tumor size alone or using the full AJCC classification.

Results

We included 100 patients with cSCC with a mean pathological tumor size of 18.0 mm (95% CI 15.4-20.5) and a mean clinical tumor size of 19.5 mm (95% CI 15.7-23.3). The mean shrinkage of the pathological tumor size compared with the clinical tumor size was -1.53 mm (95% CI -3,43 – 0,37), $p = 0.06$, with a high correlation, $R^2 = 0.88$. When allocating patients to T-stages we found an overall risk of downstaging of 17% (only tumor size), $p = 0.03$, and 13% (full AJCC), $p = 0.02$.

Conclusion

Our study suggests that pathological tumor sizes cannot be used to safely perform AJCC-staging of cSCC, due to a significant risk of erroneous downstaging. Further studies are needed to estimate a correction factor, to ensure that pathological tumor sizes can be validly utilized in future registry-based studies.

The Prevalence and Histological Characteristics of the Double Capsule Phenomenon in Breast Augmentation with Implants

Authors: Erik Eiler Frydshou Bak*[1], BMSc, Andreas Larsen*[1], MD, Tim Kongsmark Weltz[1], MD, Mads Gustaf Jørgensen[1], MD, PhD, Mathias Ørholt[1], MD, Adam Mandrup Timmermann[1], BMSc, Sif Birch Mathisen[1], BMSc, Dogu Aydin[1], MD, Anders Frøkjær Ulrik[2], MD, Kristina Boldt Strålman[3], MD, Mathilde Nejrup Hemmingsen[1], MD, PhD, Peter Viktor Vester-Glowinski[1], MD, PhD, Mikkel Herly[1], MD, PhD

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Background: The prevalence and histological characteristics of double capsule formation following breast augmentation with implants remain unclear as previous studies of this phenomenon have largely been qualitative and case-based.

Objectives: This study aimed to quantify the prevalence of double capsule formation between different implant surface textures and to explore the histological differences between the inner- and outer capsules from breast implant capsule biopsies.

Methods: This study included breast implant capsule biopsies from patients undergoing breast implant exchange or removal. We compared the implant and patient characteristics between implants with and without double capsule formation. The histological characteristics of the double capsules were assessed using a validated scoring system, comparing the inner and outer capsules.

Results: The study included 588 patients contributing with 1128 implants of which 25 implants had double capsules resulting in an overall prevalence of 2.3%. Allergan implants with a Biocell surface had a double capsule prevalence of 7.8%, which was significantly higher than the prevalence of Eurosilicone implants with a Cristalline surface of 3.4%, and Mentor implants with a Siltex surface of 0.72% (p=0.003). The histological analysis showed that inner capsules displayed lower cellular density (p=0.04), and more calcification (p=0.03) compared with outer capsules.

Conclusions: This study provides new insights into the prevalence of double capsules between differently textured implant surfaces. Furthermore, the histological findings emphasize the role of delamination of capsules in the formation of double capsules.

Advancing Quality Assurance: The establishment of a Prospective Database for Breast Reconstructions and Oncoplastic procedures at a Danish University Hospital

Authors: Julie Kalstrup, Lisbet Rosenkrantz Hölmich

Institution: Department of Plastic Surgery, Herlev and Gentofte Hospital

Aim/background: Quality assurance in healthcare, particularly in surgical fields like breast reconstruction, is paramount for ensuring optimal patient outcomes and satisfaction. Standardizing data collection for breast reconstructive procedures and following revision surgery is challenging due to the heterogeneous nature of the patient courses. This study unfolds the establishment and operation of a prospective database for breast reconstructive procedures at Herlev and Gentofte Hospital (HGH). By systematically collecting and analyzing data, this initiative aims to enhance quality assurance practices, monitor trends, and improve patient care and satisfaction.

Material and Method: The database includes all patients undergoing breast reconstruction at the Department of Plastic Surgery at HGH since 2020, entering year 2024 holding 417 patients and 587 breasts with a primary or secondary breast reconstruction. An expansion with oncoplastic procedures took place in 2023. The database comprises patient-reported outcomes including the BREAST-Q questionnaire, together with pre-, peri- and postoperative details reported by health personnel. Centralized data management through the REDCap Database ensures standardized data collection and facilitates comprehensive quality assurance practices.

Results: The database provides valuable insights to procedure types and frequencies (including revision surgery), associated complications, and patient-reported outcomes with a high degree of coverage.

Discussion/Conclusion: We would like to share our work and experience, by informing about our methodology and tools in the establishment and daily running of a department database, to help and inspire other centers with similar initiatives. Ultimately, more databases will serve as a cornerstone for ensuring high-quality patient care and optimizing outcomes in breast reconstruction procedures nationally.

Abstract til Dansk Selskab for Plastik- og Rekonstruktionskirurgis forårsmøde 2024.

Evidence-based training of local flap surgery—exploring the validity and reliability of surgical skills assessment.

Authors:

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Aim/background:

Skin cancer is the most common cancer and a key surgical treatment is local flap surgery (LFS). Consequently, mastering LFS is fundamental for plastic surgeons, but systematic, competence-based training is lacking and skills assessment of LFS poorly understood. To address this problem, we aimed to explore the validity of LFS assessment.

Material and Method:

This was a prospective trial. A preparatory systematic literature review was performed to identify the best, clinically applicable, procedure-specific assessment tool for LFS. Validity evidence of this tool was gathered using a contemporary validity framework (Messick's) featuring five sources of validity evidence: Content, Response process, Internal structure, Relationship with other variables, and Consequences. At a LFS cadaver course, performances were assessed by two expert raters. Data were analyzed using linear mixed models; reliability was evaluated using Chronbach's alpha, Intraclass Correlation Coefficient and Generalizability theory.

Results:

Twelve participants were recruited, yielding 24 assessments for quantitative analyses. On average, participants reached 55% of the maximum attainable score. Further analyses according to Messick's framework will be presented at the meeting.

Discussion/Conclusions:

Current assessment methods for LFS are lacking. First, the content of the assessment tool insufficiently reflects the construct of LFS, specifically competent flap design. Second, validity evidence concerning *consequences of testing*—e.g. when trainees are skilled enough to independently do LFS on patients—are required. In conclusion, a better assessment tool supported by contemporary validity evidence is needed for evidence-based training of LFS.

Title abstract: Treatment of Breast Cancer-Related Lymphedema with Topical Tacrolimus: A 12 month Prospective, Phase II Pilot Trial

Author's Names: Frederik C. Gulmark Hansen[1,2], Mads Gustaf Jørgensen[1], Jørn Bo Thomsen[1,2], Jens Ahm Sørensen[1,2]

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Background:
Breast cancer-related lymphedema (BCRL) presents a significant challenge in breast cancer survivorship due to limited treatment options. Tacrolimus, an immunosuppressive agent, has shown promise in preclinical models for reducing lymphedema. This study aimed to assess efficacy and durability of topical tacrolimus treatment in patients with BCRL.

Methods:
Eighteen women with stage I or II BCRL were enrolled in this study. The participants underwent six months of tacrolimus treatment. Assessments were made at baseline with follow-up at three, six, and 12 months. Thus, the 12 months follow-up took place six months after the treatment had stopped. The primary endpoint was arm volume measured with; i) water displacement and ii) tape measurements. Secondary endpoints included lymphedema-index, quality of life, lymphatic flow and function, and use of concomitant lymphedema treatment.

Results:
Results at six months demonstrated significant reductions in arm volume measured with water displacement and tape measurements, lymphedema-index, and use of concomitant treatment. Quality of life improved significantly. The 12 months follow-up showed continued significant reductions in arm volume measured with tape measurements. Furthermore, quality of life, and use of concomitant treatment remained significantly improved from baseline. Lymphatic flow- and function exhibited discrepant results.

Conclusion:
Topical tacrolimus demonstrated short-term efficacy in reducing BCRL symptoms and improving quality of life. The durability of these effects varied, with some measures returning to baseline levels at six months post-treatment cessation. Larger, randomized controlled trials are warranted to validate these findings and explore the role of maintenance treatment with topical tacrolimus in BCRL management.

Abstract

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Title: Surgical Treatment Algorithm for Breast Cancer Lymphedema: A Systematic Review

Background: Surgical treatment options for breast cancer-related lymphedema (BCRL) have previously suffered from limited success. However, technical and supermicrosurgical advancements have revitalized this surgical field. Therefore, the efficacy of lymphovenous anastomosis (LVA), vascularized lymph node transfer (VLNT), and liposuction still need to be determined, and selecting the patients for each treatment approach is crucial.
The aim of this systematic review is to assess the effectiveness of LVA, VLNT, and liposuction to develop a patient-centered treatment algorithm.

Method: We conducted a search of electronic databases, including Medline, Embase, Cochrane Library, Google Scholar, and ClinicalTrials.org. Eligible studies were randomized and non-randomized controlled trials and observational studies that assessed the outcomes of LVA, VLNT, or liposuction. The primary outcomes were changes in arm volume, lymph flow, and quality of life. Study selection and data extraction were done by two independent reviewers, followed by a risk of bias assessment. The review was conducted in accordance with PRISMA guidelines.

Results: Out of 16,593 papers reviewed, 73 fulfilled our criteria. Due to low quality of evidence, and considerable heterogeneity, data was narratively presented. Liposuction is significantly effective for non-pitting lymphedema. LVA showed inconsistent results, with a tendency of reduced limb volume and symptomatic relief in mild lymphedema. VLNT demonstrated encouraging results for volume reduction and symptom relief in patients with mild and moderate lymphedema.

Conclusion: By making this systematic review, we developed a patient-centered treatment algorithm. Liposuction is effective for treating non-pitting lymphedema. LVA and VLNT might be effective when targeted for the appropriate patient. Well-conducted high-evidence clinical studies in the field are still lacking, to uncover the efficacy of surgical treatment for BCRL.

Intraabdominal pressure increases peri-operatively in patients undergoing deep inferior epigastric perforator flap reconstruction: A prospective study linking high intraabdominal pressure to non-fatal lung embolism within one patient

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Summary

Background: The deep inferior epigastric perforator flap (DIEP) is the gold standard for autologous breast reconstruction. The procedure and peri-operative period is associated with the risk of severe post-operative complications, like venous thromboembolic events (VTE) and lung embolism. Whether the intraabdominal pressure (IAP) increases after closure of the abdominal defect, thereby potentially affecting the venous backflow and the risk of VTE, is currently not known.

Aim: The primary aim is to test if closure of the abdominal donor site increases the IAP in women undergoing secondary DIEP flap breast reconstruction.

Materials and method: By an Unometer, we measured the intravesical pressure as a surrogate marker for the IAP, at baseline, immediate after- and 24 hours after abdominal skin closure, for 13 patients.

Results: The mean IAP increased from 6.1 mmHg (95% CI 4.6-7.7) at baseline to 9.0 mmHg (95% CI 8.0-10.0) immediate after skin closure (mean diff. 2.9 (95% CI 1.0-4.8) (p=0.007)) and further up to 11.7 mmHg (95% CI 9.0-14.5) 24 hours after closure (mean diff. 5.3 (95% CI 1.4-9.1) (p=0.012). We found that IAP varies among the patients, regardless of the tightness of abdominal closure or rectus plication (n=3). Isolated no patients showed abnormal levels of IAP (>12 mmHg) immediate after closure, while 8 out of 12 patients (67%) show IAP above the normal range after 24 hours. One patient developed a non-fatal lung embolism.

Conclusion: The mean IAP increases significantly over the post-operative period after DIEP flap reconstruction, although abnormal IAP values are only seen 24 hours after closure of the skin.

Title: Silicone Leakage from Breast Implants Is Determined by Silicone Cohesiveness: A Histological Study of 493 Patients

Authors: Andreas Larsen, MD[1]; Erik E F Bak, BMSc[1]; Liv B Hart, BMSc[1]; Adam M Timmermann, BMSc[1]; Mathias Ørholt, MD[1]; Tim K Weltz, MD[1]; Mathilde Hemmingsen, MD[1]; Peter Vester-Glowinski, MD, PhD[1], Jens Jørgen Elberg, MD[2]; Jesper Trillingsgaard, MD[3]; Lisbet R Hölmich, MD, DMSc[4,5]; Tine E Damsgaard, MD, PhD, MRBS[6,7]; Mikkel Herly, MD, PhD[1,8]

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AIM/BACKGROUND Silicone leakage from breast implants is a concern with potential implications for patient health. This study aimed to quantify and model silicone leakage from implants to the breast implant capsule and to investigate whether silicone cohesiveness affected the silicone leakage rate.

MATERIAL AND METHOD Silicone content in the breast implant capsule was quantified histologically by measuring the area of silicone deposits. This was used to model silicone leakage over time based on the time of implantation. The effect of cohesiveness on silicone leakage was investigated across all implant brands with declared cohesiveness and in a subanalysis comparing only Mentor cohesive I implants with cohesive II and III implants. Furthermore, we aimed to analyze whether silicone cohesiveness affected silicone leakage in the case of implant rupture.

RESULTS The study included 493 patients with 872 breasts and a median time of implantation of 13.0 years (range 0.4 to 51 years). The modeling of silicone leakage from intact implants showed that leakage and the acceleration of the leakage rate were significantly higher in low-cohesive implants than in highly cohesive implants ($p<0.05$). This was confirmed when analyzing only Mentor implants ($p<0.05$) and in the case of implant rupture ($p<0.01$) where low-cohesive implants also leaked significantly more than highly cohesive implants.

DISCUSSION/CONCLUSIONS Our results suggest that highly cohesive implants are superior to low-cohesive implants in preventing silicone leakage. Due to the accelerating rate of silicone leakage especially found in low-cohesive implants, we propose that exchange of low-cohesive implants could be discussed with patients 10 to 15 years after implantation to minimize silicone leakage even in the absence of implant rupture.

A systematic review on the effect of immediate autologous microsurgical breast reconstruction on the timely initiation of adjuvant therapy

Authors: Ida Bjørnsted Dengsø, Ajla Sabitovic & Tine Engberg Damsgaard
Institution: Department of Plastic surgery, University Hospital of Southern Denmark, Vejle

Abstract

Introduction: The treatment of breast cancer is multidisciplinary and often involves a combination of surgery, chemotherapy and radiotherapy.
Post-mastectomy immediate breast reconstruction provides good cosmetics results and is associated with improved quality of life.
Concerns have been raised that immediate reconstruction may lead to delay in administration of adjuvant therapy with the risk of compromising survival.

Aim: This systematic review seeks to evaluate and discuss whether post-mastectomy immediate autologous microsurgical breast reconstruction effects the timely initiation of adjuvant therapy.

Methods: PubMed and EMBASE were searched to identify studies assessing the impact of immediate autologous microsurgical breast reconstruction on the timely initiation of adjuvant therapy.

Results: Seven studies comprising 267 patients treated with immediate autologous microsurgical reconstruction followed by adjuvant therapy and 2622 patients treated with mastectomy-only followed by adjuvant therapy were included in this study.

Conclusion: This study propose that immediate autologous microsurgical reconstruction is associated with a longer time to initiation of adjuvant therapy compared to mastectomy-only. The difference ranged from 2 to 14 days. Adjuvant therapy was initiated after 4-10 weeks in most cases – regardless of reconstruction or not - and there were only few examples of delays of more than 12 weeks.
The clinical significance of the treatment delay associated with autologous microsurgical reconstruction compared to mastectomy-only will most likely be minimal or non-existing in most cases.

Title: Indocyanine Green Angiography – Current Status on Quantification of Perfusion

Authors: Frederik Thørholm Andersen, BSc[1], J. Michael Hasenkam, MD, DMSc[1], Tine Engberg Damsgaard, MD, MRBS, PhD[2]

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Aim/Background: Flap ischemia poses a formidable challenge in breast reconstruction. Indocyanine green fluorescence angiography (ICG-FA) has emerged as a promising tool for assessing tissue perfusion, yet a consensus on perfusion quantification during breast reconstruction remains elusive. This narrative review aims to provide an overview of current ICG-FA methods for quantifying tissue perfusion in breast reconstruction.

Material and Methods: A semi-structured search was conducted in PubMed and Embase databases. Data analysis focused on elucidating the operative setup and technical background of various quantitative ICG-FA methods, factors influencing their reproducibility and reliability, and evaluating the feasibility of both conventional and innovative approaches. Furthermore, a strategic framework is proposed for identifying the optimal perfusion quantification method in breast reconstruction.

Results: Imaging devices developed by two companies Novadac and then Stryker (SPY Elite, SPY-PHI) have predominantly been employed, accompanied by an exploration of commercial and custom software. Most studies have explored intensity-dependent or relative parameters based on intensity. However, investigations into these parameters reveal susceptibility to bias. In contrast, combined and time-related parameters demonstrate resilience to bias, but await further validation. Intra-operative body surface warming, micro-dosing regimens, and customizing analysis based on flap type may establish methodological refinements.

Discussion/Conclusion: ICG-FA exhibits promise for assessing perfusion in breast reconstructive procedures. However, concerns persist regarding the reliability of intensity-dependent parameters. Combined and time-related parameters show potential, pending further validation. Strategies including intra-operative warming and micro-dosing regimens show promise. Continued research efforts are needed to establish the optimal methodology for improved surgical decision-making.

Authors: Leander Gaarde Melin, Knærke Søgaard, Fin Biering-Sørensen and Jens Ahm Sørensen

Institution: Research Unit for Plastic Surgery, Odense University Hospital, 5000 Odense C, Denmark

Title: Skin and tissue changes after spinal cord injury - A scoping review

Aim/Background:
Spinal cord injury leads to complex and severe changes in affected skin and tissue, predisposing individuals to pressure ulcer formation and impeding wound healing. Guidelines for pressure ulcer management often rely on references that are frequently outdated and with risk of bias. The aim of this article is to identify and describe the available evidence regarding skin and tissue changes following spinal cord injury.

Material and Methods:
The comprehensive search strategy included the following databases: Medline, Embase, Cochrane Library, and SCOPUS. The inclusion criteria were English-written literature addressing skin and tissue changes after spinal cord injury without limitations on study type or publication year. Study selection was performed by two independent reviewers. Included papers underwent critical appraisal and were categorized into the following subgroups: 1) histopathology, 2) ultrasonography, 3) biomechanical properties, 4) skin perfusion, 5) sebum- and sweat gland excretion, and 6) microbiota.

Results:
Twenty-five articles were included out of 5190 papers reviewed. The epidermal skin layer exhibited atrophy, with progressive thinning over time. Dermal layer showed fibrosis and reduced collagen synthesis. Measurement of skin thickness yielded conflicting results, although increased tissue stiffness was detected. Skin perfusion was mainly characterized by diminished reactive hyperemia response, inhibited vascular autoregulation, and reduced spontaneous skin oxygenation.

Discussion/Conclusion:
Skin and tissue affected by spinal cord injury exhibit poor quality with changes characteristic of aged and injured skin. Consequently, the skin lacks protective mechanisms against pressure loads, shear stress and ischemia. Further research is warranted as the existing literature demonstrates significant risk of bias and the underlying mechanisms remain incompletely understood.

Title: "I am just trying to live a life!" – a qualitative study of the lived experience of pressure ulcers in people with spinal cord injuries

Authors
Knaerke Soegaard[1,2], Josephine Ransborg Sig[1], Charlotte Nielsen[1,2,3], Sofie Verhaeghe[4], Dimitri Beeckman[4,5], Fin Biering-Sørensen[6], Jens Ahm Sørensen[1,2]

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Background
Pressure ulcers is common among people with spinal cord injuries (SCI), and require relieving pressure through immobilisation and bed rest. Healing time varies, but often extends over several months or years, leading to prolonged bed confinement. Enhancing pressure ulcer treatment is crucial for individuals with SCI, benefitting both the well-being of individuals and reduces healthcare costs, thereby contributing to economic improvement.
The aim of this study was to investigate the lived experiences of individuals with SCI and pressure ulcers.

Material and Method
In this qualitative study we conducted semi-structured, in-depth interviews with individuals living with SCI and pressure ulcers. Sampling of interview participants persisted until data saturation was reached, ensuring comprehensive coverage of the diverse and detailed narratives relevant to the aim of the study. Employing a phenomenological-hermeneutic approach inspired by Ricoeur's theory of interpretation, our analysis unfolded through three dialectical levels: Naïve reading, structural analysis, and critical interpretation and discussion.

Results
Ten individuals with SCI undergoing treatment for pressure ulcers in the Danish healthcare system participated, including nine men and one woman, aged 49–81 years (mean 64). Nine participants had ulcers in the seating area, while one had a lower extremity ulcer.
The analysis revealed three prominent themes regarding the experiences of individuals with SCI and pressure ulcers: 1. Struggling to balance prevention with an active, meaningful life, 2. Challenges and consequences of pressure relief protocols and bed rest, 3. Experiencing prolonged and incoherent treatment with varying levels of staff engagement and competencies.

Conclusions
Individuals with SPI experience prolonged treatment for pressure ulcers. The integration of pressure relief and bed rest into wound management disrupts their active lives for extended periods, presenting substantial challenges and reducing the well-being for this population.

Forfattere: Signe Muus Steffensen, Camilla Bille.

Institution arbejdet udgår fra: Plastikkirurgisk afdeling Odense Universitetshospital.

Titel: Mamma rekonstruktion - Kompetenceudvikling og kvalitetsløft af patientforløb.

Formål/Baggrund:

Kvinder med høj risiko for brystkræft, kan opnå en risikoreduktion på op imod 95% hvis de får foretaget forebyggende mastektomi. En stor del af patientgruppen ønsker samtidig rekonstruktion med siliconeimplantat og andelen af kvinder som ønsker dette er stigende.

Vi ønskede at nedbringe ventelisten til mastektomi og primær rekonstruktion med implantater, optimere behandlingsforløbet for patientgruppen og samtidig øge antallet af læger med kompetencen i afdelingen således at et generationsskifte var sikret.

Materiale og metode:

Vi planlagde et fast track oplæringsforløb af 2 afdelingslæger. Dette bestod af superviseret forundersøgelse af 10 patienter, fælles operation af alle 10 patienter over 3 uger og superviseret kontrol af de samme 10 patienter.

Samtidig gennemgik vi alle delelementerne af patientforløbet; information præ-operativt, skriftlig informationsmateriale, indlæggelsesforløb, smerteplan, fremstilling til operation, udskrivningsprocedure og kontrolforløb.

Resultater:

Patientforløbene blev mere ensrettede og indlæggelsestiden blev nedbragt til 1 døgn for hovedparten af patienterne. Vi fordoblede antallet af læger der kunne udføre proceduren.

Diskussion/Konklusion:

De mange gentagne, men alligevel varierede, indgreb foretaget over kort tid resulterede i hurtig oplæring i komplicerede kompetencer. Endvidere oplevede vi en stærk ejerskabsfølelse og vedvarende teamfølelse i forløbet, som vi forventer vil fordrer rekruttering og fastholdelse.

DSPR ABSTRACT

FORFATTERE: Laura Hansen, Filip Rangatchew, Jennifer Berg Drejøe, Lea Munthe-Fog, Anne Fischer-Nielsen, Charlotte Harken Jensen, Ditte Caroline Andersen, Tine Engberg Damsgaard, Rikke Holmgaard

INSTITUTION: Afdeling for Plastikkirurgi og Brandsårsbehandling, Rigshospitalet

TITEL: Scar Remodeling after Burn Injury using Adipose Tissue-derived Allogeneic Stem Cells

FORMÅL/BAGGRUND: På verdensplan udgør brandsårsar en betydelig årsag til morbiditet. Med en forekomst af hypertrofisk arvæv på op til 75 % efter dybe brandsår anses hypertrofisk arvæv som en af de mest oversete tilstande inden for brandsår. De nuværende behandlinger er både kirurgiske og ikke-kirurgiske, men desværre er ingen af behandlingerne hundrede procent effektive. Stamcellebaseret terapi en lovende mulighed for klinisk og histologisk forbedring af arkvaliteten, og på denne baggrund, ønsker vi at undersøge fedtderiverede allogene stamcellers (ASCs) potentielle terapeutiske effekt på arkvalitet hos mennesker.

METODE: Ph.d.-projektet består af fire studier: S1) En dansk oversættelse, kulturel tilpasning og psykometrisk validering af POSAS-spørgeskemaet til dansk (Da-POSAS3), S2) en systematisk gennemgang af litteraturen, S3) en validering af stamcelleinjektionen i arvæv samt S4) et prospektivt, dobbeltblindet RCT på mennesker med kliniske brandsårsar. Hver patient får defineret tre separate aromåder, og efterfulgt af microneedling, vil hvert aromåde blive tilfældigt intralæsionel injiceret med enten A) allogene ASCs, B) autolog stromal vaskulær fraktion (SVF) eller C) placebomediet. Det primære endepunkt udledes fra Da-POSAS3, og vores sekundære endepunkter genereres ved hjælp af et 3D-kamera, ultralyd samt histologiske og genetiske vævsanalyser.

RESULTATER: S4 inddeles i et fase I studie med ni patienter, og et fase II studie med en gennemførlig patientpopulation omkring 30 patienter. Vi forventer ingen SUSARS, og vi forventer

at finde en signifikant øget POSAS-score samt positive forandringer i arvævets mikrostruktur, tykkelse, kollagenarrangement og genekspression i aområdet behandlet med ASCs. Slutteligt forventer vi, at injektion med ASCs har en superior effekt på arkvaliteten sammenlignet med injektion med SVF.

DISKUSSION: Yderligere undersøgelser vil være nødvendige før stamcelleterapi kan indarbejdes i de nuværende protokoller for arbehandling. Vi betragter vores projekt som en byggesten for fremtidig forskning i behandlingen af ar generelt og et vigtigt skridt mod at forbedre livskvaliteten for patienter med symptomatiske ar.

Uncommon Presentation of DFSP: Extensive Growth in a Rare Location with Subclinical Cutaneous Manifestation - A Case Report

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Aim/background: Dermatofibrosarcoma protuberans (DFSP) is a rare, locally aggressive cutaneous tumor predominantly affecting young to middle-aged adults, characterized by a slow-growing, indurated plaque or nodule. The diagnosis and treatment of DFSP can be challenging due to its rarity, growth pattern and variable clinical presentation.

Case: A 40-year-old male presented with a firm lump of 8 mm on his forehead for one year. Initially suspected to be a lipoma and removed as such by a private plastic surgeon. However, histopathological examination revealed dermatofibrosarcoma protuberans (DFSP) that was not radically removed, prompting referral for removal at our department. Here, he presented with a scar of 10 mm with no visible or palpable residual tumor. A planned excision of 20 mm and reconstruction with split thickness skin graft (STSG) was performed.
Surprisingly, histopathology showed tumor activity at several margins, with growth into nerves and periosteum. MRI was inconclusive, but due to possible tumor activity at the margins, re-excision was performed, including mapping biopsies. Re-excision was necessary three times to achieve clear margins and wide excision. This resulted in a defect measuring 10x12 cm, yielding a tumor size of 6x8 cm. The defect was reconstructed with a dermal template (Integra®) and STSG.

Discussion: This case of DFSP highlights several aspects that distinguish it from typical DFSP cases. First, the unusual location and lack of clinically visible signs of the disease. Second, its large size and aggressive growth pattern into the periosteum which made reconstruction challenging.
Despite the aesthetically challenging location, a satisfactory cosmetic result was achieved, and there was no recurrence during the two-year follow-up.

Conclusion:
A macroscopically non-discernible tumor can grow into nerves and periosteum, underscoring the importance of wide excision due to its risk of aggressive growth. Despite the challenging location, a satisfactory cosmetic result can be achieved.

Abstract

Authors: Caroline Lilja, Jørn Bo Thomsen, Jens Ahm Sørensen.

Institution: Research Unit for Plastic Surgery, Odense University Hospital

Title: Robot-assisted lymphovenous anastomosis surgery for lymphocele in the groin

Background: Supermicrosurgery has recently been revolutionized with the development of robot-assisted machines to aid in supermicrosurgical procedures. Here, we present the first-in-human use of the Symani Surgical System to treat a persistent groin lymphocele.

Method: A male in his late 60s presented with a persistent lymphocele at the groin. Despite multiple attempts with surgical drainage and excisions, the cele recurred. Detailed examination with indocyanine green lymphography and ultra-high frequency ultrasound confirmed the lymphatic vessel's connection to the lymphocele. We suggested a robot-assisted supermicrosurgical approach using the Symani Surgical System for lymphovenous anastomosis and lymphocele excision.

Results: The robot-assisted approach allowed for successful lymphovenous anastomosis and lymphocele excision without complications. The patient was discharged on the third postoperative day and showed a full recovery by the 14-day follow-up, with no swelling or pain and excellent healing at the surgical site. Indocyanine green lymphography confirmed the patency of the anastomosis and no lymphocele recurrence. One month post-surgery, during a follow-up call, the patient enthusiastically reported resuming driving and experiencing significantly improved leg functionality, reflecting the surgery's success and his positive outlook on future health.

Conclusion: This case represents the first applications of robot-assisted supermicrosurgerical techniques for lymphocele treatment, demonstrating the significant potential for lymphatic surgery. By offering improved precision and control, this advanced approach could potentially surpass the limitations of conventional microsurgical techniques.

Forfattere: Shadi Javadian, Jais Oliver Berg

Institution arbejdet udgår fra: Afdeling for Plastikkirurgi, Herlev Hospital.

Titel: Horisontal abdominalplastik vs. Fleur-de-Lis abdominalplastik efter massivt vægttab – æstetisk resultat i tvillinge-case.

Baggrund:
I litteraturen er beskrevet at horisontal abdominalplastik og Fleur-de-Lis abdominalplastik (FdL) er lige gode operative muligheder for massive weight loss (MWL) kirurgi, og der er generel enighed om, at de bedste kandidater til FdL er patienter med epigastrisk hudoverskud. Dog kan periumbilicalt hudoverskud også være en god indikation, som det ses i følgende patientcase. Forskellige erfaringer, præferencer og kirurgiske tilgange er debatteret i litteraturen. Vi præsenterer her det æstetiske resultat hos to enæggede tvillinger, som fik hhv. horisontal abdominalplastik og FdL efter MWL.

Kasuistik:
Et 23-årigt enægget tvillingepar opnåede stabil MWL ved livsstilsændringer. Konturforandringerne på abdomen var nær identiske med vertikal og horisontal (periumbilical) hudoverskud samt ptose af mons (grad 2 jf. den danske MWL-skala). Tvillingerne havde ingen konkurrerende lidelser og var ikke-rygere. Tvilling A ønskede et lavt positioneret horisontalt ar og blev tilbudt nedre bodylift, idet der var supragluteal vævsoverskud, som gav funktionelle gener. Tvilling B havde kun gener med abdominalt vævsoverskud og blev anbefalet en FdL. Der blev ikke foretaget liposuction, rectusplastik eller øvrige indgreb på hverken tvilling A eller B. Det postoperative forløb var ukompliceret, og begge tvillinger var glade for og tilfredse med resultatet. Resultatet 1 år postoperativt afslørede at tvilling A havde overskydende hud svt. to periumbilicale søjler mens tvilling B havde fået et æstetisk tilfredsstillende resultat med fremhævning af taljen.

Diskussion/Konklusion:
Casen demonstrerer resultatet af en horisontal abdominalplastik vs. FdL på *"den samme patient"*, udført af den samme plastikkirurg. Det viser den overlegne effekt af den vertikale resektion af væv i midtlinjen og vigtigheden af at skabe en attraktiv kvindelige waist-hip ratio for det endelige æstetiske resultat. Betydende periumbilicalt hudoverskud bør derfor bringe FdL teknikken i overvejelse. Kirurgen skal forventningsafstemme med patienten, hvad der er forventeligt og opnåeligt, og tage patientens præferencer med i beslutningen – færre ar eller maximal kropskontur?

Title: Breast Reconstruction and Breast Cancer-Related Lymphedema: Insights and Perspectives.

Authors: Cecilie Mullerup Laustsen-Kiel[1,2], Laura Hansen[1], Elisabeth Lauritzen[1], Tine Engberg Damsgaard[3].

Institution:
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Aim/background:
As a rising number of women are diagnosed with breast cancer worldwide, an increased number of women are living with the late effects. Breast cancer is the number one reason for breast cancer-related lymphedema (BCRL), with estimated 500,000 women being diagnosed with the debilitating condition in 2022. Lymphedema is a complex disease characterized by low-grade inflammation, fat deposition, and fluid upbuild, which severely affects the quality of life (QoL) for patients. The demand for breast reconstruction has increased in the last two decades, leaving a gap in the understanding of the association between BCRL and breast reconstruction. We provide insight into the research findings published since 2017 on breast reconstruction and BCRL.

Material and Method:
To ensure up-to-date knowledge, literature was systematically searched from EMBASE, Pubmed, Cochrane, and BASE databases from January 2017 to December 2023 for articles on breast reconstruction and BCRL. Since no international checklist is published specifically for narrative reviews, we adhered to the Scale for the Assessment of Narrative Review Articles (SANRA)[4].

Results:
We provide an overview of the various diagnostic tools and the established as well as evolving treatment approaches. No causality between BCRL and breast reconstruction was found. The surgical and oncologic treatment modalities for BC, as well as patient BMI, are likely the ones having a more in-depth impact on the advent of BCRL. Recent studies suggest that breast reconstruction may contribute to lower rates of lymphedema compared to mastectomy alone.

Discussion/Conclusion:
Further research, especially prospective studies with baseline measurements, is needed to fully address the impact of BR treatment modalities on lymphedema, thus providing the BR team with an increased insight into the complexity of lymphedema.

Aquafilling filler for buttock augmentation cause severe long-term complications: A case report

Camilla Søndergaard Kristiansen[1], Christian Lyngsaa Lang[1], Ann Haerskjold[2], Claus Zachariae[3], Anders Klit[1]

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[3]Department of Dermatology, Gentofte Hospital, Denmark

INTRODUCTION: Filler injections for buttock augmentation are increasingly popular as a cosmetic procedure. Aquafilling® filler is described as well-tolerated, biocompatible with human tissue, and yielding long-term clinical results. However, complications after its use have been reported. As Aquafilling® filler is non-biodegradable, both intended effect and potential complications are lasting. This case report details the experience of an 18-year-old woman who suffered severe long-term complications after Aquafilling® filler injections for buttock augmentation and outlines a treatment regimen involving a minimally invasive approach.
CASE REPORT: Approximately two and a half years after receiving Aquafilling® filler injections for buttock augmentation, an 18-year-old woman experienced soreness and firmness in thighs and inguinal regions. Imaging revealed migration of the filler to other body areas than where it was injected, including the lower abdomen, inguinal regions, genital area, and thighs. The patient was admitted to the hospital due to infection around the filler-material after shaving the genital area, leading to septic shock and treatment at the Intensive Care Unit. Additionally, the patient developed non-parathyroid hypercalcemia, likely triggered by the formation of filler-granulomas. The patient was treated by a multidisciplinary team and underwent minimally invasive surgery, daily irrigation, manual and passive evacuation of filler-material, and received quadruple-therapy antibiotics. The surgical wounds were sutured once the amount of filler-material leaving the cavities had ceased. At follow-up, the patient had returned to her everyday life with no lasting sequelae or further infections related to the filler.
DISCUSSION: This case report contributes to the increasing number of reports highlighting the risk of complications associated with Aquafilling® filler and emphasizes the importance of comprehensive management strategies for filler-related complications. With a minimally invasive approach, we were able to preserve the skin and majority of subcutaneous fat in the affected body areas, thereby leaving the patient with no lasting sequelae.

Forfattere: *Julie Tastesen, Siavosh Taba, Emir Hasanbegovic*

Institution arbejdet udgår fra: *Afdeling for Bryst- og Plastikkirurgi, AUH*

Titel: *Suturering af traumatiske sår*

Formål/Baggrund: *Under medicinstudiet, i skadestuer, akutmodtagelser og almen praksis, lærer man, at traumatiske sår skal sutureres indenfor 6 timer, det "gyldne vindue". Der er imidlertid foretaget flere studier på området, der tyder på, at tidsfaktoren ikke er så afgørende, som hidtil antaget. Formålet er at undersøge om 6-timers reglen er afgørende for suturering af traumatiske læsioner, samt om andre faktorer, har betydning for heling og udvikling af infektion.*

Materiale og metode: *Ved søgning på PubMed og gennemgang af de inkluderede artiklers referencelister, fandtes 7 relevante prospektive kohorte studier. I alt indgik 12530 patienter.*

Resultater: *Kravet om suturering indenfor 6 timer, stammer helt tilbage fra 1898, hvor Paul Leopold Friedrich, en tysk militærkirurg og bakteriolog kendt som grundlæggeren af den primære sårbehandling, foretog et dyrestudie.*
6 studier undersøger sammenhængen mellem udvikling af infektion og tid til suturering af traumatiske læsioner, mens et enkelt studie undersøger effekten af forsinket suturering på læsionens heling. Studierne inddeler tidsintervallerne forskelligt, men ingen finder, at tid til suturering har en betydning for udvikling af infektion.
Kun få studier peger på et "gyldent vindue" for suturering af traumatiske læsioner, hvor nogle har vist at 19 timer er det "gyldne vindue" for suturering, grundet bedre heling. Samtidig findes en succesrate på 77,4 % på læsionerne sutureret >19 timer.

Diskussion/Konklusion: *Der er i litteraturen ikke holdepunkter for et 6-timers "gyldent vindue" for primærsuturering af traumatiske læsioner. Endeligt anbefales 6-timers vinduet for suturering af traumatiske læsioner, erstattet med en individuel vurdering af læsionen ud fra parametre som skadesmekanisme, graden af kontaminering, læsionens længde og dybde, samt klinikerens subjektive vurdering. Det bliver således en lægelig vurdering om såret kan lukkes primært.*

270/300

Forfattere: Anna Louise Norling, Linnea Langhans

Institution arbejdet udgår fra: Afdelingen for Plastikkirurgi og Brandsårsbehandling, RH

Titel: Amelanotisk melanom opstået i cikatrice

Formål/Baggrund:

Casen beskriver et amelanotisk melanom opstået i cikatrice efter hjertekirurgi. Grundet diagnostiske udfordringer var patienten igennem et 8 måneder langt udredningsforløb.

Formålet med casen er at sætte fokus på denne subtype af melanom, med diagnostiske udfordringer, der kan forsinke diagnosen.

Materiale og metode / Resultater:

Case report: 76 årig mand fik i marts 2022 foretaget coronar-bypass grundet akut myokardieinfarkt. Efter 9 måneder bemærkede patienten en udfyldning med sårdannelse i cikatricen og søgte læge. Der blev foretaget stansebiopsi ved dermatolog, som viste inflammation med fibrose uden tegn til malignitet. Tumor blev tolket som suturgranulom.

I en periode på 8 måneder blev patienten tilset af læger fra forskellige specialer, men yderligere biopsi eller behandling blev ikke foretaget, trods progression af tumor. Først i september 2023 blev patienten henvist til plastikkirurgisk afdeling, RH. Klinisk fandt man en ulcereret tumor (40x40x20 mm) med central nekrose i den kaudale del af cikatricen på sternum. Der blev foretaget excisionbiopsi på mistanke om karcinom; men histologi viste overraskende et amelanotisk melanom, med en tykkelse på 20 mm, samt mitoser og ulceration.

Præoperativ PET-CT var uden tegn til spredning, og der blev foretaget re-excision og sentinel node procedure i henhold til retningslinjerne. Patienten fik påvist positiv sentinel node og modtog adjuverende onkologisk behandling.

Diskussion/Konklusion

Amelanotisk melanom er vanskeligt at diagnosticere, da det ikke opfylder de vanlige karakteristika for melanom - ABCDE-kriterierne, hvilket kan medføre en forsinket diagnose. Konsekvensen af sen diagnostik er en øget risiko for, at sygdommen har metastaseret på diagnosetidspunktet.

Hos den aktuelle patient opstod tumoren i en cikatrice og biopsien viste inflammation og fibrose, hvilket foranledigede fejltolkning af diagnosen. Undervejs i forløbet blev der ikke foretaget yderligere biopsi trods progression af tumor.
I cases, hvor det kliniske billede ikke er foreneligt med den indledende diagnose, bør man revurdere denne og fortage yderligere biopsi.

Disclosure: This case has also been submitted to the Plastsurgeon case competition (https://plastsurgeon.com/).

Authors: Erik Gadsbøll, Marie Louise Skærlund Christensen

Institution: Plastikkirurgisk afdeling, Aalborg Universitetshospital

Aim/Background: This short case aims to make an illustrative, step-by-step approach to the surgical excision of a tumor on the eyelid. An 81-year-old, previously healthy female, is referred with a nodular basal cell carcinoma on her left eyelid (16x7mm) that presented 3 years before referral. Excision of the tumor and reconstruction of the eyelid was performed.

Material and Method: Text and pictures

Results: The patient was informed about the operation and a "trip-trap" excision of the tumor was performed. The eyelid reconstruction was made with a free contralateral tarsoconjuctival flap as the inner lining, and then an orbicularis oculi muscle sandwich flap, full-thickness skin graft, and a Tenzel flap with lateral release were performed.

Discussion/Conclusion: There are several surgical approaches to removing malign tumors on the eyelid. This case illustrates a step-by-step approach to a possible surgical technique. The authors and patient are pleased with the cosmetic results. No adverse effects were observed.

Multiple synkrone maligne melanomer

Nikolaj Warming[1] og Erik Gadsbøll[1]

[1]: Plastikkirurgisk afdeling Aalborg Universitetshospital

Introduktion:
Malignt melanom er en hyppig cancerdiagnose med fortsat stigende incidens. Patienterne er fra diagnosetidspunktet i øget risiko (1,3 – 8,3%) for udvikling af nye melanomer, beskrevet som multiple primære melanomer (MPM). Størstedelen af MPM diagnosticeres indenfor de første 5 år, men ses også senere end 10 år efter første melanom.
Nogle individer debuterer med flere simultane primære maligne melanomer, hvilket betegnes som synkrone melanomer (SM). Synkrone melanomer er ikke entydigt defineret, men kan beskrives som melanomer, der diagnosticeres indenfor een til tre måneder efter primære diagnose.

Sygehistorier:
1) 71-årig tidligere hudrask mand henvises via hudlæge med to nævi, obs malignt melanom. Excision viste maligne melanomer. Ved hudgennemgang var der mistanke ved yderligere 5 elementer. Histologi herpå var yderligere tre invasive (T1B??) samt eet in situ melanom. Således debuterererede patienten med fem synkrone invasive MM og et in situ melanom.

2) 77-årig herre henvises via hudlæge med tre nævi, obs malignt melanom. På operationsdagen blev yderligere tre nævi fjernet, med diagnosen eet invasivt MM og tre in situ melanomer. Ved hudgennemgang af to omgange fandtes yderligere to in situ melanomer. Således samlet eet invasivt MM, samt 5 in situ melanomer.

Diskussion/konklusion
I litteraturen beskrives faktorer, der potentielt medvirker til udviklingen af flere sporadiske maligne melanomer. Her nævnes blandt andet alder, udendørs arbejde (>10 år) antallet af nævi, lyst hår, hudtype I-II, familiære dispositioner til malignt melanom eller dysplastiske nævi. Synkrone melanomer bliver associeret med ældre patienter af mandligt køn samt nævus spilus.

Prognosen for patienter med flere synkrone melanomer er ukendt. Multiple primære melanomer beskrives i litteraturen med en dårlig prognose, men nogle studier peger på en ens eller bedre prognose sammenholdt med patienter med et melanom.

Ovenstående fastholder, at en grundig gennemgang af hudorganet samt tæt opfølgning er vigtig.

Forfattere: Laura Tranekær Skriver, Christian Lyngsaa Lang

Institution arbejdet udgår fra: Afdeling for plastikkirurgi og brandsårsbehandling, Rigshospitalet

Titel: Komplikation ved "non-invasiv" kryolipolyse kræver kirurgisk og politisk "Damage control"

INTRODUKTION

Kryolipolyse er en noninvasiv procedure, som anvendes til reduktion af fedtdepoter. Ved nedkøling initieres apoptose af fedtcellerne og dermed en reduktion af fedtdepotet. Skønhedsindustrien oplever en stigning i disse procedurer, der markedsføres som noninvasive og dermed risikofri alternativer til kirurgi. Markedet er dog dårligt reguleret og med sparsomme krav til både behandlere og udstyr, hvilket hverken sikrer kvaliteten eller effekten.

SYGEHISTORIE

En 19-årig kvinde blev tilset i skadestuen tre dage efter kryolipolysebehandling. Proceduren blev afbrudt grundet smerter, og man konstaterede store bullae i det behandlede område. Vanlig behandling blev iværksat ifa. afklipning af bullae, sårvask og bandagering med mepilex og absorberende forbinding.

Ved opfølgning 10 dage senere observerede man nekrose i såret og da der ikke var tegn på heling, blev patienten opskrevet til operation. I mellemtiden tilkom infektion med pus og øget sekretion, og patienten opstartede peroral antibiotikabehandling. To dage senere blev patienten opereret, og nekrotisk væv blev fjernet ved en mini-abdominalplastik. Peroperativt kunne man konstatere, at der var tale om 3. gradsforfrysning, involverende fedtvæv i dybden.

Patienten blev udskrevet samme aften og ved den ambulante kontrol seks måneder senere, konstaterede man et kosmetisk tilfredsstillende resultat. Patienten kunne desuden fremvise et vægttab på 20 kg, opnået ved motion og kostændring.

DISKUSSION

Kosmetiske behandlinger som kryolipolyse vinder popularitet som alternativer til fedmekirurgi, idet de markedsføres som noninvasive og risikofri. Selvom bivirkningerne normalt er milde, findes en iboende risiko for forfrysning ved behandlinger med lave temperaturer, hvilket ikke kommunikeres til patienterne. Internationale rapporter viser lignende tilfælde, hvilket understreger behovet for bedre regulering, udstyrsstandarder og patientinformation ved kosmetiske indgreb. Komplikationer såsom fuldhudsforfrysninger, der kræver kirurgisk behandling, afslører en betydelig diskrepans mellem den markedsførte non-invasivitet og de faktiske risici.

Tidlig henvisning til specialiseret behandling er afgørende for at undgå forsinkelser og efterfølgende komplikationer, hvilket bidrager til en mere effektiv og sikker patientbehandling.

Authors: Erik Gadsbøll & Alexander Juhl Andersen

Institution: Aalborg Universitetshospital

Titel: Acute Pseudoaneurysm Following Cutaneous Carcinoma Excision: Management and Clinical Insights

Aim/background: The presented case involves an elderly male with a biopsy-confirmed planocellular carcinoma on the left temple. The case offers insights into managing a rare complication to a common procedure and provides valuable lessons for clinicians facing similar challenges.

Material and Method: A case study with clinical pictures and CT-angiography of the pseudoaneurysm.

Results:

- Pseudoaneurysms might be underdiagnosed and knowledge about the clinical signs, history, diagnosis options, and treatment will improve the outcome for patients.
- If surgery gets close to the superficial temporal artery tunica adventitia the surgeon must decide if excision of the entire artery might be beneficial, to minimize the risk of pseudoaneurysm.

Discussion/Conclusion:

Pseudoaneurysm of the superficial temporal artery is rare and there are fewer than 400 cases reported in the literature. [1–3] A review of the literature shows blunt trauma is the most common cause. [3] However, only one former case has been reported due to complications following tumor surgery in the temporal region. [6]

Due to the rarity of the disease, the diagnosis might be underdiagnosed. Knowledge about this rare complication of cutaneous surgery in the temple might help doctors diagnose it in the future.

Only one other case has been published with surgery for skin cancer, as the cause. [6]

Treatment is necessary to avoid rupture, thromboembolism, hemorrhage, elimination of headaches, visual disturbance, dizziness, ear pain, nerve deficits, and aesthetic results. [3,4]

Biopsy of the superficial temporal artery is considered the golden standard when diagnosing giant cell arteritis and complications are common surgical complications. [9,10] When excision of cutaneous malignities demands excision down to or close to the tunica adventitia of the vessel, the surgeon should consider if excision of the entire artery might be beneficial, to minimize the risk of pseudoaneurysm.

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Forfattere: Shadi Javadian, Lisbet Rosenkrantz Hølmich

Institution arbejdet udgår fra: Afdeling for Plastikkirurgi, Herlev Hospital.

Titel: Sjælden regional metastase fra merkelcellecarcinom på lår.

Baggrund:
Merkelcellecarcinom (MCC) er en sjælden og aggressiv neuroendokrin hudtumor. Der er ikke før rapporteret om et dansk tilfælde af testikelmetastaser fra merkelcellecarcinom, og på verdensplan er rapporteret blot 12 tilfælde. Denne sygehistorie er et eksempel på, en sjælden lokalisation for metastasering.

Kasuistik:
En 58-årig, tidligere sund og rask mand, blev behandlet for MCC på højre lår. Sentinel node biopsi fra højre lyske var positiv, og patienten fik foretaget højresidig lyskeexairese uden fund af spredning til yderligere lymfeknuder. Patienten fik adjuverende postoperativ strålebehandling mod det primære tumor site på højre lår, men ikke mod lysken, jf. national rekommandation. Han blev efterfølgende fulgt på plastikkirurgisk afdeling med kliniske kontroller hver 3. måned de første 2 år. PET-CT skanning efter 6 og 12 måneder var begge uden tegn på spredning.
2 år efter debut fik patienten pludseligt hævelse af højre testis. Han blev af egen læge henvist i kræftpakkeforløb og udredt i urologisk regi. Ultralydsskanning af scrotum gav mistanke om tumor/metastase svarende til højre testis fra enten det tidligere MCC på højre lår eller ny primær cancer. Han fik foretaget højresidig orchiektomi med histologisk fund af metastase fra MCC. Efterfølgende PET-CT viste ingen tegn på yderligere dissemineret sygdom.

Diskussion/Konklusion:
Sygehistorien skal sætte fokus på at MCC kan metastasere til sjældne lokalisationer, herunder testes. Dette er ikke tidligere beskrevet i litteraturen i Danmark. Metastasesuspekte foci hos en patient, som tidligere har haft Merkelcellecancer – eller melanom – vil i reglen skyldes grundmorbus, som dog jævnligt glemmes, både af patient og læge. Udredning går ofte lidt hurtigere ved direkte henvisning til stamafdeling.

Authors: *Lina Pankratjevaite, Julie Tastesen, Marco Mele, Rim Mohamad Jamal Sada, Elisabeth Specht Stovgaard*

Institution: *Department of Breast Surgery, Gentofte Hospital*

Titel: *Unilateral Gestational Gigantomastia*

Aim/background: *We report a case of a 30-year-old woman with unilateral gestational gigantomastia. It's a rare disease, characterized by enlargement and hypertrophy of breast tissue during pregnancy. Although a benign disorder, it can result in psychological and physical disability. It can lead to a life-threatening condition, if skin ulceration with necrosis and infection results in sepsis, multiorgan dysfunction or severe bleeding from the wound.*

Material and Method:
Case:
A 30-year-old woman presented two weeks after she had given birth, with an excessive enlargement and discoloration of the left breast. During physical examination the left breast was doubled in size with brown, confetti-like discoloration of the skin. An ultrasound showed hyperechoic breast parenchyma with increased glandular tissue, ductal dilatation, and discrete edema of the skin. Core needle biopsy showed lactational breast tissue without neoplasia or malignancy.
Conservative and surgical treatment options were discussed with the patient. She decided to postpone breast reduction of the left breast as she was breastfeeding and planning to have more children.

Discussion/Conclusion: *Gestational gigantomastia is a rare benign disorder. It's believed to be caused by hypersensitivity of the breast tissue to circulating hormones. Conservative management is an option, but surgical treatment might be necessary. Reduction mammoplasty offers a good esthetic result, reduces the total amount of breast tissue and offer the possibility to breastfeed. In contrary, unless a mastectomy has been performed subsequent pregnancies are likely to cause recurrence. However, it is a mutilating procedure that requires several reconstructive steps. A delayed reconstructive approach is to prefer to minimize complications such as skin retraction and wound healing issues which could lead to a poorer cosmetic result. A multidisciplinary team effort is required for a successful fetomaternal outcome.*

281/300