Israeli Society of Plastic and Aesthetic Surgery

Coral Tepper MD[1,2]*, Yossef Levi MD[1,2]*, and Josef Haik MD MPH[1,2]

[1]Department of Plastic and Reconstructive Surgery, National Burn Center, Sheba Medical Center, Tel Hashomer, Israel
[2]Talpiot Leadership Program, Sheba Medical Center, Tel Hashomer, Israel

ABSTRACT During these challenging times, following the October 7th terrorist attacks and the ongoing Iron Swords war, there is a greater need to strengthen the Israeli Society of Plastic and Aesthetic Surgery. Prof. Josef Haik, chair of the Israeli Society of plastic and aesthetic surgery, leads this effort. In addition, it is vital to highlight Israel's contributions to the global plastic and aesthetic surgery community and to encourage collaboration with the nursing division for plastic surgery and burns. Our department is involved in presenting our findings and collaborating with colleagues. In this article, we outlined five main topics: the role of plastic surgery in wartime, reconstructive plastic surgery, aesthetic plastic surgery, microsurgery, and innovation in plastic surgery.

IMAJ 2025; 27: 485–485

KEY WORDS: artificial intelligence (AI), microsurgery, plastic and aesthetic surgery, reconstructive techniques, wartime medicine

*These authors contributed equally to this study

Following the October 7th terrorist attacks and the ongoing Iron Swords war, there is a greater need to enhance the knowledge of the members of the Israeli Society of Plastic and Aesthetic Surgery. Brigadier General Zivan Aviad-Bar, the Chief Medical Officer, presented his experience as part of the medical corps on the battlefield. He emphasized the significance of providing blood transfusions on the battlefield. He highlighted that over 85% of injured soldiers returned to service, aided by immediate mental health support to help reduce rates of post-traumatic stress disorder.

Dr. Gal Meir, a plastic surgery resident at Sheba Medical Center, recounted his 100-day reserve service, during which he treated penetrating, blunt, and burn injuries, as well as mental trauma. He worked under challenging conditions with limited resources.

Dr. Meir Retchkiman described Soroka Hospital's efforts in managing the massive influx of casualties on 7 October 2023, when 676 injured individuals arrived within 24 hours. This unprecedented situation led to record numbers of surgeries, computed tomography (CT) scans, and helicopter evacuations. In addition, the scope of the mass trauma event necessitated reconstructive procedures for patients with severe tissue damage.

Dr. Roman Rysin shared findings from a retrospective study of 25 tongue reconstructions performed between March 2017 and January 2024. The patients, aged 38 to 79 years (mean age 62.5 years), underwent partial to total glossectomies, with 24 cases using an anterior lateral thigh (ALT) free flap and one total glossectomy repaired with a mini-deep inferior epigastric perforator (DIEP) flap. There was a single (4%) flap loss due to ischemia. All other complications were minor and managed non-operatively. The ALT flap demonstrated a 96% success rate, effectively restoring speech and swallowing while minimizing donor site morbidity. In contrast, the mini-DIEP flap in a total glossectomy showcased promising characteristics for broader application.

Addressing lymphedema management, Dr. Assi Drobot studied nine patients (average age 30 years) who had endured chronic primary lymphedema grade 3 for an average of 13 years. Pre-operative CT angiograms and ultrasound imaging facilitated vascular assessments and identification of suitable lymph nodes for laparoscopic gastroepiploic vascularized lymph node transfers (VLNT). Although two patients experienced partial flap necrosis requiring outpatient debridement, no other significant complications were recorded, and no donor-site issues arose. Postoperative follow-up showed considerable reduction and stability in limb circumference. This finding underscores the effectiveness of merging complex laparoscopic and microvascular approaches and

confirming the gastroepiploic lymph nodes as a viable donor site.

Shifting focus to the role of technology in surgical planning, Dr. Gon Shoham discussed an artificial intelligence (AI)-based tool designed to predict postoperative complications following aesthetic breast reductions. Using data from 322 patients who underwent 629 breast reductions between 2017 and 2024, the team developed a gradient-boosting tree model that identified key predictors such as weight, sternal notch to nipple distance, specimen weight, liposuction volume, and number of hospitalization days. This model demonstrated robust performance, with an area under the receiver operating characteristic curve of 0.83 and a negative predictive value of 95%, suggesting that AI-driven analysis can enhance the clinical decision-making process.

Last, Dr. Dor Freidin presented a novel AI-based technique for generating detailed three dimensional (3D) abdominal wall blood supply models for autologous breast reconstruction. By training a network on 30 pre-operative CT scans and sewmi-automatically created 3D models, the team successfully automated the segmentation process to yield color-coded, three-dimensional representations of blood vessels, rectus abdominis muscle, and the umbilicus. This method offers a more straightforward and time-efficient alternative for creating accurate 3D models that assist surgeons in choosing between transverse rectus abdominus myocutaneous and DIEP flaps, heralding a new era of AI-driven precision in reconstructive surgery.

CONCLUSIONS

The Israeli Society of Plastic and Aesthetic Surgery is working in the background of challenging times of war, highlighting the significance of research and strengthening professional knowledge. We have selected seven key topics. These topics demonstrate the 360-degree capabilities of plastic aesthetic and reconstructive surgery surgeons, who are developing and using innovations, from minimally invasive procedures to very complex surgeries and super microsurgery.

Physicians are working to find innovative ways to reconstruct any anatomical and aesthetic defect. Plastic and aesthetic surgery experts from the private and public sectors were called to military service to provide optimal treatment as surgeons on the battlefield and in medical centers, and they continue to do so. The importance of utilizing new microsurgery procedures enables surgeons, burn units, and trauma teams to address a broad spectrum of injuries ranging from minor to complex.

Novel techniques offer effective and safe methods to deal with vast tissue reconstruction to achieve a high standard of care and promote programs through unique teaching in the field.

Last, it is vital to highlight the Israeli contributions to the worldwide plastic and aesthetic surgery ecosystem through the knowledge gained from our experiences.

Correspondence

Dr. Y. Levi
Dept. of Plastic and Reconstructive Surgery, Sheba Medical Center, Tel Hashomer 5265601, Israel
Email: yossi.levi15@gmail.com

Capsule

The role of B cell immunity in lung adenocarcinoma

Lung cancer is the deadliest cancer globally. Non-small cell lung cancer (NSCLC), including adenocarcinoma, squamous cell carcinoma, and large cell carcinoma, constitutes a significant portion of cases. Adenocarcinoma, the most prevalent type, has seen a rising incidence. Immune checkpoint inhibitors (ICIs) have improved outcomes in lung adenocarcinoma (LUAD), yet response rates remain unsatisfactory. PD-1/PD-L1 inhibitors are primary ICIs for LUAD, targeting the PD-1/PD-L1 pathway between CD8+ T cells and tumor cells. However, LUAD presents a cold tumor phenotype with fewer CD8+ T cells and lower PD-1 expression, leading to resistance to ICIs. Thus, understanding the function of other immune cells in tumor microenvironments is crucial for developing novel immunotherapies for LUAD. B cells, which are part of the adaptive immune system, have gained attention for their role in cancer immunology. While research on B cells lags behind T cells, recent studies revealed their close correlation with prognosis and immunotherapy effectiveness in various solid tumors, including lung cancer. B cells show higher abundance, activity, and prognostic significance in LUAD than that in LUSC. In this review, **Shu** et al. summarized the difference of B cell immunity between LUAD and other lung cancers and outlined the role of B cell immunity in LUAD.

Genes Immun 2025; 26: 253
Eitan Israeli