Paradigms have shifted in surgical oncology from maximum tolerable treatment to minimum effective treatment, keeping in mind, however, the basic principles in surgical oncology regarding the four areas: tumor excision, regional lymph node removal, treatment of regional recurrence and distant metastasis.

In breast, ovarian, and rectal cancer, as well as in soft tissue sarcomas new surgical techniques achieved diminution in morbidity with the same/better oncologic outcome, moving from ideal to reality.

Breast cancer surgery, due to proper understanding of cancer biology and screening outcomes has changed to mainly conservative treatment instead of mastectomy. Sentinel lymph node biopsy is a standard procedure for the early stages of breast cancer mirroring the lymph node status with less morbidity consequences. The oncoplastic approach has diminished the esthetic impact of mastectomy.

In rectal cancer, the use of minimally invasive techniques, laparoscopy and mechanical suture devices, has led to an extensive sphincter conserving surgery with an improved quality of life and with the same oncological outcomes for the patients.

The use of new chemotherapy agents in ovarian cancer have enlighten the role of fertility sparing surgery at younger ages and extensive debulking surgery with promising results in advanced stages of the disease. Fluorescence guided surgery may be soon possible for ovarian cancer.

In cancer of the cervix, specialists agreed after recent trials outcomes to move to the implementation of sentinel node biopsy technique. In association with vaccines and screening programs, the oncological outcomes of cervix cancer treatment have achieved an important improvement in the last decade. New studies have revealed that women with a history of using intrauterine devices (IUDs) have a reduced risk — by almost half — of developing cervical cancer, compared with women who never used the birth control devices.

Sentinel node biopsies have shown their values also in malignant melanoma, in penile, vulvar and orofaringeal cancers, getting important prognostic information with less morbidity and tailoring the adjuvant treatment.