

Title: Present and future of laparoscopic hysterectomy

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SUMMARY: Today a quality review of previous experiences in the field of laparoscopic hysterectomy.

In doing so, I am proud to be the first laparoscopic hysterectomy, which we performed in the General Hospital Zabok 1995, behind our operating team, nearly a quarter century of experience, which is really respectable reference to the region of Southeast Europe. By this we mean that it is now indisputable that laparoscopic hysterectomy offers numerous advantages over conventional abdominal surgery. In addition to the first place is a less invasive surgery, where the surgery with significantly less blood loss, shorter hospitalization and are big savings for the health system. In laparoscopic approach, operator experience plays a big role, because it mentioned the biggest prevention potential injury. Laparoscopic hysterectomy has become the gold standard, and certainly with a number of advantages that has compared to traditional abdominal hysterectomy, and emphasize its minimally invasive component. Present and future of minimally invasive gynecology, really is unthinkable without laparoscopic hysterectomy, and the aforementioned concept is certainly stronger role and hisrteroskopskog approach, as an alternative to hysterectomy, and as a logical upgrade and improvement imposes the unstoppable development of robotic surgery. Robotic hysterectomy today invokes numerous benefits gynecological patients, and it is hoped that it will soon become the standard and the region of Southeast Europe.

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MINIMALLY INVASIVE SURGERY IN TREATMENT OF ENDOMETRIAL CANCER

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Endometrial cancer is the most common cancer of the female reproductive system with 6 % of all women cancers in US . About 2 - 3 % of women will develop endometrial cancer during life, the peak incidence is during menopause in the 6 th decade : mean age of 59 years at diagnosis, less than 5 % cases are diagnosed before age 40. The most important risk factors are : obesity, postmenopausal estrogen use, tamoxifen use and late menopause. Diagnosis of endometrial cancer include : transvaginal sonography , hysteroscopy, endometrial biopsy, fractional curettage and imaging studies (CT, MRI scan). Prognostic and staging factors determined by surgical staging of endometrial cancer include : histologic grade of tumor, depth of myometrial invasion, status of pelvic and paraaortic nodes, presence of malignant cells in peritoneal washings, histologic type, lymphovascular invasion, cervical invasion, adnexal spread, intraperitoneal disease, estrogen and progesterone receptors, oncogenes, ploidy, molecular markers. Treatment of endometrial cancer is individually planned and depends of disease extension (FIGO Stage), presence of distant metastasis and patient conditions. Accuracy of clinical staging is 54 %, accuracy of surgical staging 87 % and risk of recurrence 80 % in first 2 years after treatment. Treatment of low risk patient include : abdominal hysterectomy, bilateral salpingo-oophorectomy, adjuvant vaginal brachytherapy or vaginal hysterectomy. Treatment of high risk patient include : abdominal hysterectomy, bilateral salpingo- oophorectomy, pelvic and para-aortic lymph nodes, adjuvant percutaneous radiation therapy, external radiation, systemic chemotherapy . Treatment of FIGO st. III - IV disease is individually planned.

Minimally invasive surgery for endometrial cancer include : LAVH with bilateral salpingo-oophorectomy and pelvic lymphadenectomy, TLH with bilateral salpingo-oophorectomy and pelvic lymphadenectomy, radical laparoscopic hysterectomy and

Da Vinci robotic surgery . Contraindication for minimally invasive surgery are presence of large tumor mass , fixed solid uterine tumours and locoregional infiltration. Conclusions of among the 23 articles reviewed, five were randomized controlled trials (RCT-s), four were prospective reviews, and 14 were retrospective reviews are : no difference in overall and disease-free survival for patients with endometrial cancer who had undergone laparoscopic hysterectomy compared with open surgery. Morbid obesity is a limiting factor for the feasibility of complete laparoscopic staging. Laparoscopy seems to decrease complications and decrease blood loss. It also shortens hospital stay, with improved short-term quality of life and cosmesis, while yielding similar lymph node counts. Overall, laparoscopy is cost-effective, because the increased operation cost of laparoscopy is offset by the shorter hospital stay and faster return to work. Patients with endometrial cancer should be offered minimally invasive surgery as part of their treatment for endometrial cancer whenever possible.

Minimally invasive surgery in fertility sparing procedures in gynecology

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Fertility-preserving surgery in early cervical cancer is option for small disease, it includes conization , radical trachelectomy , or ovarian transposition. The concept of fertility-preserving surgery in early cervical, radical trachelectomy with stage IA2 or IB disease,. Trachelectomy is a conservative oncologic operation with aim to preserve fertility in early stages of cervical cancer female patients that have realized

reproduction. Excised structures in trachelectomy are: cervix, upper 1/3 of vagina, parametria and paracolpia, with preservation of uterine corpus. After removing the vaginal fornix and cervix , uterovaginal anastomosis with non resorptive suture is performed. Indications for trachelectomy are, patients up to 45 years of age who wish to conserve fertility with negative lymph nodes, no distant metastatic disease , FIGO stage cervical cancer staged IA1, IA2, IB1 (tumour size \leq 2cm with negative lymph nodes), with adequate cervical length, no evidence of expansion of malignat proces on the upper part of the cervical cannal ,squamocellular carcinoma, rarely cervical adenocarcinoma , negative lymph nodes intraoperatively, no metastatic disease, clear resected margins. There is an ongoing debate regarding

the need for uterine vessels preservation. Some authors have proved that the preservation of the uterine artery is associated with more favorable restoration of the reproductive function. Others claim that preservation of the uterine vasculature is not necessary for fertility as obstetrical outcomes are similar to those of the historical vaginal radical trachelectomy cohorts. Simple trachelectomy as alternative to radical trachelectomy in selected cases (parametrial involvement rate $<$ 1% in patients with IB1 \leq 2cm, negative lymph nodes and stromal invasion \leq 10mm) .Simple trachelectomy is performed in parametrial involvement rate $<$ 1% in patients with IB1 \leq 2cm, and stromal invasion \leq 10mm. Systematic review of the literature showed obstetrical outcomes after abdominal radical trachelectomy , with 438 trachelectomy performed, who achieved 75 pregnancies, resulted in 45 deliveries.

Challenges in treatment young patients with cancer-fertility preservation options

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The diagnostic and therapeutic approach of the young patient with malignancy is extremely complex and challenging, and needs intensive follow up regimen. The European Society of Gynecologic Oncology but also European Society for Human Reproduction as also American Society for Human Reproduction has task force in preserving fertility without compromising oncological outcome. Fertility is a major concern among women who survived cancer. Reproductive function could vary from regular menstrual cycles with normal endocrine profiles, menstrual disorders as oligomenorrhea or amenorrhea, but also early menopause - POF (premature ovarian failure).

Cancer survivors that are 70% of children treated for malignant disease will become long-term survivors – and will have depletion of ovarian reserve reflected in the number of FSH sensitive antral follicles to the lesser or higher extent (follicular apoptosis, cortical fibrosis)

Chemotherapy leads to destruction of growing follicles contributes to accelerated recruitment – followed by the destruction of recruited follicles – leading to premature exhaustion of the primordial follicle pool.

Extent of a damage depends on Cumulative dose of chemotherapeutic agents and type and dose of radiotherapy, current age of the patient. Age at the time of chemotherapy or radiation, current menstrual patterns. Replacing genotoxic drugs and radiation with targeted treatments is a promising idea that is in early stages. Many pediatric oncology centers are also developing programs to follow patients long term to try to recognize and intervene early to reduce adverse late effects. Fertility preservation strategy before, after and during cancer treatment are Ovarian transposition, embryo freezing, oocyte (unfertilized egg) freezing, fertility-preserving surgery, protecting the ovaries from radiation therapy, ovarian suppression, ovarian tissue preservation. Modern surgical oncology have to take care of organ function, body perception

Oncofertility, a multidisciplinary part of medicine refers to the medical field that links the specialties of oncology and reproductive endocrinology with the aim of maximizing the reproductive potential of cancer patients and survivors