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Nerve-sparing surgery in cervical cancer
Robotic assisted laparoscopy

Narducci F[1], Merlot B[1], Lambaudie E[2], Phalippou J[1], Taieb S[1], Houvenaeghel G[2], Leblanc E.[1]
[1]Centre Oscar Lambret, Lille cedex, France, [2]Paoli-Calmettes Center, Marseille, France

Key words: Uterine Cervical Neoplasms; Hysterectomy; Laparoscopy; Gynecologic Surgical Procedures; Robotics; Hypogastric Plexus

Radical hysterectomy in early cervical cancer less than 2 cm is associated with specific morbidity. Urinary disorders are often noticed and can depend on pelvic plexus nerve injuries.
The purpose was to compare surgical and short-term outcomes, as well as urinary disorders between robotic-assisted nerve-sparing radical hysterectomy and laparoscopic no nerve-sparing radical hysterectomy.
The first 19 cases of robotically assisted nerve-sparing type C1 radical hysterectomy for early cervical cancer less than 2 cm were compared with the 28 previous cases of open-laparoscopy type B radical hysterectomy.
The two groups were comparable in terms of age, BMI and tumor size.
There was no significant difference with median of blood loss.
Robotic hysterectomy was associated with a shorter hospital stay median (4 vs. 5 days, $p<0.01$). The median operating time was significantly longer in the robotic group (290 vs. 240 min, $p<0.05$).
The nerve-sparing procedure was performed in every robotic-assisted radical hysterectomy and no intra-operative complication was noticed.
There was no problem with margins status in the robotic group and no significant difference in the median lymph nodes (23 vs. 26)
We noticed more post-operative urinary retention (7 vs. 2) in the laparoscopic group.
Robotic-assisted nerve-sparing radical hysterectomy can be considered as a feasible and safe procedure.
Using the robotic system can help to preserve the autonomic nerve and therefore, can decrease the bladder dysfunction and improve the quality of life of these young patients.

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Fertility Sparing surgery in young patients with cervical cancer

Mandić A.
Oncology Institute of Vojvodina, Sremska Kamenica, Serbia

Key words: Uterine Cervical Neoplasms; Gynecologic Surgical Procedures; Lymph Node Excision; Pelvis; Hypogastric Plexus; Splanchnic Nerves; Autonomic Pathways; Cervix Uteri; Fertility

Diagnostics of early invasive cervix uteri carcinoma in younger patients' group is directed to a new approach of operative treatment and provision of possible preservation of fertility. Radical trachelectomy is a surgical method which, together with pelvic lymphadenectomy represents one of the treatment methods of initial stages of invasive forms of cervical carcinoma in women who are in their child bearing age and who wish to preserve their reproductive function. Trachelectomy originates from the Greek words: τράχελος, which means neck and έχτομή, which is cutting. There are two kinds of approaches in performance of radical trachelectomy: vaginal radical trachelectomy (VRT) and abdominal radical trachelectomy (ART).
Abdominal radical trachelectomy with preservation of a part of the uterus represents a transabdominal approach. A basic principle of such surgical approach is a radical surgery with the aim of preservation of a part of the uterus with simultaneous removal of the cervix uteri, parametrium with bilateral pelvic lymphadenectomy which does not differ from the technical performance of any radical Wertheim-Meigs hysterectomy with modification of preservation of a part of the uterus and creation of utero-vaginal anastomosis. This approach enabled wider resection of parametrium, an adequate upper vaginal resection and the possibility of less number of complications. The only limitation regarding this approach can be the extensive change, which is infiltrated deeply in stroma, including the lower uterine segment.
Laparoscopically assisted vaginal radical trachelectomy. Greater development of technology and surgical procedures, as well as the confirmation of the significance of laparoscopy in oncological gynecology, have given new directives to this technique and its implementation in these cases. A pioneer of this technique, with immense contribution to its development is Prof. Daniel Dargent. In 1987, he performed a laparoscopic pelvic lymphadenectomy after which the Schaut surgery was performed. Vaginal approach represents a modification of the Schaut surgery.
Implementation of vaginal radical trachelectomy requires significantly longer training, learning of laparoscopy and vaginal radical approach, which is necessary to be learnt within the centers, which perform such techniques. Some authors point out somewhat greater number of complications regarding this procedure, which may be related to the development of a new technique and the surgeon's training, which requires implementation of these procedures in highly specialized institutions. Also, the access to parametrium and the width of resection in this technique may represent some problems in the case of a beginner. Even Dargent pointed out that it is difficult to remove the lateral tissue from ureter by vaginal approach.
In the study with 125 patients with VRT and 106 pregnancies after the surgery, M. Plant et al. concluded that vaginal radical trachelectomy is oncologically justified in well-selected patients with early invasive cervix uteri carcinoma with border tumor volume up to 2 cm.
The complexity of these procedures derives more from strict indications for their performance because an inadequate selection of patients for this kind of surgery leads to discrediting of the surgery or a technique itself, and, which is more important, implementation of inadequate therapy modality for the patient. When determining indications for this kind of surgery, the standard consensus has not been defined yet because the beginning of implementation of this method in the 90's was limited by the number of cases and the monitoring period, so that adequate conclusions on independent risk factors for development of the disease recidive may not have been reached. What is confirmed by the present studies is that the indications for radical trachelectomy are:

- Patients up to 45 years of age with a strong wish for preservation of fertility
- No clinical, diagnostically confirmed fertility disorders prior to cervical carcinoma diagnostics
- FIGO stage of the disease IA2 – IB with a lesion of up to 2 cm with superficial invasion without lymphovascular invasion and deep srtomal invasion (infiltration of the upper part of cervical canal) – preoperative NMR diagnostics.
- Negative pelvic lymph nodes, which implies the possibility of ex tempore diagnostics
- Upper and lower, as well as parametrial resection edges in the operative sample without the presence of malignity (ex tempore).

According to meta analysis in over 900 patients with VRT, the disease recidive occurred in about 4% and mortality in about 2% of patients. In his review article, Shepherd JH presented 406 patients who underwent vaginal radical trachelectomy in seven centers worldwide. Out of 406 women who underwent vaginal radical trachelectomy, 171 pregnancies in 118 women were verified. Only 17 pregnancies ended with delivery before the 32nd gestation week. In later studies, 50% of these women gave birth in a due term, 20% before the term and the residual 30% experienced miscarriage in the 1st or the 2nd trimester of their pregnancy. The pregnancies were ended by the Caesarian section when it was necessary to explore the abdominal cavity.

Complications caused by the surgical technique are most often related to time interval of the surgical technique education, especially education regarding the laparoscopic technique and modification of vaginal approach to radical trachelectomy.
The most usual complications in the first surgeries are:

- bladder perforation
- a.illiaca externa laceration
- perirectal hematoma
- uterus perforation
- lymphedema and lymphatic cysts

Postoperatively, some complications like isthmus stenosis (10%), dysmenorrhea (24%), irregular menstruation (17%), prolonged amenorrhea (7%), cerclage problems (14%) may occur.
A neoadjuvant chemotherapy concept with the aim of tumor volume reduction in young women with diagnosed cervical carcinoma has directed the clinicians to consider the possibility of even greater reduction of radical character, i.e. more preserving surgery of the cervix, conization or simple trachelectomy with lymphadenectomy in patients with smaller tumor volume up to 2 cm. The stated procedures also give the opportunity to patients with tumors of up to 4 cm, who wish to preserve fertility. The given concept is still based on a small number of cases and some further research and confirmations of these statements are necessary, having in mind the significance of the tumor volume, lymphovascular invasion and the depth of stromal infiltration as a significant negative prognostic factor in evaluation of feasibility of these procedures. Regardless the strong wish for preservation of fertility in young women with cervix uteri carcinoma, we must not forget the basic oncological principles as well as the necessity of informing of all relevant social structures in the importance of preventive gynecological examinations in order to have a larger number of these cases diagnosed in a precancerous stages, when the treatment modalities are much clearer and more efficient.

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Nerve-sparing radical hysterectomy

Radlović P.
Institute of Oncology and Radiology of Serbia, Belgrade, Serbia

Key words: Uterine Cervical Neoplasms; Endometrial Neoplasms; Hysterectomy; Hypogastric Plexus; Gynecologic Surgical Procedures; Splanchnic Nerves; Autonomic Pathways

Nerve-sparing radical hysterectomy represents a modern surgical approach in treatment of operable cervix uteri carcinoma (stages Ia-IIa) as well as endometrium carcinoma in cases when there is a tumor propagation of the disease into the cervix uteri (stage II). The idea related to this surgery is prevention of some postoperative complications, which may occur after radical hysterectomy (bladder, rectum and vagina denervation), and which are related to necessary radical resection of lateral and back parametria. This is achieved by preservation of autonomous nerves, which are close anatomically to lateral and back uterine connections. The degree of radicalism of this operative approach is not reduced and it is in line with the type III radical hysterectomy according to the Piver-Rutledge classification (i.e. type C per new Querleu and Morrow classification).
N. hypogastricus, contains sympathetic nerve fibres and is closely related to dorsal part of lig sacro-uterinum. Pelvic splanchnic nerves contain parasympathetic fibres and are situated in the dorsal third of the lateral parametria. By careful preparation and preservation of the stated autonomous nerve fibres, an unobstructed radical resection of lateral and back parametria to pelvis walls, is possible. Preparation of splanchnic nerves enables identification and preservation of bladder and rectal branches with sacrificing of uterine branches only.
Urine retention and difficult defecation are complications, which practically do not occur after this surgery has been adequately performed, which directly reflects to a better quality of life of the patient. Duration of the procedure is, on average, longer for 30 minutes in comparison with the radical hysterectomy of type III. If there is a need, and it is estimated that it is possible to preserve the reproductive function, a nerve-preserving radical abdominal trachelectomy, which is technically performed in a similar way, but with preservation of adnexal and the body of uterus with anastomosis of the body of uterus and vagina, is performed.

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Minimal invasive surgery in gynecological oncology: possibilities and situation in Serbia - GynEndo

Anđelić ML.
General Hospital, Subotica, Serbia

Key words: Genital Neoplasms, Female; Gynecologic Surgical Procedures; Endoscopy; Serbia

There is no doubt that endoscopic is both the present and the future that opens great possibilities for interaction of technology, surgeons and patients. The speed and the scope of endoscopic surgery development surpass everything existing in the history of surgery; it completely ruins the classical concept of education (specialization) and licensing of surgeons. A certain number of surgeons will never be able to perform a safe endoscopic surgery, regardless their training, while many of them do not wish to adapt and many still do not believe in endoscopic approach. If the efficiency of previous work were to be analyzed the result would be very modest although the first diagnostic laparoscopies of malignancies were performed in 1986. In addition, almost all available endoscopies have been done but only in an irrelevant number and mostly as a demonstration.
By analyzing why this is the case, we conclude that the major drawbacks are unidentified attitudes of leading clinics towards minimally invasive surgery, insufficient capacity of smaller centers to take over a leading role, disinterested position of the Ministry and the Fund for Health Protection. The major obstructions that cause the present situation might be the undefined attitudes of leading clinics towards minimally invasive surgery, insufficient capacity of smaller centers to take over a leading role, and the lack of interest in the Ministry and Fund for health protection.
There are some segments within Serbian, endoscopic oncological gynecology, which are satisfactory. This is the endoscopic approach to adnexal masses and adolescent endoscopy (the Mother and Child Institute). The attitude towards endoscopic approach to adnexal masses is, in most centers, a gold standard and is based on a long-term criticism of endoscopic approach and formed standard approach from preoperative preparation to ex tempore verification. An additional impulse was obtained by the reports of American Association for Endoscopic Surgery showing 0.4% of malignancies per 13000 surgeries. Our experience based on 408 surgeries of suspected adnexal masses, showed 3 carcinomas and 2 borderline ovarian tumors.
What has been achieved so far in other oncological endoscopic procedures? The Oncology Institute of Vojvodina in Sremska Kamenica has taken up a right direction although in a somewhat slow pace; there are initial steps in clinics, especially in Nis; a stable team has been created at the Mother and Child Institute, which carries out the adolescent endoscopic surgeries; the best surgeons of gynecological-oncological surgery have been invited to demonstrate their expertise.
We are aware of the significance of gynecological-endoscopic surgery, which is left to enthusiasm of individuals, but the situation is not ideal in the developed countries either (John R. Lurain 2009). Further development should be based on upgrading the level of minimally invasive surgery at the clinics and education of resident physicians and surgeons. The program of GynEndo IPA project Szeged-Subotica is aimed to raise the level of education by means of virtual simulator training carried out in 4 workshops. The project has shown the possibility of de-metropolization but the bearers of the development must be the institutions with greater concentration of patients and with larger expert capacity. Until then, it is our duty to give our contribution to the development regardless our egotism and commodity.

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