Laparoscopic radical hysterectomy with lymphadenectomy: our experience

Laparoskopska radikalna histerektomija z limfadenektomijo: naše izkušnje

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Izvleček

Izhodišča: Rak materničnega vratu je druga najpogostejša vrsta ginekološkega raka pri ženskah do 65. leta starosti. V svetovnem merilu je ta najpogostejši vzrok smrti zaradi ginekološkega raka. Do sedaj je bilo standardno zdravljenje raka materničnega vratu abdominalna radikalna histerektomija po Wertheim-Meigs-Novaku, z ali brez adneksov in s pelvično limfadenektomijo. V zadnjih dveh desetletjih se je z razvojem laparoskopije razvila tudi laparoskopska radikalna histerektomija. Prvič so laparoskopsko radikalno histerektomijo z limfadenektomijo leta 1989 izvedli Nezhat in sodelavci.

Od leta 2013 na KO za ginekologijo Ginekološke klinike UKC Ljubljana pri raku materničnega vratu do FIGO stadija IB_1 izvajamo tudi laparoskopsko radikalno histerektomijo s pelvično in/ali paraaortno limfadenektomijo. Namen članka je retrospektivno nerandomizirano oceniti naše dosedanje delo pri tej zahtevni operaciji – obolevnost in varnost posega.

Metode: Retrospektivno smo pregledali zdravstveno dokumentacijo bolnic z rakom materničnega vratu, ki smo jih zdravili z laparoskopsko radikalno histerektomijo s pelvično limfadenektomijo in/ali paraaortno limfadenektomijo, od aprila 2013 do maja 2016.

Rezultati: Vključili smo 34 bolnic, pri katerih smo izvedli laparoskopsko radikalno histerektomijo. 32 bolnic je imelo rak materničnega vratu v FIGO stadiju IB_1 in dve bolnici v stadiju IB_2. Med operacijo smo imeli štiri poškodbe mehurja (11,8 %), ki smo jih oskrbeli med posegom. Nismo imeli poškodb uretra. Zaradi suma na večjo krvavitev smo imeli eno takojšnjo revizijo (2,9 %), pri kateri nismo našli pomembnejše krvavitve.

Tri bolnice (8,8 %) so imele pooperativni zastoj urina. Pri eni bolnici (2,9 %) je po spolnem odnosu (4 mesece po operaciji) prišlo do dehiscence slepega konca vagine. Ni bilo ureterovaginalnih ali vezikovaginalnih fistul.

Operacije so v povprečju trajale 174 minut, povprečna hospitalizacija je trajala 8 dni, povprečna izguba kvi je bila 250 mL.

Zaključki: Laparoskopska radikalna histerektomija je metoda izbire pri zdravljenju raka materničnega vratu do stadija IB1.

Večje število poškodb mehurja je posledica učne krivulje. Vse napore bomo usmerili v zmanjšanje poškodb mehurja in njegovih pooperativnih disfunkcij z izboljšanjem tehnik za ohranitev živcev.

Pričakujemo enako petletno preživetje preučevanih bolnic, kot ga imamo pri bolnicah, ki smo jih zdravili s klasično radikalno histerektomijo.

Abstract

Background: The second most common cancer in women up to 65 years of age is cervical cancer (CC). The same type of cancer is the leading cause of death from gynaecological diseases world-

wide. The standard procedure for cervical cancer treatment with FIGO stage including IB_2 is radical hysterectomy sec. Wertheim-Meigs-Novak with or without the adnexa with radical pelvic lymphadenectomy and/or para-aortic lymphadenectomy. In the last two decades, with the development of laparoscopy, laparoscopic radical hysterectomy has also been developed.

Laparoscopic radical hysterectomy with pelvic and para-aortic lymph node dissection was performed for the first time by Nezhat with coworkers in 1989.

Laparoscopic radical hysterectomy with pelvic and/or paraaortic lymphnode dissection in the treatement of cervical cancer including FIGO stage IB1 is performed at the Department of Obstetrics and Gynaecology, University medical Centre Ljubljana, since 2013. The purpose of this article is to evaluate the morbidity and safety of the procedure.

Methods: We retrospectively reviewed the medical records of patients with cervical cancer who underwent laparoscopic radical histerectomy with pelvic and/or paraaortic lymphadenectomy from April 2013 to May 2016.

Results: 34 patient were included, 32 patients with CC FIGO stage IB1, 2 patients with CC FIGO stage IB2.

There were four (11.8 %) bladder lesions, all of them were corrected during the surgery, but no ureteral lesion! There was one (2.9 %) surgical revision right after the surgery due to assumption of bleeding (though there was no active bleeding found).

Three patients (8.8 %) had permanent urinary dysfunction – retention. One patient (2.9 %) had dehiscence of vaginal vault after 4 months (after sexual intercourse)

There was no ureterovaginal/vesicovaginal fistula after surgery. The mean operating time was 174 minutes, mean admission time after surgery was 8 days, mean blood loss during operation was 250 mL.

Conclusions: Laparoscopic radical hysterectomy is the method of choice in cervical tumors including FIGO stage IB1.

A higher percentage of bladder lesions is attributable to learning curve.

Our goal in the future is to decrease the percentage of bladder lesions and to decrease the percentage of patients suffering from bladder dysfunction by using „nerve sparing“ technique.

We expect to achieve the same 5-year survival rate as in patients treated by classical radical hysterectomy.

Introduction

The second most common cancer in women up to 65 years of age is cervical cancer (CC). The same type of cancer is the leading cause of death from gynaecological diseases worldwide.

Cervical cancer is still among the common cancers in women in Slovenia; in 2014, its incidence was 6.2 cases / 100,000 women.[1] The majority of cases (60–70 %) are in the early, localized stage of the disease.[2] The standard procedure for cervical cancer treatment with FIGO stage including IB2 is radical hysterectomy sec. Wertheim-Meigs-Novak with or without the adnexa with radical pelvic lymphadenectomy and/or para-aortic lymphadenectomy since early 1990s[3]. The Natonal Comprehensive Cancer Network (NCCN) recommends radical hysterectomy with pelvic lymphadenectomy for CC FIGO stages up to IB1 for patients who have no desire for fertility. The guidelines are not specific about the approach of this operation.[4] In the last two decades and a half, with the development of laparoscopy, laparoscopic radical hysterectomy

(LRH)has also been developed with the aim to achieve the same efficiency with less morbidity[5]. LRH with pelvic and para-aortic lymph node dissection was performed for the first time by Nezhat with coworkers in 1989.[6]

At the Department of Obstetrics and Gynaecology of the University Medical Centre Ljubljana we introduced laparoscopy in the treatement of early stages of CC in 2009 by laparoscopic pelvic lymphadenectomy and radical vaginal trachelectomy[7]. LRH was first performed in 2013.

With any new surgical technique, analysis of the results, morbidity and risk of complications must be assessed.[8-17]

With a long and successful tradition of CC treatement by abdominal radical hysterectomy sec. Wertheim-Meigs-Novak and vaginal radical hysterectomy sec. Shauta-Amreich we are evaluating the morbidity and surgical outcome of less traditional LRH.

Matherials and methods

We retrospectively reviewed the medical records of all patients with CC who underwent LRH with pelvic and/or paraaortic lymphadenectomy from April 2013 to May 2016 at the Departement of Gynaecology and Obstetrics of the University Medical Centre Ljubljana, Slovenia.

The diagnosis of CC was histologically comfirmed by biopsy or cone biopsy. All the patients were reffered to Onco-Gynecological Commission to establish FIGO stage and subsequently the mode of treatement. Those with FIGO stage IA1 to IB1 (based on clinical staging) were refered to undergo radical hysterectomy, but it was at the surgeon's discretion to decide which kind–classical or LRH.

We included only the patients treated by LRH.

The data collected from medical records included patient's age, tumor histology specification, number of positive lymph nodes and disease-free surgical margins. Data on operating time, blood loss, need of transfusion, peri- and post-operative complications were collected. Data on the duration of hospital stay, adjuvant treatement and recurrence were also assembled.

Results

A total of 34 patients were included; 32 (94.1 %) with CC FIGO stage IB1 and 2 (5.9 %) with CC FIGO stage IB2.

Their age ranged from 34 to 72 years: mean 49.6 years (SD 9.3 years).

Seven patients had adenocarcinoma (20.6 %), three adenosquamous carcinoma (8.8 %) and 24 squamous carcinoma (70.6 %). Three tumours (8.8 %) had positive margins and five (14.7 %) had one positive lymph node. One patient also had leiomyosarcoma with lung and liver metastases.

The operating time was from 110 to 225 minutes: mean 174 minutes (SD 29 minutes).

The duration of hospitalization was from 5–43 days: median 8 days (1st quartile 7 days, 3rd quartile 14 days).

The volume of blood loss was from 100–600 mL: median 250 mL (1st quartile 200, 3rd quartile 375 mL).

Four patients (11.8 %) needed a blood transfusion.

There were four (11.8 %) bladder lesions, all of them were detected and corrected during the surgery. There was no ureteral lesion. There was one (2.9 %) surgical revision right after the surgery due to suspected bleeding (though there was no active bleeding found). None of the patients had a postoperative wound infection.

Three patients (8.8 %) had permanent urinary dysfunction – retention. One

patient (2.9 %) had dehiscence of the vaginal vault after 4 months (following sexual intercourse). There was no ureterovaginal/vesicovaginal fistula after surgery.

Ten patients (29.4 %) were given adjuvant radiotherapy, two (5.9 %) a combination of adjuvant radio and chemotherapy and one (2.9 %) adjuvant chemotherapy. One patient died because of leiomyosarcoma spread. The recurrence of carcinoma in the vaginal vault was noted in one patient (2.9 %) 4 months after LRH when surgical margins were free.

Discussion

In the last three decades, laparoscopic approach has replaced the majority of classical gynaecological procedures, gradually even in the field of oncological--gynaecological surgery. Laparoscopy is so popular mainly because of a decrease in operative blood loss, shorter procedure time, better outcome, shorter postoperative hospital stay, faster recovery time and lower occurrence of wound infection.[18]

The LRH is a relatively new surgical technique used in our department. The standard procedure till 2013 was radical hysterectomy sec. Wertheim-Meigs-Novak. It is necessary for any new method to evaluate its feasibility and applicability, peri-operative and post-operative complications, survival and risk of recurrence. Many surgical centres have already evaluated their results for the same reason.[10-14,16-21]

Although a learning curve is expected with new procedures, our mean procedure time was 174 minutes and mean blood loss was 250 mL. There were no injuries to the gastrointestinal organs or ureters. Such good results are probably due to the experience of our surgeons in the field of abdominal radical hysterectomies as well as laparoscopic skills in advanced surgery such as total laparoscopic hysterectomy with pelvic lymph node dissection and deep endometriosis. The results with other authors are compared in Table 1.[18,22-24]

The only surgery-related complications were 4 bladder lesions (11.8 %), which is, according to the literature, within the expected limits (3.3 %–28 %).[12,25] All of them occurred in the first year after the introduction of the new procedure. In the following year we had no bladder

Table 1: Table compares data of different studies of laparoscopic radical hysterectomy with lymphadenectomy in the treatement of cervical carcinoma.

	No of patients	FIGO stage	Median time of procedure (min)	Median blood loss (mL)	Median duration of stay (days)
Our results	34	IB1-IB2	174	250	8
Taylor SE et al.[18]	9	IA2-IB1	231.7	161.1	2.9
Malzoni M et al.[22]	65	IA2-IB1	196	55	ND*
Gil-Moreno A et al.[23]	27	IA2-IB1	ND*	400	5
Yan X et Al[24]	148	IB1	257	250	ND*

**ND = no data*

injuries. The explanation for this is again the learning curve.

A shorter period of time in post operative care and no wound infection were expected considering our previous experiences in laparoscopic procedures.

Urinary dysfunction is a well known complication of radical hysterectomies, both classical and LRH, despite of using nerve sparing techniques. 8.8 % of urinary dysfunction among our patients is comparable (9 %) or better to that reported in literature.[26,27] Nerve sparing technique is not standardized among different surgical centres;[18] we all should further improve our results. We expect that the new 3D HD camera will contribute to better detection of the splanchnic nerves and therefore better nerve sparing techniques.

The dehiscence of the vaginal vault after a sexual intercourse 4 months after surgery in a 40- year old patient (a smoker) is the first such complication at our department, but not in the literature.[28,29] There was no adjuvant treatment, no previous postoperative infection of the vagina and that intercourse was not the first one after surgery. The patient described the sexual practice as usual. Vaginal cuff dehiscence is a rare complication occurring in 0.24 % to 0.31 % of hysterectomy cases; with laparoscopic closure the incidence is two-fold higher (0.64 %).

Laparoscopic closure of the cuff is associated with a twice higher incidence of cuff dehiscence compared to vaginal cuff closure (0.64 % v. 0.30 %).[30] According to Hur and coworkers, smoking may lead to poor vaginal cuff healing and, subsequently, to dehiscence during the intercourse. In the absence of other reasons, this is our only explanation for this late complication.

The finding of leiomyosarcoma in the uterine corpus alongside with planocellular CC *in situ* was unexpected. Preoperatively, we assumed that the tumor of the corpus uteri was fibroid. Due to noninvasive tumor, no CT or MRI scans were performed preoperatively. During the surgery, the tumor of the corpus uteri was found to invade the right parametrium. The diagnosis of leiomyosarcoma was made after pathomorphological examination. Further diagnostic examinations (MRI, PET-CT) revealed liver and lung metastases. Considering that an expected 5- year relative survival in leiomyosarcoma stage IVB is less than 14 %, adjuvant chemotherapy did not change poor outcome.[31] The patient died 6 months after surgery.

The recurrence in a single patient is incomparable with the results in literature. The short follow-up interval and small number of cases in the series render a real comparison impossible.

Conclusions

LRH is the method of choice in cervical tumors including FIGO stage IB1.

The most common complication is a bladder injury, the percentage being the same as that reported in the literature.

Our goal in the future is to decrease the percentage of bladder lesions. With the introduction of the new 3D HD camera we hope to improve the nerve sparing technique.

We expect the same 5-year survival rates as those achieved in patients treated by classical radical hysterectomy.

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