

REVIEW

Laparoscopic pelvic exenteration: A new option in the surgical treatment of locally advanced and recurrent cervical carcinoma

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Abstract: Pelvic exenteration is an option in the treatment of persistent or recurrent cervical carcinomas confined to the central pelvis. The improvement of laparoscopic techniques and equipment in combination with broader experience of surgeons in laparoscopy made laparoscopic pelvic exenteration possible. This article reviews present experience with pelvic exenteration and analyses the advantages and disadvantages of the method compared to classical method (Tab. 2, Ref. 10). Full Text (Free, PDF) www.bmj.sk.
Key words: pelvic exenteration, laparoscopy, carcinoma of the cervix.

Advanced or recurrent cervical tumours represent the primary indication for pelvic exenteration, a method which provides another possibility to prolong the survival in cervical cancer patients. The indication for pelvic exenteration is non-metastatic persistent or recurrent cervical malignancy after prior pelvic irradiation. The disease must be confined to the central pelvis in order to be completely resectable. The so-called ‘triad of trouble’ (including ureteral obstruction, neural sheath involvement and venous or lymphatic compromise of iliac vessels) is used for the determination of resectability (possible already when one of them is present). Total pelvic exenteration includes removal of the genital organs, urinary bladder and rectum and is performed during explorative laparotomy since Brunschwig’s first surgical evisceration in 1948 (1). With improving surgical technologies and increasing surgical experience, exenteration is a logical extension of the current laparoscopic practice. In 2003, Pomel et al (2) performed the first laparoscopic total pelvic exenteration and afterwards some case series with this method were presented in the literature.

Methods and results

We searched for publications in the Pubmed (1995–11/2006) and relevant references from the initially identified articles. The key words used included “laparoscopy”, “laparoscopic”, “pelvic exenteration”, “cervical cancer”. We focused on articles describing the use of laparoscopic or laparoscopically assisted pelvic exenteration in women with relapsed cervical carcinoma. A total of 21 citations were identified with computerized search. From

these 15 were excluded because they were irrelevant to the topic of this study. Six studies (4 case series and two case reports) (2–7) remained that met the inclusion criteria for our study. Data were extracted from each study and entered into one table. One case report (Pomel et al, 2003) (2) seems to be part of the case series of Feron et al whereas Feron et al had two case series presented during 2006 (one with 5 and one with 7 patients) (3, 4) from which the second case series seems to be a continuation of the first one. The information retrieved consists of the author, year of publication, type of article, number of patients, the surgical method and the results (including mean time of procedure, blood loss, complications, mean hospital stay, morbidity, survival outcome and the mean follow-up time of each study).

Discussion

Three recent retrospective studies of pelvic exenteration with the classical method (8–10) were identified. The surgery duration ranged between 7–7.75 hours and the mean intraoperative blood loss was 2500 ml. Early and late complications included the following: anastomotic leak, bleeding, wound infection, fistulas, acute renal failure, deep vein thrombosis, pelvic abscess, bowel obstruction (early), and UTIs, ureteral stenosis, fistulas, pelvic abscess, bowel obstruction (late). The total number of patients was 218. The median disease free-survival was 32 months. The 5-year survival rates ranged from 48 up to 54 % (Tab. 1).

During the literature search 6 relevant studies which included 25 patients who underwent laparoscopic pelvic exenteration till now were identified. The mean operating time ranged from 3 up to 9 hours but there was a variety of anterior, posterior or total pelvic exenterations. This implies that the operation is very difficult for the surgical team. The perioperative blood loss is limited with the laparoscopic method (ranging from 370 up to 500 cc). Finally, postoperatively, the mean hospital stay ranged from 3

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Tab. 1. Classical pelvic exenteration.

Author	Number of pts	Mean time of procedure	Blood loss	Complications	Follow-up (year)
Goldberg et al (2006)	95			14 % ureteral anastomotic leaks, 17 % wound complications, 4 % parastomal leak hernias, 36 % UTIs/pyelonephritis, 11 % gastrointestinal fistulas, pouch incontinence, 9 % small bowel obstruction, 7 % thromboembolic complications	48 % 5-year survival survival
Berek et al (2005)	75	7–7.75 h	2.5 l	tUTIs, wound infection, intestinal fistula, intestinal obstruction	54 % 5-year survival
Sharma et al (2005)	48			27 % early complications: anastomotic leak, bleeding, fistulas, acute renal failure, deep vein thrombosis, pelvic abscess, bowel obstruction 75 % late postoperative complications: UTIs, ureteral stenosis, fistulas, pelvic abscess bowel obstruction	Median survival: 35 months Median disease-free survival: 32 months

Tab. 2. Laparoscopic pelvic exenteration.

Author (year)	Type of article	No of pts	Surgical method	Mean time of procedure	Blood loss	Complications	Hospital stay	Follow-up
Ferron et al (2006)	Case series	7	Laparoscopy-assisted pelvic exenteration: 2 pts total 3 pts anterior 2 pts posterior	6.5 hours	less than 500ml	4 pts minor complications	27 days	14 months 2 pts free of disease 1 pt local recurrence 4 pts died (3 were metastatic)
Uzan et al (2006)	Case series	5	Laparoscopic pelvic exenteration: 2 pts total 1 pt posterior 2 pts anterior	4.5–9 hours	370ml			3 pts died (3 were metastatic) 2 pts alive for 11 and 15 months
Puntambekar et al (2006)	Case series	12	Laparoscopic anterior pelvic exenteration	180 min	100–500ml	1 pt: internal iliac artery injury 3 pts postoperative complications 2 pts subacute intestinal obstruction 1 pt ureteric leakage	3 days	15 months
Ferron et al (2006)	Case series	5	Laparoscopy-assisted pelvic exenteration: 1 pt total 2 pts anterior 2 pts posterior	6 hours (range 4.5–9 h)	less than 500ml	2 pts minor complications (perineal and abdominal wound abscess)	27 days (13–33days)	3–16 months 3 pts free of disease 2 pts growing metastasis 1 pt died after 8 months
Lin et al (2004)	Case report		Laparoscopic total pelvic exenteration	6 hours		Wound infection 50 days postoperatively		Free of disease 1 year after
Pomel et al (2003)	Case report	1	Laparoscopic total pelvic exenteration	9 hours		Uneventful postoperative course		

up to 27 days with results similar to that of laparotomic method. Minor complications of the method such as intraoperative internal iliac artery injury, perineal or wound abscesses, and major complications including ureteric leakage or subacute intestinal obstruction are mentioned. The follow-up time reached 16 months (Tab. 2).

Conclusion

There is a minimum number of studies regarding the use of laparoscopic pelvic exenteration as a new option in the treatment of cervical cancer and therefore additional multi-center studies are necessary to understand the indications and optimize the results of the method. Furthermore, randomized control trials of pelvic exenteration (laparotomy versus laparoscopy) may be useful for optimizing the method. However, till now, laparoscopic pelvic exenteration seems to be an optimal method of pelvic exenteration with similar results to the classical method. Laparoscopic pelvic exenteration seems to have minimal intraoperative blood loss or complications, less postoperative complications, shorter hospital stay, and better cosmetic result. On the other hand, further time in the follow-up period of these patients is needed in order to have the ability to explore the late postoperative complications and the 5-year survival. Gynecologists and especially laparoscopists should never forget that such technically challenging procedure needs to be used with caution as special laparoscopic experience is necessary.

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