Long Term Complications after Radical Hysterectomy with Pelvic Lymphadenectomy

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Objective: *To evaluate the incidence of long-term complications in stage IB and IIA cervical cancer patients undergoing radical hysterectomy with bilateral pelvic lymphadenectomy*
Material and Method: *A retrospective review on 290 patients who were treated with primary type III radical hysterectomy with bilateral pelvic lymphadenectomy between January 1, 1997 and December 31, 2005. Long-term complications were classified in two categories, voiding dysfunction and complication from lymphadenectomy such as lymphocyst and lymphedema.*
Results: *Forty-two patients (14.5%) required urethral catheterization more than four weeks. Only four patients (1.4%) were diagnosed as neurogenic bladder and required permanent self-catheterization. Two hundred forty eight patients (85.5%) returned to normal voiding within 1 month postoperatively. The incidence of lymphocyst was 9.3%; however, almost of them were asymptomatic and resolved spontaneously within a few months. Only four patients (1.4%) had complicated lymphocyst and required hospitalization with intravenous antibiotic and drainage procedure. Six patients (2.1%) were diagnosed as lymphedema after exclusion of deep vein thrombosis and recurrent cervical carcinoma. Pelvic lymph node metastasis and postoperative adjuvant radiation were not significant risk factors for lymphocyst and lymphedema.*
Conclusion: *Radical hysterectomy with lymphadenectomy is the treatment of choice in stage IB and IIA cervical cancer with excellent survival rate. However, there are long-term complications such as voiding dysfunction, lymphocyst, and lymphedema. Although these complications are not life threatening, they can affect the quality of life.*

Keywords: *Radical hysterectomy, Long term complication, Voiding dysfunction, Lymphocyst, Lymphedema*

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Radical hysterectomy with bilateral pelvic lymphadenectomy is the treatment of choice for stage IB and IIA cervical cancer patients. Radical surgery is usually recommended in young healthy patients who desire ovarian function. With the improvement of the surgical and anesthetic techniques, perioperative or short-term postoperative complications have been decreasing. As this result, late complications have become more evident.

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The lower urinary tract dysfunction is the most common long-term complication following radical hysterectomy resulting from partial autonomic denervation of detrusor muscle[1-4]. These complications include decrease in bladder sensation, inability to initiate voiding, and mainly voiding difficulty, which is determined by high postvoid residual urine. The others are the complications associated with lymphadenectomy such as lymphocyst and chronic leg edema from lymphedema. Although, these are not life threatening complications, they affect quality of life.

The present study was conducted to evaluate the incidence of late complications in a large

series of stage IB and IIA cervical cancer patients undergoing radical hysterectomy with bilateral pelvic lymphadenectomy.

Material and Method

All medical records of 346 patients with Stage IB-IIA cervical cancer treated at King Chulalongkorn Memorial hospital between January 1, 1997 and December 31, 2005 were retrospective reviewed. Thirty-two patients who received primary radiation therapy with or without subsequent extrafascial hysterectomy or radical hysterectomy, 17 patients with inadvertent hysterectomy and 7 patients with pelvic lymphadenectomy alone were excluded. Two hundred and ninety patients who were treated with primary type III radical hysterectomy were included. The operations were performed with experienced gynecologic oncologists with the same standard technique. After operation, patients would have retained Foley catheter and removed at 1 week later. The catheter could be removed when residual urine was less than 100 milliliter. If residual urine was more than 100 milliliter, patients will be assigned to retain the catheter and measure residual urine every week until it was normal. For the patients who required catheterization more than 1 month, they would be advised to use clean intermittent self-catheterization (CISC). Patient's characteristics and pathological results were recorded. Patients were assigned to follow-up every 3 months in the first 2 years, every 4-6 months until 5 years then annually. Long-term complications were classified in two categories. The first category was voiding difficulty defined as postvoid residual urine more than 100 milliliter after 1 month postoperatively that required CISC. The second category was the complication from pelvic lymphadenectomy such as pelvic lymphocyst or leg lymphedema. Pelvic lymphocyst was diagnosed by pelvic examination and confirmed by transvaginal ultrasound.

The Chi-square test or Fisher's exact test was used to analyze the categorical variables. A p-value ≤ 0.05 was determined to be statistical significance.

Results

Two hundred and ninety patients performed primary radical hysterectomy with bilateral pelvic lymphadenectomy. Patient's characteristics are shown in Table 1. Almost of all patients were in stage IB1 (89.3%), 6.9% in stage IB2 and 3.8% in stage IIA. Pathological results were shown in Table 2. Adjuvant postoperative treatment was given in 55 patients (19.0%). Forty-seven patients (16.2%) received adjuvant radiation or concurrent chemoradiation and eight patients (2.8%) received adjuvant platinum based chemotherapy.

Table 1. Patient's characteristics

Patient's characteristics	
Mean age - years (range)	45.3 (26-73)
Mean parity - n (range)	2.5 (0-9)
Menopausal status - n (%)	
Premenopause	224 (77.3)
Postmenopause	66 (22.7)

Table 2. Pathologic results

Pathologic results	No. of patients (%)
Histology	
Squamous cell carcinoma	174 (60.0)
Adenocarcinoma	81 (27.9)
Adenosquamous carcinoma	30 (10.3)
Other (small cell carcinoma, clear cell carcinoma)	5 (1.7)
Lymph node involvement	28 (9.8)
Parametrial involvement	12 (4.1)
Deep stromal invasion	82 (28.5)
Lymphovascular space invasion	91 (33.5)
Margin involvement	16 (5.5)

Fifty-five patients (19%) required urethral catheterization for more than 2 weeks and 42 patients (14.5%) required catheterization more than 4 weeks. The distribution of patients who required urethral catheterization is shown in Fig. 1. Three- forth of patients who required catheterization more than 2 weeks

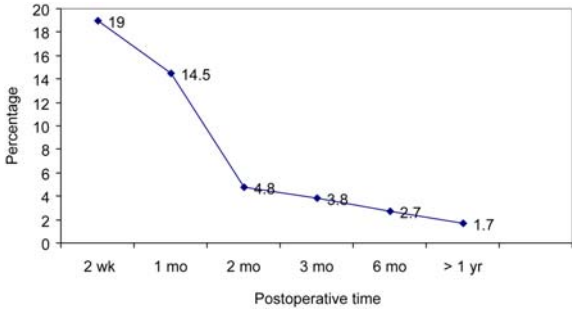

Fig. 1 The distribution of patients who required urethral catheterization according to different postoperative time

(41 in 55 patients, 74.5%) could remove the urethral catheter within 8 postoperative weeks. Eight patients (2.7%) required catheterization more than 6 months, three patients returned to normal voiding at 7 months,one patient at 14 months, and four patients (1.4%) were diagnosed as neurogenic bladder and required permanent CISC.

Nine in 290 patients were lost to follow-up after surgery therefore, 281 medical records had been reviewed. Among these 26 in 281 patients (9.3%) had been detected with pelvic lymphocyst during pelvic examination. Almost of them presented with asymptomatic pelvic lymphocyst and resolved spontaneously within a few months. However, only four patients (1.4%) presented with complicated pelvic lymphocyst and required hospitalization with intravenous antibiotic and drainage procedure. Six patients (2.1%) had chronic leg edema and lymphedema was diagnosed after exclusion of deep vein thrombosis and recurrent cervical carcinoma. The incidence of pelvic lymphocyst in patient with positive pelvic nodes was higher than negative one, 12% vs. 9%, without statistical significant (p = 0.71), as well as the incidence of leg lymphedema was 4% vs. 2% without statistical significance (p = 0.43). Among the patients who received adjuvant postoperative radiation compared to non-received one, both incidences of pelvic lymphocyst and leg lymphedema were 7% vs. 9.7% (p = 0.71), and 7% vs. 1.3% (p = 0.10), respectively as demonstrated in Table 3 and 4.

Table 3. Incidence of pelvic lymphocyst according to various risk factors

Risk factors	Pelvic lymphocyst, n (%)		p-value
	No (n = 255)	Yes (n = 26)	
LN metastasis			0.71
No	233 (91.0)	23 (9.0)	
Yes	22 (88.0)	3 (12.0)	
Radiation			
No	215 (90.3)	23 (9.7)	0.71
Yes	40 (93.0)	3 (7.0)	

Table 4. Incidence of leg lymphedema according to various risk factors

Risk factors	Leg lymphedema, n (%)		p-value
	No (n = 275)	Yes (n = 6)	
LN metastasis			0.43
No	251 (98.0)	5 (2.0)	
Yes	24 (96.0)	1 (4.0)	
Radiation			0.10
No	235 (98.7)	3 (1.3)	
Yes	40 (93.0)	3 (7.0)	

Discussion

Type III radical hysterectomy consists of a resection of parametrial tissue that associated with partial interruption of the autonomic fibers innervating the bladder during the resection of anterior, lateral, and posterior parametrium and vagina. The pathophysiology appears to be partial autonomic denervation, mainly through parasympathetic denervation. This results in loss of bladder sensation, decreased bladder compliance, and reduction of detrusor contractility. It was demonstrated that these interfere with bladder emptying[2,3]. The lower urinary tract dysfunction is the most common long-term complication following radical hysterectomy, with incidence ranging from 10-80%[4]. In the present study, the incidence of voiding difficulty, which is defined as requiring urethral catheterization more than 4 weeks, was 14.5%. Two hundred and forty eight patients (85.5%) could remove the urethral catheter within 1 month postoperatively. This was comparable to a previous study[5]. Eight patients (2.7%) required prolonged catheterization more than 6 months. The partial autonomic denervation after radical surgery may occur temporally and usually recover spontaneously within 6 months[6]. However, more than half of patients need to void by abdominal straining to complete bladder emptying after operation[3].

Only 17% of patients performed radical hysterectomy had normal urodynamic findings preoperatively were reported from one previous study[7]. Voiding dysfunction was demonstrated about 10%, storing dysfunction 45%, and mixed voiding and storing dysfunction 28%. Thus, almost 40% of patients had abnormal voiding dysfunction before operation and this finding may persist and worsen the problem after operation. Thorough history taking and physical examination including special investigations such as urodynamic study may be important for counseling and predicting of voiding dysfunction postoperatively. Generally, voiding dysfunction could not be diagnosed only by the duration of bladder catheterization and volume of postvoid residual urine. The diagnosis should be combined with other

investigation such as urodynamic study. Because the authors did not perform urodynamic study both preoperatively and postoperatively, therefore the true incidence of voiding dysfunction in the present study may be inaccurate. However, the present study about urodynamic study for detection of bladder dysfunction before and after radical hysterectomy in Thai population is ongoing.

Many surgical techniques such as nerve sparing radical hysterectomy or less radicality (Type II radical hysterectomy) were proposed aiming to reduce bladder dysfunction without affect on survival. The preliminary result was impressive; bladder symptoms were significantly improved in the nerve-sparing group compared to the non-nerve-sparing group[8]. Furthermore, type III nerve sparing radical hysterectomy seems to be comparable to type II radical hysterectomy and superior to type III radical hysterectomy in terms of early bladder dysfunctions[9]. However, it lacked a randomized controlled trial, a limited number of patients, and long-term follow-up.

Pelvic lymphocyst is one complication from pelvic lymphadenectomy. A previous study reported the long term incidence of pelvic lymphocyst was 6-22%[10-12]. The incidence was also depended on the method to identify pelvic lymphocyst. If diagnosis was done by ultrasound or CT scan, the incidence would be higher. In the present study, the authors diagnosed pelvic lymphocyst by pelvic examination. If abnormal finding was suspected during examination, the authors would confirm with ultrasound. Therefore, the presented incidence (9.3%) may be lower than previous studies. However, almost of the patients in the present study were asymptomatic and usually resolved spontaneously within a few months. Only a few patients (1.4%) had complicated pelvic lymphocyst and required drainage procedure. The standard procedure is ultrasound guided percutaneous drainage, as recommended by Conte M, et al[10].

According to pelvic lymphocyst prevention, the surgical technique itself has been an important factor. There was no difference in the incidence of pelvic lymphocyst formation among retroperitoneal drainage and non-drainage, without pelvic peritonization. It was concluded that retroperitoneal drainage could be safely omitted following radical hysterectomy and pelvic node dissection without pelvic peritonization in patients without excessive bleeding or oozing at the end of surgery[13,14]. Furthermore, lymph node metastasis and adjuvant radiation may increase the risk of lymphocyst in previous studies[15,16]. However, this finding could not be demonstrated in the present study.

Leg lymphedema is another complication from pelvic lymphadenectomy, 5-20% incidence was reported[12,17,18]. The incidence of leg lymphedema may depend on surgical technique, extent of lymphadenectomy, and adjuvant radiotherapy. Combined surgical management and radiation therapy may increase the risk of this complication[19]. In the present study, the incidence of leg lymphedema seemed to be higher in patients who received postoperative radiation therapy, although it may not reach the statistical significance. It may be due to limitation in number of patients with this complication.

Radical hysterectomy with lymphadenectomy is the treatment of choice in stage IB and IIA cervical cancer with excellent survival rate. However, some complications may persist for a long time such as bladder dysfunction, pelvic lymphocyst, and leg lymphedema. Although these complications are not life threatening, they can affect the quality of life. Adequate preoperative discussion about possible complications should be counseled to all patients. Thorough history taking, physical examination, and special investigations may be necessary for early diagnosis. Improvement of surgical technique may also decrease the risk of these complications. Furthermore, the medical providers should give attention to the disease status and the long-term complications.

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ภาวะแทรกซ้อนระยะยาวหลังการผ่าตัดมดลูกแบบ radical และการเลาะต่อมน้ำเหลือง ในอุ้งเชิงกราน

ธาริณี แม่นชนะ, นครินทร์ ศิริทรัพย์, เรืองศักดิ์ เลิศขจรสุข, พงษ์เกษม วรเศรษฐสิน, นิพนธ์ เขมะเพชร, ตุลย์ สิทธิสมวงศ์, อภิชัย วสุรัตน์, วิชัย เติมรุ่งเรืองเลิศ, ดำรง ตรีสุโกศล

วัตถุประสงค์: *เพื่อหาอุบัติการณ์ของการเกิดภาวะแทรกซ้อนระยะยาวในผู้ป่วยมะเร็งปากมดลูกระยะที่หนึ่งบี และสองเอ ภายหลังการผ่าตัดมดลูกแบบ radical และเลาะต่อมน้ำเหลืองในอุ้งเชิงกราน*

วัสดุและวิธีการ: *เป็นการศึกษาแบบย้อนหลังในผู้ป่วย 290 ราย ที่ได้รับการผ่าตัดมดลูกแบบ radical แบบที่ 3 และเลาะต่อมน้ำเหลืองในอุ้งเชิงกราน ระหว่างวันที่ 1 มกราคม พ.ศ. 2540 ถึงวันที่ 31 ธันวาคม พ.ศ. 2548 ภาวะแทรกซ้อนระยะยาวถูกจัดเป็นสองกลุ่มได้แก่ กลุ่มที่หนึ่งคือ ความผิดปกติของการปัสสาวะ (voiding dysfunction) และกลุ่มที่สอง คือ ภาวะแทรกซ้อนจากการเลาะต่อมน้ำเหลืองในอุ้งเชิงกราน ซึ่งได้แก่ ถุงน้ำจากการคั่งของน้ำเหลือง (lymphocyst) และภาวะขาบวมน้ำเหลือง (lymphedema)*

ผลการศึกษา: *ผู้ป่วย 42 ราย (ร้อยละ 14.5) จำเป็นต้องได้รับการใส่สายสวนปัสสาวะเป็นเวลานานกว่า 4 สัปดาห์ และมีผู้ป่วย 4 ราย (ร้อยละ 1.3) ได้รับการวินิจฉัยว่ามีการทำงานของกระเพาะปัสสาวะผิดปกติแบบ neurogenic โดยที่ผู้ป่วยเหล่านี้ต้องได้รับการสวนปัสสาวะด้วยตนเอง ผู้ป่วยร้อยละ 85.5 สามารถกลับมาปัสสาวะได้ปกติภายในหนึ่งเดือนหลังผ่าตัด อุบัติการณ์ของการเกิดภาวะถุงน้ำจากการคั่งของน้ำเหลืองเท่ากับร้อยละ 9.3 โดยผู้ป่วยส่วนใหญ่ไม่มีอาการผิดปกติและสามารถหายไปได้เองภายในเวลาไม่กี่เดือน มีผู้ป่วยเพียง 4 ราย (ร้อยละ 1.4) ที่มีการติดเชื้อของถุงน้ำจากการคั่งของน้ำเหลือง และจำเป็นต้องนอนรักษาในโรงพยาบาลเพื่อให้ยาปฏิชีวนะทางหลอดเลือดดำและการผ่าตัดเพื่อระบายน้ำเหลือง หลังจากวินิจฉัยแยกภาวะหลอดเลือดอุดตันในหลอดเลือดดำและการกลับเป็นซ้ำของมะเร็งปากมดลูก พบผู้ป่วย 6 ราย (ร้อยละ 2.1) มีภาวะขาบวมน้ำเหลือง การกระจายของมะเร็งไปที่ต่อมน้ำเหลืองในอุ้งเชิงกรานและการฉายแสงหลังผ่าตัดไม่เป็นปัจจัยเสี่ยงที่สำคัญต่อการเกิดถุงน้ำจากการคั่งของน้ำเหลืองและขาบวมน้ำเหลือง*

สรุป: *การผ่าตัดมดลูกแบบ radical และเลาะต่อมน้ำเหลืองในอุ้งเชิงกรานเป็นการรักษาหลักสำหรับมะเร็งปากมดลูกระยะที่หนึ่งบีและสองเอ โดยมีอัตราการรอดชีวิตที่ดีมาก แต่อย่างไรก็ตามอาจจะพบภาวะแทรกซ้อนระยะยาว เช่น ความผิดปกติของการปัสสาวะ ถุงน้ำจากการคั่งของน้ำเหลือง และขาบวมน้ำเหลือง ถึงแม้ว่าภาวะเหล่านี้จะไม่เป็นอันตรายถึงชีวิตต่อผู้ป่วยแต่อาจส่งผลถึงคุณภาพชีวิตของผู้ป่วยได้*