

ผลของการเย็บด้วยวิธีมิวโคสับคิวตาเนียสแบบต่อเนื่องในการผ่าตัดมะเร็ง อวัยวะสืบพันธุ์สตรีด้านนอก

เมธี วงศ์เสนา, ชลียา วามะลูน, วรดา จันทะพันธ์, โสภิต ทับทิมหิน, ชนาธิป หาหลัก
โรงพยาบาลมะเร็งอุบลราชธานี จังหวัดอุบลราชธานี ประเทศไทย

Continuous Muco-Subcutaneous Technique for Repairing of Vulvar Surgeries

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หลักการและวัตถุประสงค์: การผ่าตัดมะเร็งอวัยวะสืบพันธุ์สตรีด้านนอกและเย็บแผลผ่าตัดด้วยวิธีมิวโคสับคิวตาเนียสแบบต่อเนื่องในโรงพยาบาลมะเร็งอุบลราชธานี จังหวัดอุบลราชธานี ได้มีการรักษาอย่างต่อเนื่อง แต่ยังไม่เคยมีการศึกษาถึงผลการรักษาและภาวะแทรกซ้อนมาก่อน การศึกษานี้จึงมีวัตถุประสงค์เพื่อศึกษาผลการรักษาและภาวะแทรกซ้อนของวิธีการดังกล่าว

วิธีการศึกษา: เป็นการทบทวนเวชระเบียนย้อนหลังของผู้ป่วย 25 คนในระยะก่อนเป็นมะเร็งและป็นมะเร็งอวัยวะสืบพันธุ์สตรีด้านนอกที่ได้รับการผ่าตัดอวัยวะสืบพันธุ์สตรีด้านนอกแบบกว้าง (radical vulvectomy) หรือการผ่าตัดอวัยวะสืบพันธุ์สตรีด้านนอกวิธีอื่นและใช้แนวทางการเย็บแผลผ่าตัดด้วยวิธีมิวโคสับคิวตาเนียสแบบต่อเนื่องในโรงพยาบาลมะเร็งอุบลราชธานี ระหว่างเดือนมกราคม พ.ศ. 2550 ถึงเดือนธันวาคม พ.ศ. 2554

ผลการศึกษา: พบว่าระยะเวลาเฉลี่ยที่ใช้ในการผ่าตัดอวัยวะสืบพันธุ์สตรีด้านนอกแบบกว้าง 124.9 ± 24.0 นาที และการผ่าตัดอวัยวะสืบพันธุ์สตรีด้านนอกวิธีอื่น 65 ± 14.6 นาที ค่าเฉลี่ยประมาณการเสียเลือดในการผ่าตัดอวัยวะสืบพันธุ์สตรีด้านนอกแบบกว้าง 227.7 ± 132 มิลลิลิตร และการผ่าตัดอวัยวะสืบพันธุ์สตรีด้านนอกวิธีอื่นประมาณ 212.1 ± 145 มิลลิลิตร พบมีอัตราแผลแยกร้อยละ 8.0

สรุป: การเย็บแผลผ่าตัดด้วยวิธีมิวโคสับคิวตาเนียสแบบต่อเนื่องพบว่า มีแผลแยกน้อย ดังนั้นการเย็บแผลด้วยวิธี

Background and objective: Continuous muco-subcutaneous wound closer technique (CMST) has been used for repairing of vulvar surgeries in precancerous lesion of vulva and vulvar cancer patients in Ubonratchathani Cancer Hospital, Ubonratchathani province for a long time. However, there was no systematic review in the outcomes and its complications of this technique. The aim of this study was to evaluate the outcomes and complications of this method.

Methods: Retrospective review of medical records of 25 patients who had CMST for repairing of vulvar surgeries in precancerous lesion of vulva and vulvar cancer in Ubonratchathani Cancer Hospital from January 2007 to December 2011.

Results: The average operative time of radical vulvectomy was 124.9 ± 24 min (range 90-170 min), while the other radical vulvar operative procedures was 65.0 ± 14.6 min (range 45-90 min). The estimated blood loss of radical vulvectomy was 227.7 ± 132 ml (range 100-600 ml), while the other radical vulvar operative procedures was 212.1 ± 145 ml. (range 100-500 ml.). The incidence of wound disruption was only 8%.

Conclusion: This study showed low incidence of wound disruption from CMST. The CMST could be an alternative option for repairing of vulvar surgeries.

Keywords: Vulvar, Cancer, Surgery

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มิวโคสับคิวตาเนียส แบบต่อเนื่อง น่าจะเป็นทางเลือกในการเย็บแผลผ่าตัดมะเร็งอวัยวะสืบพันธุ์สตรีด้านนอกได้

คำสำคัญ: มะเร็ง, อวัยวะสืบพันธุ์สตรีด้านนอก, การผ่าตัด

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Introduction

Vulvar cancer is one of the rarest gynecological cancers in Thailand. This cancer is primarily a disease of post-menopausal women, with peak incidence in women age 60-70 years. Today it is occurring with increasing frequency in younger women, particularly in those exposed to human papillomavirus (HPV). From a study in United States of America vulvar cancer is diagnosed in about 2 of 100,000 woman yearly¹ and it affects 3 in 100,000 women per year and accounts for 4% of female genital tract malignancies in the United Kingdom². In Thailand, the age-standardized incidence rate of vulvar cancer is 0.3 per 100,000 population as also seen in Ubonratchathani. The vulvar cancer occurred in about 1% of all gynecological cancers³.

Historically, en bloc radical vulvectomy and bilateral inguino-femoral lymphadenectomy was the standard of care. This was because of good survival rate, but it also have high morbidity including wound break down, cellulitis, and chronic lymphoedema^{4,5}.

Because of high morbidity of this procedure, more conservative treatment was developed to conserve the overlying skin and tailor made for lesion and site of tumor. These conservative procedures with inguino-femoral node dissection through separate incisions have provided at least an equal opportunity of cure⁶⁻⁹. This conservative procedure provided less skin tension and decreased wound breakdown. For this reason, in the past, this procedure was repairing by interrupted suture such as simple interrupt suture or interrupt mattress to approximate skin and mucosal layer. This interrupt suture technique has limitations from multiple suture times, narrow angle area for suture, and skin edge necrosis due to blood supply cutoff. After 7-10 days, when skin swelling decrease, some stitch area may be inverted into vaginal canal and difficult to stitch off.

By these reasons, this study wanted to improve quality of surgical technique and decrease complications.

We have developed continuous muco-subcutaneous technique (CMST) for repairing of vulvar surgeries. The goal of this study was to evaluate early post operative outcomes and complications of CMST for repairing of vulvar surgeries.

Methods

This interventional study was done in precancerous lesion of vulva and vulvar cancer patients who had their vulvar surgical wounds repaired by CMST in Ubonratchathani Cancer Center between January 2007 and December 2011. The database of surgical records in surgical unit and medical records were reviewed. The inclusion criteria were precancerous lesion of vulva and vulvar cancer patients who had their vulvar surgical wounds repaired by CMST. Baseline data included age, clinical tumor size, International Federation of Obstetrics and Gynecology (FIGO) staging¹⁰, histopathological types, operative procedures, operative time, blood loss, complications such as wound disruption, were collected from medical records. This study was approved by Research Ethics Committee of Ubonratchathani Cancer Center. The statistical tools used in this study were percentages, means, and standard deviations.

CMST

After the patient was diagnosed as invasive vulvar cancer or precancerous vulvar lesion, she was then referred to the Ubonratchathani Cancer Center. Tumor staging and preoperative health status assessment were our routine practices. The patients who had no anaesthetic contraindication were surgically treated according to the tumor staging. The example of some primary tumor was shown in Figure 1. Then, wound closure at the primary tumor site using the CMST was performed in all patients. The details of this technique were described below.

When the tumor removed, the raw surface of the vulva was present as the Figure 2. After electrical cauterized hemostasis was succeeded, the deep connective tissue space closure by using Vicryl 1-0 was done. At this step, the remaining subcutaneous tissue space between vulvar skin and vaginal wall was less than two cm width. Then, the vulvar skin was closed by suturing technique similarly as post partum perineal repair as Figure 3. After that, the vaginal wall and vulvar skin was closed together by the CMST, as following;

The 1st step, Vicryl 1-0 was used to suture the vaginal floor, cut one end of the suture material and leaved another end for obliterated the subcutaneous tissue space. The 2nd step, wound closure between the left vulvar skin and vaginal mucosa in the postero-anterior direction at 0.5 cm interval was done starting from the left or the right side as Figure 4. The last step, the remaining skin was closed by the CMST as Figure 5 and Figure 6. Blood and lymphatic fluid drainage were not indicated for this technique.

Post Operative Care

Post-operative-prophylactic 1 gram intravenous ceftriaxone, at 12 hour interval, were started within the first 24 hours, following by 100 mg ofloxacin orally twice daily for 7 days. In addition, wound dressing twice a day and avoidance of squat sitting or another actions liked that were advised for preventing of wound breakdown.

At the Tenth Post-Operative Day:

Suture materials were stitch off and nearly complete wound healing as figure 7 were appreciated.

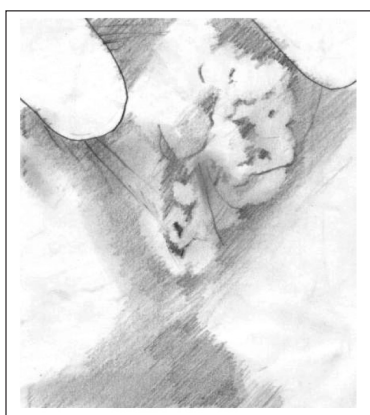


Figure 1 Primary tumor before surgery

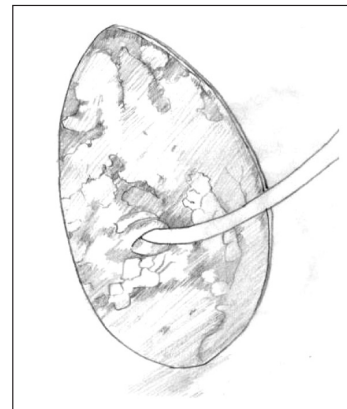


Figure 2 After removed tumor



Figure 3 Vulvar skin was closed by suturing technique similarly as post partum perineal repair

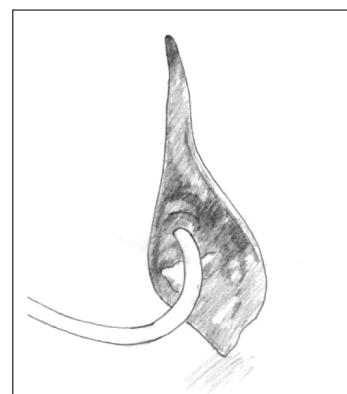


Figure 4 Wound closure between the left vulvar skin and vaginal mucosa

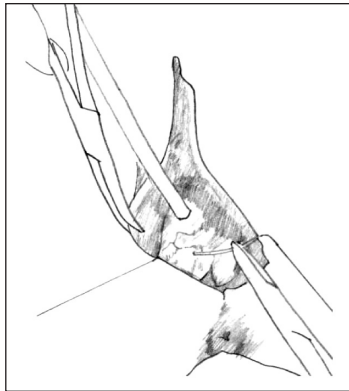


Figure 5 Continuous Muco-subcutaneous Suturing Technique (1)



Figure 6 Continuous Muco-subcutaneous Suturing Technique (2)

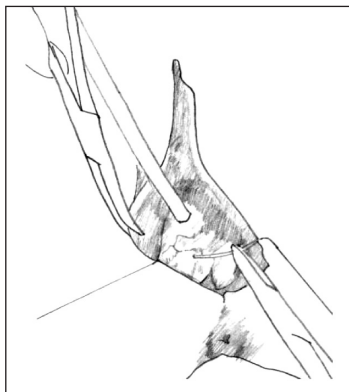


Figure 7 At the Tenth Post-Operative Day

Results

During the period of study (January, 2007 to December, 2011), there were 25 woman who had diagnosed precancerous vulvar lesion and vulvar cancer admitted in Ubonratchathani Cancer Center of Thailand for definitive surgical treatment.

Their mean age was 59.9 ± 13.89 years (range 35-85). The underlying diseases were preoperatively identified in 5 patients, including chronic renal failure (2), hypertension (1), cervical cancer of post whole pelvic irradiation (1), and diabetes mellitus (1).

Histopathologic type of vulvar cancer

The commonest histopathological type noted among the 25 patients was squamous cell carcinoma 19 patients. Three cases (12%) of vulva Paget's disease were also noted. The remainders were basal cell carcinoma (1), melanoma (1), and vulvar intraepithelial neoplasia (VIN) III (1) (Table 1).

Stage at presentation

FIGO staging of 4 precancerous vulvar lesion and 21 vulvar cancer patients consisted of stage III (13, 16%), stage II (6, 24%), stage I (2, 8%), and precancerous lesions (4, 16%). The clinical details were present in Table 2.

Type of operation and operative outcomes

The surgical treatment for the various stages of vulvar cancers were ranging from wide local excision to radical vulvectomy with or without groin node dissection. As a result, most of patients are treated by radical vulvectomy with bilateral groin node dissection. Some patient treated with hemivulvectomy, simple vulvectomy, and wide excision (Table 3).

The CMST was performed in all patients. The operative outcomes were recorded as operative time, estimated blood loss, and status of wound healing or wound disruption. The results were shown in Table 4.

The average operative time of radical vulvectomy was 124.9±24 min (range 90-170 min), while the other radical vulvar operative procedures was 65.0±14.6 min (range 45-90 min). The estimated blood loss of radical vulvectomy was 227.7±132 ml (range 100-600 ml), while the other radical vulvar operative procedures was 212.1±145 ml (range 100-500 ml). The incidence of wound disruption was only 8%. Both of them were present with FIGO stage III disease and had large tumor sizes. One of them had been preoperatively treated by neoadjuvant chemotherapy.

In all patients who were treated by radical vulvar surgery, the tissues around the vulva were able to be mobilized to close together. CMST was successfully used to repair wound in all cases. Serious complication was not present. The operation time and blood loss were within an acceptable range^{6,8}.

Two out of twenty five patients developed wound breakdown at the 7th and 10th post-operative day. Medical records of the both cases were reviewed, as following;

The first case was an elderly woman of 80 year old. Her bodyweight was 39 kg and her height was 153 cm. The 6x7 cm tumor was located at the right side closed to the urethral orifice. Both right and left inguino-femoral lymph nodes contained squamous cell carcinoma. Radical vulvectomy with bilateral inguinal lymph nodes dissection was performed. In the 4th post-operative day,

pus discharge appeared at the incision. Consequently, wound disruption was disclosed on the 7th post operative day. Wound infection was diagnosed. Combined with dressing wound care, intravenous 1 gram of ceftriaxone twice a day and 500 milligram of metronidazole three times a day was given for 10 day. Wound healing was occurred with no need of second intention suture. In this case, the cause of wound breakdown may be associated with both local factors such as the large tumor size and the tumor location which was near the urethra including the systemic factors such as her advanced age and poor nutritional status.

The second case was a 62 year old woman. Her bodyweight was 62 kg and her height was 162 cm. The 6x7 centimeter tumor was located at the right side and closed to the urethral orifice. This case receipt neoadjuvant chemotherapy by 175 mg/m² paclitaxel and 40 mg/m² cisplatin for 1 cycle. Four week later, radical vulvectomy with bilateral inguino-femoral lymph nodes dissection was done. Wound breakdown was separated in the 10th post-operative day when the suture was removed. There was no sign of wound infection appearing, therefore, antibiotic treatment was not indicated for this case. Re-suture by interrupt nylon was done and wound healing was appreciated. The probable cause of wound disruption in this patient would probably be the mechanical forces between the wound edges (wound tension).

Table 1 Histopathological types of precancerous vulvar lesions and vulvar cancers

Types	Patients	Percentages (%)
Squamous cell carcinoma	19	76
Paget's disease	3	12
Basal cell carcinoma	1	4
Melanoma	1	4
VIN III	1	4
Total	25	100

Table 2 FIGO stages and tumor characteristics

Tumor characteristics	Patients	Percentages (%)
FIGO stage		
0	4	16
1	2	8
2	6	24
3	13	52
Clinical tumor sizes		
T1	2	8
T2	6	24
T3	13	52
Clinical lymph nodes involvement		
N0	6	24
N1	13	52
Total	25	100

Table 3 Types of operation performed for 25 patients

Types	Patients	Percentages (%)
Radical vulvectomy	18	72
Hemi vulvectomy	5	20
Simple vulvectomy	1	4
Wide excision	1	4
Total	25	100

Table 4 Operative outcomes of repairing vulvar surgeries using CMST

Surgical procedure	No. of patient	Operative times (min)		Estimated bl. loss (ml.)		Wound disruption	Chemo-therapy
		Average	Range	Average	Range		
Radical vulvectomy	18	124.9 ± 24.0	90-170	227.7 ± 132.0	100-600	2	Neoadjuvant 5
Hemi vulvectomy	5	68.0 ± 15.2	50-90	140.0 ± 89.4	100-300	0	-
Simple vulvectomy	1	70	-	200	-	0	-
Wide excision	1	45	-	100	-	0	-
Total	25	105.4 ± 35.4	45-170	232.0 ± 134.5	100-600	2(8%)	5 (20%)

Discussion

Vulvar cancer is a rare disease in Thailand. The incidence is 1% of gynecological malignancy in Ubonratchathani Cancer Center. The mean age of the studied patients was 59.9 years, which was within normal range of vulvar carcinoma¹¹. The most common FIGO stage at presentation found in this study were stage III (52%), this might be woman had no awareness about this disease, and according to Thai culture, embarrassment prevented them from having their annual check-ups.

Consequently, the majority of types of operation performing in Ubonratchathani Cancer Center were radical vulvectomy with or without bilateral inguino-femoral lymph nodes dissection. Five patients who had large tumor size (T3) and/or located closed to the urethra and rectum receipt neoadjuvant chemotherapy by 175 mg/m² of paclitaxel and 40 mg/m² of cisplatin for 1-3 cycles prior to surgical intervention. The neoadjuvant chemotherapy aimed to decrease size of tumor and to decrease surgical extent which would decrease adjacent organs injury especially the urethra and rectum. Nevertheless, the results of all cases who had neoadjuvant chemotherapy was only partially response with decreased inflammatory induced connective tissue swelling, no significant effect on tumor size. These results were at least helping easier surgical technique and preserve normal skin, urethra and rectum to close the surgical wound successfully. Outcome of neoadjuvant chemotherapy in this study was corresponding with previous researches¹²⁻¹⁴.

Radical vulvectomy was performed in 19 patients and using multiple incision technique with direct closure and wound repaired by CMST. This technique was different from the interrupt mattress suturing, simple suturing, and horizontal mattress suturing which were commonly performed suturing in repairing the triple incision technique with direct wound closure. Interrupt mattress suturing, simple suturing, and horizontal mattress suturing have more advantage in tensile strength, and are more proper in repairing of high tension wound.

Skin to skin closure at mon-pubis, and posterior episiotomy wound, were performed by subcutaneous running technique¹⁵. The tissue tensile strength of this technique was less than interrupt mattress suturing, simple suturing, and horizontal mattress suturing. The CMST for repairing the skin incision, adjacent to the vagina, was modified from continuous subcutaneous running technique, and simple continuous suture, which were commonly used in repairing the vaginal site. Tissue tensile strength was less than subcutaneous running technique but better than simple suturing.

The most important limitation of our research is the small sample size due to the rare incidence of vulvar cancer. So the statistical correlation could not be evaluated. Because the vulvar cancer most commonly occurs in the elderly woman, sexual function and cosmetic are less important factors for this age group (according to Thai culture). Most patients were more concerned about the urination and defecation functions which directly affect their quality of life. In addition, this interventional study had no control population therefore, some measurement and selection biases may occur.

Further investigation should be performed in larger study groups or multicenter approach, and risk factors for recurrence as well as quality of life, should be evaluated.

Conclusions

These data illustrated low incidence of wound disruption. The CMST could be an alternative option for repairing vulvar surgeries.

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