Original Article

Radical vulvectomy by two different surgical incisions

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Abstract

Objective: To determine the outcome of radical vulvectomy by two different surgical incisions (butterfly vs triple incision) for the treatment of vulval carcinoma.

Methods: A comparative study was conducted from January 1992 to July 2003 at Military Hospital Rawalpindi and Fauji Foundation Hospital Rawalpindi. A total of 35 patients were included in this study. One patient received supportive therapy at stage IVB. Out of 34 patients, 23 (67.64%) underwent radical vulvectomy by butterfly incision and 11 (32.35%) radical vulvectomy by triple incision technique. Data regarding history, clinical examination, surgical procedures, per-operative complications, post-operative complications, hospital stay, recurrence and mortality was collected and analyzed.

Results: The percentages of partial wound dehiscence (86.36% vs 18.18% p=0.00), wound induration (100% Vs 72.7%, p=0.008), infection (22.72% Vs: 9.09%, p=0.637) and lymphoedema (9.0% vs Zero, p=0.542) were higher in butterfly incision group as compared to triple incision group respectively. The per-operative blood loss (750 ± 36.9ml vs 381 ± 14.7ml, p-value: < 0.01), operative time (136.91 ± 14.73 min Vs 81.82 ± 14.71 min, p= 0.00) and hospital stay (19.05 ± 3.27 days Vs 9.09 ± 0.7 days, p=0.00) were significantly higher in butterfly incision as compared to triple incision respectively. The recurrence rate in butterfly incision was comparable to triple incision group (14.28% vs 18.18%, p=0.572). In the butterfly group one patient died per-operatively and another patient died within one year after surgery.

Conclusion: Radical vulvectomy by triple incision has comparable recurrence rate but significantly less mortality and morbidity rates when compared to butterfly incision (JPMA 57:74;2007).

Introduction

Cancer of vulva accounts for approximately 4% of all gynaecological malignancies.[1] About 80-90% of primary vulval malignancies are squamous cell carcinoma.[2] In United States, invasive vulval cancer occurs with an average annual age adjusted, incidence of 12 per 100,000 women/year.[3] The median age for invasive vulval carcinoma is about 65-70 years.[4] There is a strong association between human papilloma virus (HPV) infection and subsequent development of vulval carcinoma.[5] But in older patients generally there is history of vulval inflammation or lichen sclerosus.[6,7]

The lymphatics of the vulva and distal third of the vagina drain into the superficial inguinal nodes and travel through the deep femoral lymphatics as well as the node of cloquet to the pelvic nodal group. The stages defined by international Federation of Gynaecology (FIGO) 1995, and American Joint Comission of Cancer (AJCC) 1992, provide far better discrimination of survival than previously described classifications, because of their histo-pathological basis.[8]

Traditionally carcinoma of vulva has been treated by radical vulvectomy with groin and pelvic node dissection.[9-11] Over recent years, the management of this cancer has undergone considerable evolution with emphasis, now being placed on the tailoring of surgery to each case, rather than a bland surgical treatment policy.[11-13] Survival positively correlates with aggressive surgery at the time of diagnosis, specifically radial vulvectomy and bilateral inguino-femoral lymph node dissection. Significant morbidity, however, such as wound infection, necrosis, seroma, lymphocyst, venous thrombosis, lymphangitis and chronic lymphoedema has been reported in over 50% patients so treated.[14,15] There is more onus on clinicians to provide less radical but equally curative treatment, while also reducing morbidity.[16]

The previous en-bloc radical vulvectomy with bilateral inguino-femoral lymph node dissection has been replaced by three separate vulvar and groin incisions. This less aggressive approach has been validated by comparable survival trends, with a concomitant decrease in morbidity.[17,18]

Radical vulvectomy can be performed by butterfly incision as well as triple incision. The butterfly incision technique involves en-bloc removal of lymph nodes along with vulvectomy, through a single incision. This technique causes increased per-operative blood loss, operative time and severe post-operative morbidity. It includes physical as well as psychosexual morbidity. The morbidity of this operation can be reduced by the triple incision technique. It is performed by three separate incisions two for bilateral groin lymph nodes and a separate incision for vulvectomy.

The objective of this study was to determine the outcome of radical vulvectomy by two different surgical incisions, so that a technique could be found exhibiting comparable curative rates with traditionally adopted techniques but having less mortality and morbidity.

Patients and Methods

It was a comparative study, conducted at Military Hospital, Rawalpindi and Fauji Foundation Hospital Rawalpindi, from January 1992 to July 2003. Patients, with the suspicion of carcinoma of vulva, were admitted in the hospital. Patient's history was taken and clinical examination performed. Laboratory investigations included complete blood count, random blood glucose and serum creatinine. Excisional tissue biopsy was taken under local anaesthesia for histopathological diagnosis of vulval disease. Only patients with histopathological diagnosis of vulval carcinoma, were included in the study, whereas cases with Vulval intra-epithelial neoplasia and Extra-mammary Paget's disease were excluded.

A total of 35 patients with confirmed hiso-pathological diagnosis of vulval carcinoma were offered surgical treatment, of these, one patient declined and was discharged on supportive and symptomatic treatment. The remaining 34 patients were counseled about kind of treatment, type of incision and written consent was taken. Convenient sampling technique was used for the study and approval was obtained from the Institutional Ethics Committee. Pre-operative assessment and investigations were performed for surgery and anaesthesia.

Out of 34 patients, 23 (67.64%) underwent radical vulvectomy by butterfly incision and 11 (32.35%) patients by triple incision. General anaesthesia was administered in all patients. During operation, patients were placed in "Ski position" with adjustable stirrups, so that legs could be elevated to high lithotomy, during the perineal phase of operation. Radical vulvectomy with bilateral inguino-femoral lymphadenectomy was performed, with two teams and dissection of each groin was performed simultaneously.

In butterfly incision, a single incision was made, starting from 2 cm medial and about 2 cm caudal to anterior superior iliac spine, curving downwards, above the superior border of inguinal ligament, to the inguinal ring including the mons pubis. Through this incision bilateral inguino-femoral lymphadenectomy was performed. The same incisions were continued downwards along the labiocrural folds on each side and across the perineum, where they meet. A medial mucosal incision was made along the introitus, extending through the anterior vestibule and around the urethral meatus. Attempts were made to attain, at least 2 cm margin of normal specimen. The wound was copiously irrigated. Haemostasis was secured and groin wounds were closed in layers. Drains were inserted through separate incisions bilaterally. Vulval wound was closed with delayed absorbable sutures.

In triple incision, crescent shaped incisions were made bilaterally for groin dissection on same anatomical points. Having completed the groin nodes dissection, wounds were closed, followed by separate incision for vulvectomy, in similar fashion, as in butterfly incision.

Per-operative complications, blood loss and operative time were noted in both types of incision techniques. Post-operative care included daily sitz baths and perineal hygiene. Foley catheter was retained for 3-5 days. Drains were removed, when drainage was approximately 25 ml/day. During course of admission, immediate post-operative complications were noted and patient was discharged according to the condition. Patients were advised fortnightly follow up in outpatient department for detection of delayed post-operative complications. After healing of the wound, patients were referred for radiotherapy. Follow up was at threes monthly for two years, and six monthly for next three years.

Data were collected on pre-designed proforma where all relevant variables pertaining to the study were recorded. Statistical analysis was done by using SPSS version 10. The t-test was applied for comparison of quantitative data and chi-square test for qualitative data.

Results

Out of 35 patients, 22 (63%) were between 60-69 years of age and 9 (25.7%) between 51-59 years, 3 (8.5%) >70 years and 1 (2.8%) < 50 years of age. Most common presenting complaints were pruritis vulvae (75%) and vulval ulceration (42%). Vulval mass was the presentation in 18% patients. A total of 29 (82.8%) patients presented at stage IVA, 04 (11.4%) at stage-III, 1 (2.8%) at stage-I, 1 (2.8%) at stage-IVB. Histopathology reports revealed squamous cell carcinoma in 33 (94%) patients, melanoma in 1 (3%) and verrucous carcinoma in 1 (3%) patient.

One patient died per-operatively in butterfly incision group due to massive haemorrhage. The per-operative blood loss (750.00 ± 36.93ml vs 381 ± 14.73ml, p=0.00), operative time (136.91 ± 14.73 min vs 81.82 ± 14.71 min, p=0.00) and hospital stay (19.05 ± 3.27 days vs 9.09 ± 0.7 days, p=0.00) were significantly higher in butterfly incision as compared to triple incision respectively (Table 1).

The percentages of partial wound dehiscence (86.36% vs 18.18% p=0.00), and wound induration (100% vs 72.7%, p=0.008), were significantly higher in butterfly group as compared to triple incision group. (p=0.05).

Lymphoedema (9.0% vs Zero, p=0.542) and infection (22.72% vs 9.09%, p=0.637) were more in butterfly incision as compared to triple incision group respectively but statistically insignificant (Table 2).

Patients could be followed up for one year as after that most of them were lost to follow up. One patient died within one year of operation in butterfly group. The recurrence rate in butterfly incision was comparable to triple incision group (14.28% Vs 18.18%, p=0.572) (Table 3).

Discussion

In this study, two different operative techniques were used for radical vulvectomy and results were analyzed. It was found that recurrence rate was comparable in both techniques but mortality and morbidity were significantly less in triple incision technique as compared to the butterfly incision technique.

Helm CW[19] compared single and triple incision for radical vulvectomy in 64 patients and observed that patients with triple incision had a significantly shorter operative time, less blood loss, and a minimal hospital stay. No difference was observed in the survival or recurrence rate between the two groups, and none of the women in the triple incision developed skin bridges metastasis. Higher morbidity rate was encountered in single incision group as compared to triple incision.

Table 1. Operative results.

Characteristics	Butterfly incision	Triple incision	p- value
Approximate blood loss (ml)	750.00±36.93 (n=23)	381.82±14.73+ (n=11)	<0.01*
Operative time (minutes)	136.91±14.73 (n=23)	81.82±14.71+ (n=11)	<0.01*
Hospital stay (days)	19.05±3.27** (n=22)	9.09±0.7+ (n=11)	<0.01*

* p-value of <0.05 is considered significant
\+ Results are shown as mean ±SD
** One patient died per-operatively

Table 2. Comparison of post-operative complications in two groups.

Characteristics	Butterfly incision	Triple incision	p- value
Partial wound dehiscence	19 (86.36%)+ (n=22)	1 (18.18%) (n=11)	<0.01*
Wound induration	22 (100%)+ (n=22)	7 (72.7%) (n=11)	0.008*
Infection	5 (22.72%)+ (n=22)	1 (9.09%) (n=11)	0.637*
Lymphoedema	2 (9.0%)+ (n=22)	Zero (n=11)	0.542*

\+ Results are shown as percentages.
* p- value of < 0.05 is considered significant.

Table 3. Rate of Mortality and Recurrence in both groups.

Characteristics	Butterfly incision	Triple incision	p- value
Per-operative mortality	1(4.34%)+ (n=23)	Zero (n=11)	0.676*
Post-operative mortality	1(4.54%) (n=22)	Zero (n=11)	0.667*
Recurrence	3 (14.28%) (n=21)	2 (18.18%) (n=11)	0.572*

* p-value of <0.05 is considered significant
\+ Results are shown in percentages

Gleeson[20] found similar results in his study. He concluded that separate vulval and groin incision have significantly reduced morbidity for vulval cancer surgery. Although rare, the potential for failing to excise the tumour emboli in the lymphatics of the skin bridges must be recognized when triple incision technique is used in surgical treatment of vulval carcinoma.

In management of vulval cancer, as far as the surgical approach is concerned, the nature and the extent of the surgery undertaken should be influenced by the stage of the disease, the location of the tumour and the patient's condition. The effect of radical vulvectomy is limited by the closest resection margin, rather than the achievement of total organ ablation. A more conservative surgery is best for most women with vulval cancer. Main objective is to cure the disease while still allowing patients to lead happy and healthy lives.[21]

Ansink[11] concluded that radical local excision, ipsilateral lymph-node dissection in lateral tumours and triple incision technique are safe treatment options for early vulval cancers. However the superficial groin node dissection results in an excess of groin recurrence, compared to the full femoro-inguinal groin node dissection.

Hence, management of vulval cancer has been modified according to site, size, and stage of lesion. Aggressive surgical treatments are discouraged and treatment is tailored for each patient individually. Micro-invasive cancer does not require node dissection, limiting the inguinal node dissection to one side in the, small localized tumours using a triple incision technique instead of an en-bloc approach.[8]

Lymph node dissection is the single most important factor in reducing early recurrence and mortality. Extensive lymphadenectomy, however is also a major etiologic factor in immediate and long term morbidity. If the extent of inguino-femoral dissection could be reduced without comparison of diagnostic and therapeutic accuracy, morbidity would be substantially reduced. Sentinel lymph node detection (SLND), is an investigational method that could accomplish these objectives.[22-25] By SLND, morbidity rate can be reduced by avoiding un-necessary extensive lymphadenectomy.

Conclusion

Radical vulvectomy by triple incisions has comparable recurrence rate when compared with butterfly incision but radical vulvectomy by triple incision has significantly less mortality and morbidity rates as compared to butterfly incision.

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