

Outcome of Patients after Modified Radical Hysterectomy with Pelvic Lymphadenectomy in Early Stage Carcinoma Cervix: A Retrospective Study

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Abstract: Radical hysterectomy with pelvic lymphadenectomy remains the treatment of choice for women with Stages IA₂ and IB₁ carcinoma of the cervix, and selected patients with Stage II endometrial cancer. Improvement in surgical technique, administration of prophylactic antibiotics, and advances in critical care medicine have resulted in lower operative morbidity associated with this procedure. Major urinary tract complications such as ureteric injury or vesico-vaginal fistula are now extremely rare (1%). This study was done to review retrospectively the outcome of modified type II radical hysterectomy in patients with carcinoma cervix upto stage IIa diagnosed clinically less extensive surgery resulted in better post operative outcome with survival rate comparable to extensive surgery. Five-year survival rates following this procedure vary according to a number of clinical and histologic variables, and may be as high as 90% in women without lymph node metastases.

I. Introduction

Worldwide cervical cancer is the second most common cancer among women with an estimated 4,93,000 new cases occurring annually and 2,74,000 deaths each year. According to ICMR Carcinoma cervix incidence in India varies from 20 to 35 per 1,00,000 women of age group 35 to 65 years while in developed countries it is as low as 1 to 8 per 1,00,000 women. In India the overall incidence of Carcinoma cervix 23.5/100,000 has been observed. (WHO 2008). The number of patients with early stage cervical cancer has steadily increased with widespread use of Papanicolaou test for screening. In 2009 it is estimated there will be 11,070 new cases of cervical cancer in the United States and nearly 500,000 new cases worldwide. Approximately 85% of newly diagnosed cervical cancer in industrialised countries are expected to have localised or regional disease.[1] With the trend towards early detection, more patients with invasive cervical cancer diagnosed with early stage disease are candidates for primary surgical treatment with radical hysterectomy and lymphadenectomy. In 1898, Ernst Wertheim of Vienna described the operation of radical hysterectomy including removal of parametrium and pelvic lymph nodes. In 1905, Wertheim reported outcome of first 270 patients treated by Radical hysterectomy, which included an operative mortality rate of 18% and a major morbidity rate of 31%. Since that time radical hysterectomy with pelvic lymphadenectomy has been performed with modification in surgical technique as the major surgical treatment for early stage invasive cervical cancer.[2] The right case selection, proper preoperative evaluation/fitness, use of prophylactic antibiotics, thromboembolic prophylaxis, administration of blood/blood products and advances in post operative and critical care medicine all have lowered operative morbidity and increased the survival rate of cervical cancer patients treated with this operation.

AIM

The macroscopic early stage tumor upto stage IIa are successfully treated with surgery, 90% (5 year survival) when treated with type II modified radical hysterectomy[3] Numerous other have found that cure rate approach 85-90% are comparable with outcome of patients treated with primary radiotherapy.[4] The purpose of the study was to review retrospectively the outcome of the patients with cervical cancer upto stage IIa, when treated with type II modified radical hysterectomy with pelvic lymphadenectomy

II. Materials And Method

Thirty five patients of cervical cancer up to stage IIA (clinically staging done under general anaesthesia underwent type 2 modified radical hysterectomy with lymphadenectomy between –June 2005 to June 2015 in the gynaecological department at RIMS .Some patients were followed up to 5 years, while some patient are still under follow up.

Preoperative Evaluation

Routine investigation for major operation including CBC, BT, CT, LFT, RFT, Blood sugar fasting and postprandial ,HBSAg, HIV 1 and 2, ECG, and Chest X-ray were done . Other special investigation USG whole abdomen and pelvis (especially KUB) and Intravenous pyelography were done. 2 units properly grouped and crossed matched blood should be available in OT. A prophylactic antibiotic usually a first generation Cephalosporin is given within 30 minute of skin incision [5]
Anaesthesia –General Anaesthesia/ epidural

Surgical Technique

- 1.The patient is placed in supine position and abdomen and vagina are prepared.A indwelling foley's catheter is inserted .Vagina is packed with roller gauge soaked in 1% gentian violet solution.
- 2.A vertical incision is made 1 cm below umbilicus and is extended inferiorly up to pubic symphysis.
- 3.Prior to initiation of pelvic procedure the entire abdominal cavity is evaluated for evidence of any metastatic disease.This includes all the surfaces of liver and diaphragm, coelicplexus, omentum, small and large bowel surfaces as well as the mesentery.Pelvic and para-aortic lymph nodes are palpated. Any enlarged or suspicious lymph nodes are excised and sent for histologic examination.Uterovesical fold is lifted from cervix with a plane dissecting forceps. If it is mobile ,then the surgery is proceeded.
- 4.The bowel is packed into upper abdomen using warm,moist laparotomy sponges .Two kocher's clamp are placed on uterine cornu for retraction.
- 5.The left round ligament is clamped ,cut and ligated at the left lateral pelvic wall .The anterior leaf of the left broad ligament is incised inferiorly along the lateral wall for a distance of approximately 3 cm.
- 6.The posterior leaf of the left broad ligament is incised superiorly along the lateral pelvic wall to the level of infundibulopelvic ligament.
- 7.If the left ovary is to be preserved,the posterior leaf of left broad ligament is further incised parallel and inferior to the infundibulopelvicligament.The left ovarian ligament is then clamped ,cut and ligated and then ovary is placed in left iliac fossa.
- 8.If the left ovary is to be excised,the left infundibulopelvic ligament is clamped,cut and ligated and the left tube and ovary are removed.
- 9.The left retoperitoneal space is entered along the lateral pelvic wall thereby exposing common iliac, external and internal iliac and associated lymph nodal tissue.
- 10.The ureter is identified and is held by Babcock's forceps and pushing the ureter medially away from the iliac vessels.
- 11.The lymph node dissection is begun by sharply excising enlarged lymph nodes and of all lymph nodal tissue surrounding the left common iliac, external and internal iliac vessels and is placed in separate labelled container and submitted for histological analysis.
- 12.The anterior division of internal iliac artery is identified and the uterine artery is isolated and ligated just medial to the point where it crosses the ureter.
- 13.The left pararectal and paravesical space are identified by blunt dissection and medial half of cardinal ligament is clamped,cut and ligated.
- 14.The left ureter is dissected from medial peritoneum at the level of uterosacral ligament.The ureter is dissected laterally from the parametrial tunnel using right angled clamp.The parametrium vasculature is ligated and the ureter is rolled laterally at the tunnel.The ureter is dissected from surrounding tissue until its entrance into the bladder.
- 15.Steps 5 to 14 are repeated on the right side .
- 16.The bladder is sharply dissected from the anterior vagina and the peritoneum between the uterus and the rectum is incised.The anterior rectal wall is reflected away from the posterior vagina.
- 17.The uterus is elevated and the medial half of both uterosacral ligaments are clamped ,cut and ligated. Vaginal packing is removed.
- 18.The vagina is transected approximately 1-2 cm at the upper vagina.Lateral angle of vagina is transfixed and the vaginal vault is closed by interrupted sutures using 1-0 vicryl.
- 19.The abdomen is then closed in layers after acheiving complete haemostasis.

Post Operative

1. Proper antibiotics.
2. Continuous catheterization upto 7 days
3. Manual calf muscle compression.
4. Early ambulation

Post Operative Follow Up

All patients were kept under follow up atleast every 3 months for the first 2 years or atleast every 6 months for the next 3 years and every year until recurrence or death. Overall survival was defined as the time in months from the date of surgery to the date of deaths[6] .

Observation And Result

A total number 35 patients were operated by type2 radical hysterectomy and pelvic lymphadenectomy for cancer cervix upto stage iia from june 2005 to june 2015 of which 30 patients were followed upto 5 years 3 patients are under follow up till date and 2 patients were lost to follow up.

Table 1 : showing the age of the patients

Age (years)	Age distribution	
	No of cases	percentage
35-40	02	5.7s%
41-45	15	42.9%
45-50	10	28.6%
>50	08	22.9%

Table 2 : Clinical staging – Per speculum , Per vaginal (p/v), and Per rectal examination was done under GA.

FIGOS clinical staging	No of patients	percentage
Ia1	03	8.6%
Ia2	07	20%
Ib1	10	28.6%
Ib2	10	28.6%
Ila	05	14.3%

Table 3 : showing chief complaints of patients

complaints	No.of cases	percentage
On PAP Smear	03	8.6%
White discharge p/v	08	22.9 %
Irregular vaginal bleeding	10	28.6%
Post coital bleed	06	17.14%
Post menopausal bleed	08	22.9%

Table 4: showing complications

complications	Percentage
Wound infection	4%
Ureteric injury	Nil
Bladder injury	Nil
Blood vessel injury	Nil
haemorrhage	2%
Urinary tract fistula	Nil
Bladder dysfunction	3%
thromboembolism	Nil
lymphoedema	Nil
Intestinal obstruction	Nil
Febrile morbidity	4%

Table 5 : showing survival rate in relation to stage and histology

No.of cases	stage	Lymph node involvement	Lymph vascular space invasion	histology	survival
03	Ia1	nil	Nil	Well differentiated	100%
02	Ia2	nil	Nil	Poorly differentiated	Under follow up
05	Ia2	nil	Nil	Moderately differentiated	80%
01	Ib1	nil	Nil	adenocarcinoma	Under follow up
07	Ib1	nil	Nil	Well differentiated	85.7%
02	Ib1	positive	Present	Poorly differentiated	50%
05	Ib2	nil	Present	Well differentiated	80%
05	Ib2	nil	Present	Moderately differentiated	75%
05	Ila	positive	Present	Moderately differentiated	75%

III. Discussion

Radical hysterectomy with pelvic lymphadenectomy is treatment of choice for healthy women with stage 1A2-1B1 cervical carcinoma. Women with non bulky 1B2 and 2A cervical carcinoma, centrally recurrent disease and endometrial carcinoma with cervical involvement may also be considered for surgical treatment by radical hysterectomy. In this study all cases were selected by clinical staging. Proper pre operative evaluation was done. All patients underwent type 2 modified radical hysterectomy. In this procedure the central portion and the parametrial tissue is removed while minimizing disruption at ureteral and vesical vasculature. Thus the medial half at the uterosacral ligaments and the cardinal ligaments are removed and the uterine artery is ligated just medial to the point where it crosses the ureter.

Removal of 1-2 cm portion of the upper vagina and pelvic and paraaortic lymphadenectomy nearly always performed in conjunction with type 2 radical hysterectomy. Removal of 1-2 cm of vagina also preserves the sexual function in young patients.

Maximum number of patients were in the age group 41-45 and the most common symptom with which patient presented was irregular vaginal bleeding. Patients of the perimenopausal group are aware of chances of malignancy associated with irregular vaginal bleeding in this age group. Other symptoms with which patients came to us were white discharge and post menopausal bleeding. There were only three patients who were diagnosed with carcinoma cervix on abnormal PAP smear report. This suggests that people in rural parts of state are unaware of advantages of early detection of cervical cancer by PAP smear. There were only 3 patients with stage 1A1 and 7 patients having stage 1A2 carcinoma cervix. Maximum number of patients -10 out of 35 were in stage 1B1 and 1B2. The overall average operative time was 3 hours in average built patients and 3 and half hours in obese patients. Proper selection of cases and less extensive surgery reduced the operative time. Intraoperative blood loss was 300-500 ml. In other studies the range of blood loss is 600-900ml [7]

Ureteric injury is recognized intraoperatively was less than 1% of cases.[8]. In our study ureteral injury is nil. Bladder and bowel injury also occur if electro cautery is used inappropriately as a substitute for sharp dissection[9]. In our study it was nil because sharp and blunt dissection was done by instrument and finger. Post operative complications include early complications or those occurring within first 30 post operative days may vary[10]. Infectious and febrile morbidity is the most common post operative complication. In our study 4% patients had post operative fever and 4% patients had wound infection, all were treated with higher antibiotics[11].

Post operative bleeding may occur which was nil in our study. Thrombo embolic complications occur only 5% of patients[12]. In our study we have done manual calf compression post operatively and allowed early ambulation to prevent it. Prolonged ileus and intestinal obstruction did not occur in our study.

Post operative mortality is nil in our study. In other studies Mortality has been reduced to less than 1%.[13] Voiding dysfunction in immediate post-operative period is nearly universal. Denervation of the bladder during operation results in transient hypertonia that is gradually replaced by hypotonia[14]. Bladder drainage can be achieved with indwelling urethral catheterization. For most patients the ability to void returned within 2-3 weeks. However voiding dysfunction may persist in approximately 5% of the patients[15]. In addition a substantial number of patients develop persistent urinary incontinence, urge incontinence and mixed incontinence have been reported. Although the incidence and nature of the pre-operative voiding dysfunction in these patients is unknown[16]. In these cases indwelling catheterization were done was done upto 7 days. After bladder catheter was removed on day 9 or day 10 there were no voiding dysfunction. 4 patients complained of dysuria that was treated with plenty of water and alkalization.

Historically urinary tract fistulas were among the most dreaded post operative complication. Interruption and mobilisation of vasculature of the bladder and the uterus predisposes to ischaemia that tends itself to fistula formation. Now incidence is less than 2%.[17]. In our study there was no urinary tract fistulas due to careful dissection and less invasive surgery.

Late post operative complication[appearing 30 days post operative]

Lymphedema develops insidiously over time. It occurs more frequently when pelvic lymphadenectomy is followed by radical node dissection. Similarly lymphocyst formation can occur as a result of extensive pelvic lymphadenectomy. The reported incidence is only 2-3 %.[18]. In our study incidence is nil because we remove only enlarged lymph node and lymph nodal tissues.

SURVIVAL

5 year survival in patients with early stage cervical cancer treated with radical hysterectomy and pelvic lymphadenectomy varies between 80% and 95% according to the number of clinical and histological findings. Patients with low risk early stage disease undergoing radical surgical treatment have a survival of nearly 100%.[19]

However patient with more advanced disease have lower reported outcome.

Several risk factor related to include large tumour volume,deep stromal invasion,presence of lymph vascular space invasion and lymph node metastasis.[20]

A thorough analysis at these factors is helpful in determining which patient may benefit from post operative therapy following radical hysterectomy.

All post operative patients sent to oncology with histological reports of tumour and lymph nodes for further management.

Summary

Radical hysterectomy with pelvic lymphadenectomy is the treatment of choice for healthy women with stage IA₂-IB₁ cervical carcinoma. Women with nonbulky IB₂ and IIA In this study post operative morbidity was reduced significantly with better disease free interval. Thus type II modified radical hysterectomy with pelvic lymphadenectomy is a better choice for early carcinoma cervix with satisfactory results.

figure1 showing incision below umbilicus



Figure 2 :arrow [in black]showing vessels of retroperitoneum

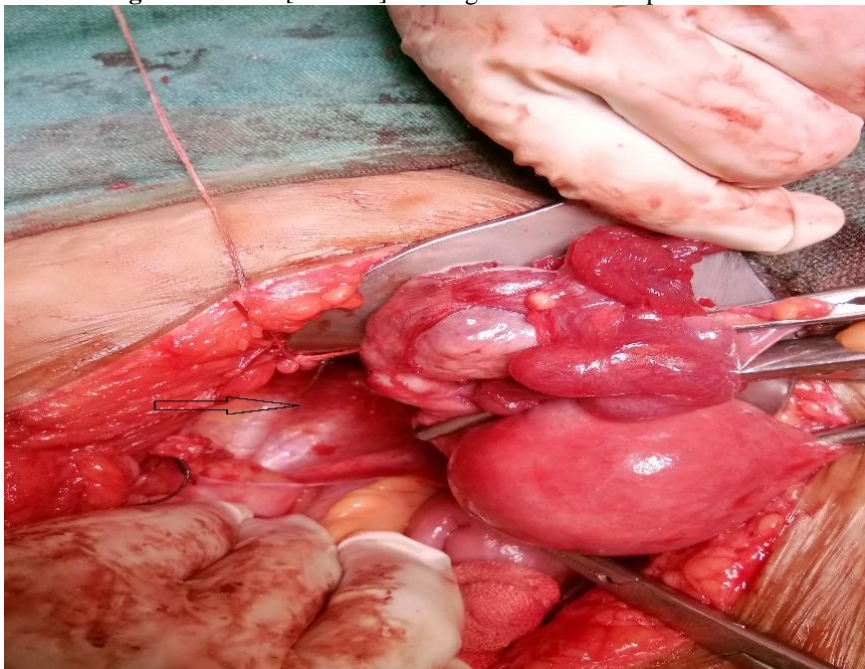


Figure 3 : arrow showing ureter held by babcock's retracted medially

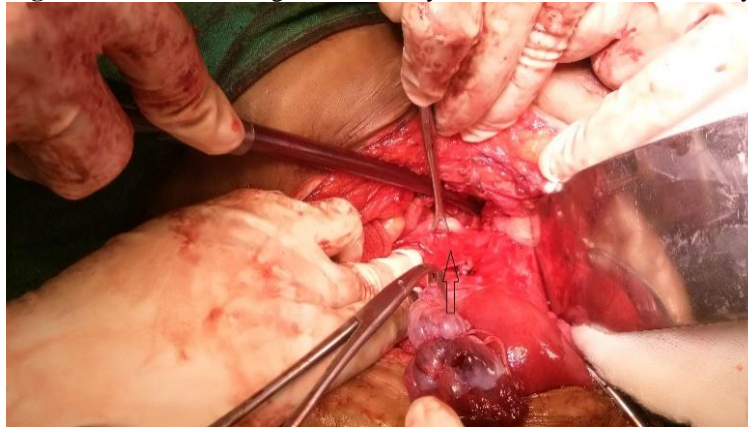
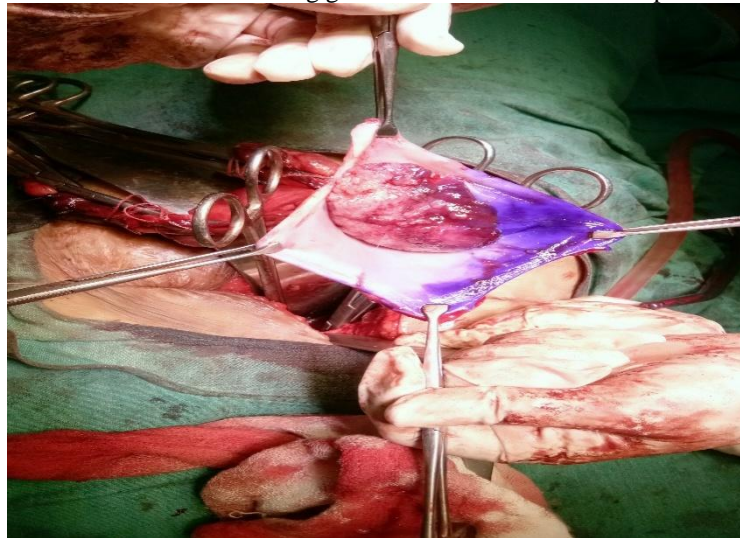


Figure 4: removed uterus showing growth in cervix and removed part of vagina



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