

COMPARATIVE STUDY OF ABDOMINO-VAGINAL RADICAL HYSTERECTOMY (A NEW TECHNIQUE) WITH MODIFIED WERTHEIM OPERATION†

by

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After reviewing the latest results of different lines of treatment of cancer of the cervix, Mattingly (1977) has concluded that the 5 year cure rate of Stage I and IIa of epidermoid carcinoma of the cervix is comparable whether treated primarily by surgery or irradiation and that the complication rate is slightly higher with radical surgery. The greatest drawback of urinary fistula should be no more than 2 to 4 per cent, most of which are surgically correctable. In contrast, the serious irradiation complications to the bowel and bladder which occur with the same general frequency are far more debilitating and are usually surgically incorrectable. Most gynaecologists while agreeing with Mattingly (1977) also believe that in late cases of cancer cervix radiotherapy is superior to primary surgery. But it means availability of properly equipped and manned radiotherapeutic unit which is rare in most centres in developing countries like India and also in many centres in the developed countries. As such in India and in many other countries there is more scope for radical surgery with or without the help of radio-

therapeutic facilities, wherever is available.

There are mainly two types of radical operations for cancer of the cervix—(1) abdominal radical hysterectomy (Wertheim operation) and (2) vaginal radical hysterectomy (Schauta operation). The question is which type of operation is best? The matter is still not finalised mainly because the majority surgeons are trained in one type of operation and so they consider that their methods are better. One will have to try both methods in the same circumstances and in the same type of patients before the final verdict is announced and that is exactly what has been attempted by the author in this article.

A new technique, which has been named as, abdomino-vaginal radical hysterectomy—a modified Schauta operation—has been developed with a view to improve and simplify the technique of "Mitra operation" practised by Mitra (1960). The present method of intraperitoneal lymphadenectomy followed by radical vaginal hysterectomy was first practised by Mitra in 1962 and in a modified way the author from the beginning simultaneously tried this new technique as well as modified Wertheim operation during the same period of time on the almost identical types of patients. The detailed steps of the abdomino-vaginal

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radical hysterectomy with photographs has already been published (Chaudhuri, 1982). In this article the technique of the operation will be described in short followed by the analysis of the results of 110 such operations and 110 modified Wertheim operations. The operations were performed in different hospitals of West Bengal as well as in the private nursing homes by the author.

Principle Steps of Abdomino-Vaginal Radical Hysterectomy

The operation is performed partly abdominally and partly vaginally—the abdominal part being done first.

Abdominal Part

After opening the abdomen the organs are explored to note any associated pathological conditions such as pelvic infection, endometriosis, tubo-ovarian mass, pelvic tumour etc. and to note extension of the disease.

The infundibulopelvic and round ligaments are cut peripherally. The tubes, ovaries and round ligaments are included in the stay sutures applied at the cornual ends; these sutures are tied together so as to form a loop which acts as retractor subsequently.

The pelvic lymphnodes and fibrofatty tissues are dissected. The uterine vessels are tied and cut near their origin. The ureters are isolated only for 2.5 cm. near the ureteric canal.

The uterovesical pouch peritoneum is cut and upper part of the bladder is dissected. The pouch of Douglas is opened and upper part of rectum is separated from the vaginal canal.

The pelvic peritoneum is closed from the two sides leaving the middle part open. The uterus, tubes and ovaries are tucked behind the bladder and the abdomen is closed.

Vaginal Part

After applying a row of Allis' clamps the vagina is cut about 2.5 cm. above the introitus and a vaginal cuff is made. Allis' clamps are reapplied so as to act as retractors. When needed a modified mediolateral episiotomy is made.

The bladder and lower ends of the ureters are dissected. The lower part of rectum and the utero-sacral ligaments are isolated.

The uterine fundus is drawn down by pulling the loop made out of staysutures. The ureters are now well dissected from the cardinal ligaments.

The paravaginal tissues and the cardinal ligaments are isolated, clamped at the periphery, cut and tied. The specimen is removed. The peritoneum is closed. Sutures are applied between the vesical fascia, tissues of the pelvic diaphragm and the prerectal fascia and the vagina is closed.

The modified episiotomy wound, if made, is repaired and a Foley catheter is introduced and kept for 5 days.

Modified Wertheim Operation

Usual steps are followed. The catheter is kept for 7 to 10 days and sometimes for a longer time for recovery of the bladder tone.

In both these groups of cases post-operative telecobalt or deep x-ray therapy was advised. All the cases which could be followed up had radiotherapy.

Observations and Results

Out of 320 Stage I to III cases, 220 cases were selected, operability rate being 68.75%. Half of these cases had abdomino-vaginal radical hysterectomy and the other half were treated by Wertheim operation without any particular selective

criteria. Cases of stump carcinoma and carcinoma vagina who were treated by abdomino-vaginal hysterectomy are not included in this study. Only cases who were bad surgical risks due to poor health or had extensive diseases and where blood could not be procured were refused operation.

Characteristics of the Patients and Diseases

These are shown in Table I. The two groups are nicely comparable in relation to their age, parity, type of growth, extension of the disease and node metastasis.

Complications of each group of 110 cases are shown in Table II.

TABLE I
Characteristics

Characteristics	Abdomino-vaginal radical hysterectomy (N = 110)	Modified Wertheim operation (N = 110)
<i>Age (Years):</i>		
Range	29-75	30-64
Average age	46	45.4
<i>Parity</i>		
Range	1-10	1-10
Average	5	5
<i>Staging</i>		
Stage I	35 (31.8%)	31 (28.2%)
Stage IIa	6 (5.4%)	9 (8.2%)
Stage IIb	41 (37.3%)	46 (41.8%)
Stage III	28 (25.5%)	24 (21.8%)
Node metastasis	36 (32.7%)	35 (30.0%)

TABLE II
Complications

Complications	Abdomino-vaginal radical hysterectomy (N = 110)	Modified Wertheim operation (N = 110)
Primary mortality	1	2
Severe haemorrhage	5	5
Shock	3	8
Bladder injury	1	1
Bladder paresis	8	26
Ureteric fistula	Nil	1
Vesico-vaginal fistula	Nil	1
Abdominal distension	3	11
Paralytic ileus		
± Peritonitis	Nil	4
Mild wound infection	6	10
Secondary suture	3	7
Burst abdomen	1	Nil
Urinary infection	11	25
Obturator nerve injury	1	1
Incisional hernia	1	2
Lymphocyst	2	1

Complications

The primary mortality occurred in 3 out of 220 cases—all had Stage III extensions with extensive nodal involvements. The 2 cases of death following Wertheim operation were due to haemorrhage and shock and lack of availability of blood in spite of tying of the internal iliac artery in one of the cases. Both the deaths happened in earlier part of the career of the author. The single death following abdomino-vaginal radical hysterectomy was presumably due to coronary thrombosis. The incidences of shock, abdominal distension, paralytic ileus and urinary infection were more following Wertheim operation than after abdomino-vaginal radical hysterectomy.

In spite of the fact that following new technique the catheter was kept routinely for only 5 days, as against for 7 to 10 days in cases of Wertheim operation bladder paresis as judged by retention of urine over 10 days hapened in 26 (23.6%) cases in the latter group against 8 (7.2%) cases in the former group. In the former group catheter was never needed for more than 2 weeks, whereas following Wertheim it was needed for 3 weeks on 4 cases. Two cases developed urinary fistulae, one vesico-vaginal and another uretero-vaginal fistula following Wertheim operation but none had fistula following the

new technique. Uretero-vaginal fistula healed on its own in 3 months' time and vesico-vaginal fistula was repaired after six months by Latzko technique.

Hospital Stay

Following abdomino-vaginal radical hysterectomy, the average post-operative hospital stay was 10 days, the range being 9 to 14 days as against average 15 days, the range being 11 to 23 days after Wertheim operation.

Follow up

The follow up of the cases was not satisfactory. Only 128 out of 220 cases (58%) could be followed up for 5 or more years.

Five year survival rates are shown in Tables III and IV.

Five year survival rates in different stages of cancer of the cervix and with or without node metastasis showed no definite difference.

Discussion

Surgery has a definite place in the treatment of cancer of the cervix, more in Stage I and IIa. In developing countries like India where proper radiotherapy is not available even in most of the medical institutions, surgical treatment has a greater scope. Controversy still remains

TABLE III
Five Year Survival Rate

Stage	Abdominal-vaginal radical hysterectomy		Modified Wertheim Operation	
	No. of cases followed	5 year survival No. (Per cent)	No. of cases followed	5 year survival No. (Per cent)
I	17	13 (76.5%)	15	11 (73.3%)
II	35	20 (57.1%)	28	15 (53.6%)
III	11	4 (36.3%)	12	5 (41.6%)
I-III	63	38 (60.3%)	55	32 (58.2%)

TABLE IV
Five Year Survival Rate in Relation to Lymph Node Metastasis

	No. of cases (%) followed	5 year survival (%)
Abdomino-vaginal radical hysterectomy		
With node metastasis	16 (44.4%)	7 (43.8%)
Without node metastasis	45 (60.8%)	30 (66.6%)
Modified Wertheim operation		
With node metastasis	15 (45.6%)	5 (33.3%)
Without node metastasis	34 (44.15%)	23 (67.6%)

as to the best surgical approach to cancer of the cervix.

The greatest drawbacks of Wertheim operation are development of ureteric and vesico-vaginal fistulas. It is believed by Novak (1963) that fistulas are the results of thoroughness of the operation as such Meig's technique (1954) improved survival rate but increased fistula rate to 11.4 per cent. However, the fistula rate has been reduced to about 2 per cent by modifying the technique even by Meig's himself or his followers like Green and Ulfelder (1962) and by Novak (1963), Magara (1963), Yagi (1955), Bastianse (1954) and many others.

It is recognised that urinary fistulas are definitely less following Schauta type of radical vaginal hysterectomy mainly because the blood and nerve supplies to the terminal parts of the ureters and the vesical angles are much less damaged without any reduction of radicality of the operative approach to cancer cervix (Novak, 1963). Bastianse (1954) commented that in Schauta operation no ureteral fistula occurred. He had only 1 inadvertent ureteric injury in 600 cases. In the present series there was no urinary fistula and so is the experience of Roychaudhuri (1976) who performed typical "Mitra operation". Schauta operation has less primary mortality and is suitable for more patients even with obesity,

hypertension and relatively bad health (Bastianse, 1954; Mitra, 1960; Roychaudhuri, 1976). In the present series of modified Schauta operation there was 1 death due to probably coronary thrombosis (1%) as against 2% deaths following Wertheim operation due to haemorrhage and shock and non-availability of proper amount of blood.

Another great drawback of Wertheim operation is bladder paresis due to impairment of innervation of the bladder. The more the dissection the more the paresis (Bastianse, 1954). McCrea and Kimmel (1953) showed that there are two systems of nerve supply to the bladder—one is through the pelvic plexus which comes from the back side of the pelvis underneath the uterosacral ligaments and another is through the accessory nerves which reach the bladder from the lateral side through the perivascular tissues supplying the terminal parts of the ureters and the bladder. The accessory nerves are supplied by the anterior divisions of the 2nd, 3rd and 4th sacral roots. Either of these two systems of nerve supply is capable of maintaining the bladder function. This explains why bladder paresis is much more frequent after Wertheim operation than after radical vaginal hysterectomies. The damage to the pelvic plexus is the same in the two types of operations but damage to the accessory

nerves is much less following Schauta type of operation. Yagi (1955) reported that following Okabayashi method of Wertheim operation the bladder regained the greater part of its function on or about the 20th day.

The main drawback of original Schauta operation was that lymphadenectomy was not done which was circumvented by the addition of extraperitoneal lymphadenectomy by Mitra (1951) and Navratil (1954). Mitra designed a modified approach of this combination in the name of Mitra operation (Mitra, 1960) but this operation had the main drawback that in spite of two abdominal incisions for extraperitoneal lymphadenectomy the abdominal cavity could not be explored. To avoid this drawback and to simplify the operation so as to suit even the young gynaecologists the new technique of abdomino-vaginal radical hysterectomy has been developed; the steps of the operation have been described briefly in this article.

With a view to study the comparative results of this new operation the author has performed and followed 110 cases of Wertheim operation also during the same period on the same types of cases so as to avoid the influence of skill, experience and facilities of blood transfusions, laboratory investigations and radio therapy—the factors which make all the difference in the outcome of results of radical cancer surgery.

The conclusions drawn from this study are:

(1) In both the operations lymph nodes and the same amount of parametrial tissues can be removed. But the vagina can be removed more, when needed, by the abdomino-vaginal radical hysterectomy.

(2) Five year survival rate is the same in the two types of operations.

(3) Primary mortality is slightly less and the urinary fistulas are definitely less following abdomino-vaginal method.

(4) Postoperative period is far superior following abdomino-vaginal operation than after Wertheim operation—(a) the incidence of shock is less due to probably much less peritoneal exposure to open air, (b) abdominal distension, peritonitis and paralytic ileus are less due to less open exposure of the peritoneal cavity and less handling of intestines and delivery of the specimen per vagina, (c) bladder paresis is much less due to less injury to supply of accessory nerve which reach the uretero-vesical junction through the meso-ureter from the lateral pelvic wall (McCrea, 1954) and due to rehabilitation of the bladder by application of rows of special stitches between the bladder, pelvic diaphragm and rectum, (d) urinary infection rate is less due to less prolonged catheterisation and (e) postoperative hospital stay is less. The only drawbacks are that the abdomino-vaginal operation needs about 20 minutes more time than Wertheim operation which is of very little concern in the days of modern surgery, and it is not suitable for cases when the uterus is enlarged as in cases associated fibroid and following delivery.

It may also be added that abdomino-vaginal radical hysterectomy as well as Mitra operation are most suitable for cases of stump carcinoma and cancer cervix with prolapse.

While claiming superiority of this new technique over modified Wertheim operation in most cases, the author agrees with Navratil and Bastianse that to give the best possible surgical help to cases of cancer cervix gynaecologists should be conversant with both abdominal and abdomino-vaginal radical hysterectomies as well as in Mitra operation and should in-

dividualise each case for the best approach.

Help of radio therapy is essential in late cases even after surgical removal.

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