WERTHEIM'S OPERATION — A PERSONAL SERIES OF 55 CASES

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SYNOPSIS

Between January 1982 and April 1984, the author performed 55 Wertheim's operations for the treatment of uterine cervical cancer. Thirty-two cases were in stage 1b, 20 stage 2, one corpus cancer and two cases of central recurrence following radiotherapy. The operative and post-operative morbidity were low. There was no fistula. Two patients had died from recurrence — one 6 months after operation and the other 22 months.

At one year follow-up, 78% of cases had normal bladder function, 11% had loss of bladder sensation and 11% slight impairment. Defaecation was normal for 62% of cases. Sexual intercourse had returned to normal in 54% of cases. In 15% of cases intercourse was satisfactory, but not quite the same as before.

INTRODUCTION

In Singapore during the past two decades (sixties and seventies), Wertheim's operation was rarely done. The majority of patients with carcinoma of the cervix were treated with radiation. However, the early eighties saw a renewed interest in the surgical modality of treatment for carcinoma of the cervix for several possible reasons. Firstly, radical surgery has become safer associated with a very low mortality and also morbidity. Fistulas and ureteric stricture have become rare in well trained hands. Secondly, the preservation of ovarian and vaginal functions can usually be achieved with surgery and this advantage becomes more important with an increasing number of younger women seeking treatment. Lastly, 5 year survival rates of modern radical surgery are as good if not better than radiotherapy.

The author after undergoing training with Professor Hsu of Taiwan began to perform the Hsu's method of the Wertheim's operation in January 1982 in the University Department of Obstetrics and Gynaecology, Kandang Kerbau Hospital. This paper presents the result of a preliminary analysis of his first series of 55 consecutive operations for the treatment of cancer of the uterine cervix, high lighting the operative morbidity and delayed complications.

MATERIAL AND METHOD

Patient Selection

Every confirmed case of carcinoma of the cervix underwent a standard staging procedure which includes the following investigations:—

a full blood count, urea and electrolytes, platelets and partial thromoplastin time, chest X-ray and intravenous urogram.

Cystoscopy and examination under anaesthesia were performed by the author and a radiotherapist together (for the first 31 cases done in K. K. Hospital). Only stage 1b, 2a and early 2b cervical cancers and stage 2 endometrial cancers were offered surgery provided they were reasonably good surgical risks. Two cases of central recurrence following radiotherapy were also included.

31 cases were operated in K. K. Hospital between January 82 and April 83 and 24 cases were done in Thomson Medical Centre from May 83 to April 84. During the entire period no operation was abandoned after opening of the abdomen.

There were 32 cases of carcinoma of the cervix in stage 1b, 10 2a and 10 2b; one was an endometrial carcinoma stage 2 and two were cases of central recurrence following radiotherapy (table I).

TABLE I
TYPE OF CASE AND STAGE OF DISEASE

	No
Ca of Cervix	
Stage 1b	32
Stage 2a	10
Stage 2b	10
Ca of Corpus (Stage 2)	1
Central Recurrence following R.T.	2
Total	55

Of the 55 cases, 44 were treated primarily with Wertheim's operation. Four were given preoperative external irradiation mainly to shrink the large barrel-shaped endocervical tumour before operation. Seven cases were given post-operative external irradiation because operative specimen showed lymph node metastasis (table II).

TABLE II
PRIMARY TREATMENT

	No
Wertheim's operation alone	44
Wertheim's op + Preop external irradn.	4
Wertheim's op + Post-op. ext. irradn.	7
	55

Table III shows that over 58% of cases were 45 years and under and 27.3% were 35 years and under.

TABLE III
AGE DISTRIBUTION

Age (Years)	No.	%
26 — 35	15	27.3
36 — 45	17	30.9
46 — 55	16	29.1
56 — 65	7	12.7
Total	55	100

Operative Procedure

The Hsu's method of Wertheim's operation which is a modification of the Okabayashi's operation was the procedure adopted by the author.

Essentially, a radical hysterectomy was performed first, removing en bloc the uterus, parametria, the entire cardinal ligaments, the paracolpium and the upper 1/3 to 1/2 of the vagina. One ovary is conserved for young patients. Lymph-adenectomy consists of dissection of both the anterior, posterior and medial chains of the common iliac nodes, the external iliac, obturator, internal iliac, inferior gluteal and presacral nodes.

The Hsu's method of closure of the vagina and pelvic peritoneum to lengthen the much shortened vagina was adopted.

Drainage of the pelvis was achieved by inserting two haemovac drains into the pelvis on either side of the vagina and brought out through each iliac fossa, retroperitoneally.

Post-Operative Care

The bladder was drained continuously through an indwelling Foley's catheter for 10 days. Thereafter, the patient was taught to pass urine with the help of suprapubic pressure. Residual urine was measured 3 hourly during the day until the volume was consistently less than 50 ml for 2 consecutive days and the patient discharged. Patients were given Nalidixic acid 500 mgm daily until catheterization was no longer required. Oral bisacodyl one daily was also given until no longer required.

Follow-Up

Every patient was followed up personally by the author. Local patients are seen every 3 months for the first year, every 4 months for the second year, every 6 months for the third year. At each visit the patient's micturition and defaecation status are inquired. Coital function is also asked. Some foreign patients are seen at longer intervals. For those who could not come for check up, information is sought through correspondence or telephone.

One patient defaulted after 12 months.

The cut-off date for analysis was June 1984.

RESULTS

Operative and Post-Operative Morbidity (table IV)

TABLE IV
OPERATIVE AND POST-OPERATIVE MORBIDITY

* Excessive oozing	1
Pyrexia requiring antibiotics	2
Haematoma RIF	1
* Paralytic ileus	1
Pneumothorax	1

* Same patient RIF = right iliac fossa

There was only one major complication during operation. This was a patient who had an unexplained low white cell and platelet count. She developed excessive oozing during operation. Her liver on exploration was found to be cirrhotic which was the cause of the problem. This patient had paralytic ileus but recovered with usual conservative treatment. Two patients had pyrexia, presumably from pelvic sepsis which settled with antibiotics. One patient developed a haematoma in the right iliac fossa and right side of the pelvis which settled spontaneously. Another patient was found to have pneumothorax on the right side on the 5th post-operative day.

Duration of Hospital Stay

The average duration of hospital stay for cases done in K. K. Hospital was 21 days whereas for cases done in the private hospital, it was 15½ days.

Blood Transfusion

The median volume of blood given for each patient was 1000 ml for the whole series. For the first 31 cases operated in K. K. Hospital, the median was 1800 ml and for the latter 24 cases operated in the private sector it was 500 ml.

Stage of Disease and Node Metastasis (table V)

Lymph node metastasis was twice as frequent in stage 2 as in stage 1.

Tumour Differentiation and Node Metastasis (table VI)

Lymph node metastasis occured in cases with moderately and poorly differentiated squamous cell carcinoma and adenocarcinoma, whereas none occured in well differentiated cases.

TABLE VI
TUMOUR AND DIFFERENTIATION AND NODE METASTASIS

	No	No (%) +ve nodes
Squamous Cell Ca:—		
Well Diff.	11	0
Moderately Diff.	23	6 (26.1%)
Poorly Diff.	13	2 (15.4%)
Unknown	3	0
Adenocarcinoma of Cervix	3	1 (33.3%)
Adenocarcinoma of Corpus	2	0
	55	9 (16.4%)

TABLE V
NODE METASTASIS AND STAGE

	No (%) +ve nodes
Stage 1	4 (12.5)
Stage 2	5 (25)
Total	9 (17.3%)

N.B. Only cervix cancers included

Bladder Function (table VII)

One year after operation, 78% of patients considered their bladder function normal. Eleven percent experienced impairment and 11% ioss of bladder sensation. However, none considered this impairment a major handicap.

TABLE VII
BLADDER FUNCTION AT 1 YEAR FOLLOW-UP

	%
Normal	78
Some impairment	11
Loss of bladder sensation	11
	100

Defaecation (table VIII)

Sixty-two percent of patients considered defaecation to be normal at one year. Thirty-eight percent experienced either constipation usually requiring medication or feeling of incomplete emptying.

TABLE VIII
BOWEL FUNCTION (DEFAECATION) AT 1 YEAR FOLLOW-UP

	%
Normal	62
Constipation/feeling of incomplete emptying	38
	100

Sexual Function (table IX)

Fifty-four percent of patients considered sexual intercourse to be normal, the same as before operation. Fifteen percent considered coitus as satisfactory but experienced a certain degree of "dryness".

Thirty-one percent did not have sexual intercourse either because they were widowed or their husbands no longer had the desire. Only one patient complained of shortened vagina. This patient's vagina was closed as in a simple hysterectomy resulting in marked shortening.

TABLE IX
SEXUAL FUNCTION AT 1 YEAR FOLLOW-UP

	%
Normal	54
Satisfactory	15
No Coitus	31
	100

Recurrence and Survival

Two patients had died from the disease — one a 26 year-old girl with a large barrel-shaped adenocarcinoma of the cervix with very massive node metastasis up to the bifurcation of the aorta, died 6 months after radiotherapy and surgery, the other, a case of adenocarcinoma of the corpus stage 2, died of recurrence 22 months after surgery and chemotherapy. A third obese patient was found dead on the 4th post-operative day. Post-mortem examination showed a saddle pulmonary embolism.

Two patients were suspected to have recurrence in the pelvis during follow-up and were given external irradiation. The remaining cases were free of recurrence at last follow-up, two months to 2½ years after surgery.

DISCUSSION

Wertheim's first series of 100 patients carried an operative mortality of 30% (1). By the end of the 19th Century it had dropped to 10% (1). Modern radical hysterectomy is associated with an operative mortality of around 1% (2, 3, 4) and the most important cause of death is pulmonary embolism. This has led most western centers to use routine measures to prevent such occurences. This present series is marred by a sudden death on the 4th post- operative day from pulmonary embolism without any warning, a condition which is still considered rare in our local population, though such cases are noted to be increasing. This patient who died was a grossly obese patient who did not ambulate till death — a reminder to us that we in Singapore can no longer ignore this well known complication with impunity. Rather, appropriate preventive measures should be taken following major surgery such as early ambulation in all and prophylactic heparin in high risk cases. Subsequent patients in this series were ambulated from the 1st post-operative day and patients who were at high risk of developing thrombo-embolism were given prophylactic heparin.

Radical hysterectomy has long been considered a terrible operation by many Gynaecologists because of fear of uncontrollable haemorrhage, sepsis and high incidence of ureteric fistulae. However, during the last 10-15 years with improved techniques, fistula rates have fallen from 10% to less than 1% (4, 5, 6, 7, 8, 9, 10). This marked reduction in morbidity has no doubt contributed to the revival of this operation worldwide as well as in Singapore. The fact that there were no urinary nor faecal fistula in the author's first 55 cases illustrates the importance and the need for a Gynaecologist to be adequately trained by one who has mastered this radical operation, in a centre where it is done everyday.

Severe haemorrhage from injury of the numerous deep pelvic veins during lymphadenectomy is a big obstacle to a successful Wertheim's operation. An incomplete lymphadenectomy would reduce such risks but jeopardizes the patient's chance of cure and therefore unacceptable. The author's first 31 cases done in K. K. Hospital was associated with a much bigger blood loss compared with the latter 24 cases done in the private sector. The median volume of blood transfused was 3 times more in the first 31 cases. Several reasons could explain this difference — less experience and over transfusion in the first 31 cases. For the latter cases autologous transfusion was used which also helped reduce the amount of heterologous blood transfused to 500 ml in half the cases.

Sepsis is another feared complication of this operation as it leaves big raw areas and large dead spaces on either side of the rectum and vagina. The importance of adequate drainage of blood and lymph from these spaces is now recognised to be a major factor in reducing sepsis and also stricture of the lower end of the ureters. Of secondary importance are haemostasis and prophylactic antibiotics. With the application of these principles, there were only two cases of probable pelvic sepsis in this series.

Very few good studies have been conducted to study bladder dysfunction following radical surgery, partly because it is considered a minor handicap. Kadar (11) in a retrospective study of 58 cases, found that 28 (48%) had some degree of impairment. Seven were severely handicapped — six by incontinence and enuresis and one by complete inability to void. In the author's series, at one year follow-up visit, 22% had some degree of impairment (table VII). In contrast none were severely handicapped and recurrent urinary infection did not occur. Eleven percent had lost sensation of bladder filling. Most of them however knew when their bladder was full from a sensation of backache or discomfort in the lower abdomen. The remaining 11% experienced either minor stress incontinence or occasional minor enuresis or requiring suprapubic pressure/straining during

micturition. The patients all accept these minor handicaps without complaint.

Constipation is the most frequent sequelae. Most of these require medication. Others feel a sense of incomplete evacuation of stools requiring several attempts. Together these two sequelae make up 38%. These impairments although minor, occur too frequently and ought to be reduced further by attempting to spare the splanchnic nerves to the rectum lying in the medial and deep aspects of the utero-sacral ligaments.

An important advantage of surgery over radiotherapy is the preservation of normal vaginal function and ovaries in younger sexually active patients. This advantage becomes more important in recent times where an increasing number of younger women with cancer of cervix is seen. I am most impressed with the state of the vagina following surgery despite the fact that 1/3 to 1/2 of the vagina was excised. The adequate length of the vagina is attributable to Professor Hsu's method of closure of the vagina and pelvic peritoneum which adds about 2 cm to its length. To see the difference, in two cases, the vagina was closed as in simple hysterectomy and in these the vaginae were markedly shortened. Good anatomical status of the vagina was matched by good sexual function. In 54% of cases, sex life had returned to normal. In another 15% coitus was not quite the same but satisfactory. The majority of these 15% felt that coitus was a "little dry". In contrast, with radiotherapy over 70% have vaginal stenosis and varying degrees of shortening of the vagina (12).

The results of this series shows quite clearly that the Hsu's method of Wertheim's operation (one of the most radical of such operations) when performed by a well trained Gynaecologist performing a good number of this operation frequently enough, carries a low and acceptable operative morbidity and sequelae. Mean duration of hospital stay is 15½ days in the latter group and can be reduced even further to 10 days without waiting for return of normal micturition before discharging from hospital. The reason for the prolonged hospital stay in the first group was to await normal micturition before discharge. Every patient may be discharged from hospital on the 10th post-operative with an indwelling catheter. They can be seen weekly at the out-patient clinic until bladder function returns to normal.

CONCLUSION

The long held misconception that Wertheim's operation is associated with an unacceptably high operative mortality, morbidity and sequelae is shown to be wrong. Such operations when performed by suitably trained doctors performing them frequently enough, carries a low morbidity.

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