

A PROSPECTIVE COMPARATIVE STUDY OF THE OPEN AND THE CLOSED CUFF METHOD OF VAGINAL DOME CLOSURE IN TOTAL ABDOMINAL HYSTERECTOMY

by

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Total abdominal hysterectomy is the most common gynaecologic operation. The classical method of total abdominal hysterectomy as described by Richardson allows retroperitoneal drainage to occur through an open vaginal cuff. There have been many changes and modifications in the procedure over the years. Today, most surgeons performing abdominal hysterectomy use the closed cuff method of vaginal vault closure (Te Linde and Mattingley 1970). However, the open cuff method has been advocated as the procedure of choice as it allows for extra-peritoneal drainage through the vaginal dome without the use of a drain, after the uterus and cervix have been removed (Gray, 1958).

A series of 165 consecutive total abdominal hysterectomies has been studied and the data presented in this paper aims to compare the 2 methods of vaginal dome, the open and the closed.

Material and Methods

A prospective study on all abdominal hysterectomies performed by the Senior surgeon at Government Hospital or

Women/Medical College, Amritsar, over a two year period i.e. from June, 1980 to June, 1982 was undertaken.

The most frequent indication for doing hysterectomy was myomata. The vaginal cuff was closed in 96 patients and left open in 69 patients. For postmenopausal bleeding, cervical dysplasia and endometrial carcinoma, closed cuff technique was undertaken with the consideration that in case the histopathology report showed frank malignancy, vault radiation could be taken at the earliest possible time.

Vaginal toilet with Betadine was done to selected patients 2 days prior to the operation. Any additional incidental procedures such as adnexectomies and lysis of adhesions were not excluded from the study because of their equal distribution among the two groups.

Prophylactic antibiotics were used for all patients. The post-operative follow up of all patients 6 weeks after operation was undertaken by the surgeon herself.

Technique: Spinal anaesthesia was used in 114 cases and epidural anaesthesia in 49 patients. In 2 cases of closed vault, S.A. had to be supplemented with G.A. The standard technique of total hysterectomy was not altered during the 2 year period except for the two methods of vaginal cuff closure.

Closed cuff: The closure of the cuff

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Accepted for publication on 19-10-82.

was accomplished with No. 1 chromic catgut from one end of the vaginal dome to another by continuous interlocking suture. After the completion of the operation, the vagina was cleaned from below.

Open cuff: The vaginal mucosa and the adjacent peri-vaginal fascia were stitched with the use of continuous blanket suture with No. 1 chromic catgut and the vaginal dome left open. In most of the cases, Betadine solution was poured into the vaginal dome prior to retroperitonization. The vagina was not cleaned from below.

Results

The average age in the open cuff group was 43.8 years and 47.5 years in the closed cuff group.

There was no significant difference in the distribution of parity and type of built of patients in the two groups.

TABLE I

Associated Operative Procedures With Total Abdominal Hysterectomy for Each Group

Procedure	Open cuff	Closed cuff
Total adnexectomy	89	96
Upper 1" of vagina	1	2
Lysis of adhesions		
— Flimsy	8	9
— Dense	—	2
Omentectomy	—	1
Repair of intestinal injury	—	1

The average operating time for the open cuff method was 33.7 minutes as compared to 30.9 minutes for the closed cuff

method. The difference is probably accounted for by the few extra minutes taken for vault suturing in open cuff technique. Two patients in closed cuff group were excluded from the calculation.

The average duration of hospitalisation was 13.2 days in open vault and 12.8 days in closed vault. There was no significant difference in the length of hospitalisation for the two groups.

Blood stained sero-sanguinous discharge observed in the open cuff method has been excluded from the calculation of morbidity analysis because this is considered to be the drainage of sero-sanguinous fluid through the open cuff. Colourless or whitish discharge has also been excluded from the calculation in both the groups.

Morbid number of patients in open cuff group was 19 and 48 in closed cuff group and overall morbidity rate came out to be 27.5% and 50% respectively.

Table III shows the average length of vagina was 3.28" in the open cuff method while it was 2.55" in the closed cuff method. This difference of almost $\frac{3}{4}$ " is significant.

The pelvis was mostly clear in all patients except 3 patients of closed vault in whom some induration of the parametrium was observed.

The incidence of granulation tissue especially symptom producing granulation is higher i.e. 44.9% in the open cuff group as compared to 29.3% in the closed cuff group. Trichomonal infection was also observed more frequently in the open cuff population.

TABLE II
Complications (Including Post-operative fever)

Complication	Open cuff	Closed cuff
1. Post-operative fever (100.4°F)*	6 (8.7%)	12 (12.5%)
2. Urinary infection	1	5
3. Wound infection		
Mild	5	12
Major	3	2
4. Reactionary haemorrhage	1	1
5. Paralytic ileus	—	3 (3.1%)
6. Pulmonary embolism	—	1
7. Gaping of abdominal wound	2	1
8. Jaundice	—	1
9. Vaginal dome bleeding		
—Reactionary	1	—
—Secondary	—	2
10. Vaginal discharge		
—Colourless or whitish	4	16
—Blood stained	29	8

* Temperature 100.4°F or greater on two separate readings after 1st 24 hours post-operatively.

TABLE III
Post-operative Follow up
Post-operative Check-up After 6 Weeks

	Open cuff	Closed cuff
1. Average length of vagina (in inches)	3.28	2.55
2. Condition of pelvis		
—Induration of parametrium	—	3
—Cellulitis	—	—
3. Granulation tissue at the vault		
—Scanty	13	15
—Plenty	17	13
4. Granulation tissue causing symptoms i.e. blood stained discharge	11	6
5. Trichomonal infection	9	6
6. Abdominal wound		
—Stitch abscess	3	2
—Keloid		

Discussion

The number of patients studied were adequate for both groups i.e. 69 for the open cuff and 96 for the closed cuff method. In order to eliminate possible differences in surgical techniques and abilities, only patients operated by one surgeon were taken for study.

The important and significant difference between the two methods was in the area of total morbidity. The febrile morbidity rate was 8.7% in open cuff and 12.5% in closed cuff group. In the closed cuff group the incidence of overall morbidity was almost twice that in open cuff group.

No gastrointestinal complications were reported in the open cuff group. The 3.1% incidence of paralytic ileus in the closed cuff population is comparable to the 3.7% rate of morbidity due to ileus reported by Rochowiak (1980).

Nissen and Goldstein (1977) showed that 10-250 cc of serosanguinous fluid can be suctioned from the retroperitoneal space after hysterectomy. It appears that an open cuff technique may allow for sufficient drainage of this fluid and thus help reduce the incidence of febrile morbidity and other types of morbidity. However, the drainage of this fluid in the open cuff technique which shows up as blood

stained vaginal discharge in the immediate post-operative period (42% in our series) can be quite alarming for the junior staff on duty.

Severe secondary vaginal haemorrhage was encountered in 2.1% cases of closed vault as there is no satisfactory drainage which decreases the culture sites for infection. The open vaginal dome allows for early recognition of post-operative bleeding, usually before any serious blood loss is encountered.

However, the high incidence of granulation tissue at the vault i.e. 44.9% in open cuff group and 29.2% in closed cuff group tends to be disappointing, but is statistically in line with the 37% incidence reported by Howkins and Williams (1955).

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