

ABDOMINAL HYSTERECTOMY - A NEW APPROACH FOR GYNAECOLOGISTS

DUTTA D. K. ● PANDA S. K. ● PAUL K. N. ● BANERJEE S.

SUMMARY

Abdominal hysterectomy is performed for various gynaecological conditions. During operative procedures haemorrhage caused by trauma or slipping and retraction of uterine or ovarian artery has been a cause of great concern to gynaecologists specially in absence of adequate blood transfusion facilities.

To overcome this problem, a new approach has been developed-ligation of the uterine artery and ovarian artery (in case of salpingo-ophorectomy) before going for conventional hysterectomy procedures.

1000 cases of abdominal hysterectomy were performed during last 10 years. Traumatic injury to (L) uterine vessels was seen in 6 (0.6%) cases and to (R) uterine vessels in 4 (0.4%) cases. No other injury to ovarian vessels, (R) uterine vessels, ureter and bladder were observed.

Hence we conclude that ligation of uterine artery prior to conventional abdominal hysterectomy procedures, is an extremely safe procedure reducing the risk of haemorrhage and thus allowing Gynaecologists to perform this operation with less fear and more confidence.

INTRODUCTION

In gynaecological practice abdominal

hysterectomy is performed in cases of dysfunctional uterine bleeding, fibroid uterus, endometriosis and cervical intraepithelial dysplasia etc. Patients are usually suffering from moderate to severe anemia due to chronic

*Dept. Obstt. & Gynaecology, Nathani State General Hospital Nathani - 24 Parganas (N). West - Bengal ; INDIA.
Accepted for Publication on Jan'97*

blood loss in absence of proper treatment.

During operation haemorrhage caused by trauma or slipping and retraction of uterine artery or ovarian artery and injury to the ureter are great concern to the gynaecologist especially in rural area where there is an inadequate blood transfusion facilities.

The author has undertaken a new approach to overcome such problem i.e. during operation ligation of uterine and ovarian artery (in case of salpingo-oophorectomy) are performed prior to conventional hysterectomy procedures.

MATERIAL AND METHODS

These studies were undertaken simultaneously at E.S.I. Hospital, Cure Nursing Home, Kalyani and Green view nursing home, Naihati and subsequently at Naihati State General Hospital, Naihati, 24 Pags(N) from September 1985 to October 1995. During these period 1000 abdominal hysterectomies were performed by this procedure.

The patient was properly prepared for operation:

OPERATIVE PROCEDURES:

1. After satisfactory general anaesthesia, indwelling catheter was placed in the bladder for continuous drainage. A careful pelvic and rectovaginal examination were done first.

2. Abdomen was opened either by transverse or paramedial incision. Abdominal and pelvic cavity were evaluated properly to find out any other concealed pathology.

3. Palpation of the lower portion or the pelvic ureter were done after exposing the pouch of Douglas.

4. The anterior leaf of broad ligament is incised from right to left round ligament. Wide mobilisation and displacement of the bladder base from the cervix were done.

5. The posterior leaf of the broad ligament was incised down to the point where the uretero-sacral ligaments join the cervix.

6. Uterus was then pulled up by vulsellum, two fingers were put posteriorly 1 cm. above the uterine attachment of utero-sacral ligament and 1 cm. lateral from the uterine wall followed by lifting of the posterior broad ligament for exposing uterine artery. Uterine artery was completely skeletonised and exposed. Uterine artery were ligated by atraumatic 1-0 or by unabsorbable 1-0 suture- A, (primary step).

7. The same procedures were adopted in opposite side.

8. In case of salpingo-oophorectomy- (a) ligation of ovarian vessels along with infundibulo-pelvic ligament (B₁) by atraumatic 1-0 or any other suture were done first to be followed by (b) clamping, cutting and ligation of the ovarian vessels and infundibulo pelvic ligament (B₂) which is to be proceeded by (C) clamping, cutting and ligation of the round ligament along with mesosalpinx (B₃) by transfixation suture (chromic-1) which ultimately passes beyond B₁ B₂ (Triple ligation). The same procedure were adopted in opposite side.

9. In case of total abdominal hysterectomy, clamping, cutting and ligation of the (1) uterine end of the tube, mesosalpinx, ovarian branches of uterine artery, utero-ovarian ligament were performed.

10. Final step for clamping of uterine artery- Two clamps were applied- first one is placed at the level of the cervical OS closed to the uterus. Second- placed at

right angles to the lower uterine segment. The uterine vessels are cut with the scalpel between the first and second clamp followed by freeing of uterine vessels from uterus by extending the incision around the tip of the 1st clamp-ligated by transfixation chromic catgut-1 or vicryl(A₂) along with surrounding tissue of the uterine wall- to be followed by resuturing the uterine vessels with surrounding tissue (A₃) (TRIPLE LIGATION).

11. Same procedure as carried out on the opposite side.

12. Mobilisation of peritoneal flap from its attachment to the cervix upto posterior vaginal fornix as done.

13. Both utero-sacral ligaments clamped, incised and ligated with

chromic catgut No. 1.

14. A plane between the cervix and vaginal wall anteriorly and anterior rectal wall and vagina posteriorly were made.

15. T-shaped incision is made in the fascia anterior to the cervix just below the level of the internal cervical os and the ligated uterine vessels.

16. Clamping, cutting and ligating or cardinal ligaments (both side) by chromic cat-gut-1 suture.

17. Opening of anterior vaginal fornix, cutting of posterior and lateral vaginal wall, removal of uterus along with cervix, followed by closure of vagina by interrupted sutures by chromic-1 catgut or vicryl 1-0 suture.

18. Pelvic floor peritonealised.

19. Abdomen closed in layers.

OBSERVATION

TABLE - 1
INDICATION FOR HYSTERECTOMY (N-1000)

	Number	Percentage
Dysfunctional		
Uterine Bleeding	550	55%
Fibroid Uterus	340	34%
Cin III	40	4%
Cin II	10	1%
Endometriosis	40	4%
Carcinoma-In-Situ	20	2%

Out 500 cases, 55% (550) had dysfunctional uterine bleeding, and 34% (340) had fibroid uterus respectively (Table I).

Table II.
TYPES OF OPERATION (N-1000)

	Number	Percentage
Total Abdominal Hysterectomy	120	12%
Total Abdominal Hysterectomy with (B) sided salpingo-oophorectomy	780	78%
Total Abdominal Hysterectomy with one sided salpingo-oophorectomy	100	10%

Total abdominal Hysterectomy with both sided salpingo-oophorectomy were performed in most of the cases 78% (780) whereas 10% (100) cases had undergone total abdominal hysterectomy with one sided salpingo oophorectomy (Table II)

TABLE III
OPERATIVE COMPLICATIONS (N-1000)

	Number	Percentage
Injury to (L) uterine vessels	6	6%
(R) Uterine vessels	4	4%
(R) Ovarian vessels	Nil	Nil
(L) Ovarian vessels	Nil	Nil
Ureter	Nil	Nil
Bladder	Nil	Nil
Large Intestine	Nil	Nil
Small Intestine	Nil	Nil
Omentum	Nil	Nil

Injury to left Uterine vessels 6(0.6%) and right Uterine vessels 4(0.4%) were seen (Table III)

Table - IV
POST OPERATIVE COMPLICATION (N-1000)
(WITHIN 10 DAYS)

	Number	Percentage
Primary Healing	970	97%
Wound Infection	10	1%
White Discharge	6	0.6%
Bleeding per vagina	4	0.4%

970 (97%) had primary healing (Table-iv)

Wound infection was seen in 10 (1%) cases. Only 6 (0.6%) had white discharge and 4(0.4%) had bleeding per vaginum respectively.

Table V
FOLLOW UP UPTO - 1 year (N-820)

	Wound	Healthy
Dyspareunia	Nil	Nil
Psychological	4	0.4%
White Discharge	10	1%
Low Backache	10	1%
Sexual Problem	2	0.2%
Dysuria	4	0.4%

It is observed from Table V that 10 (1%) had white discharge, 10 (1%) had low-back pain 4 (0.4%) had psychological problems and 2(0.2%) had sexual problems.

DISCUSSION :

Abdominal hysterectomy is performed, for various gynaecological conditions. The patient is usually moderately

and sometimes severely anaemic due to chronic blood loss in absence of proper treatment.

In the present gynaecological practice,

abdominal hysterectomy with or without salpingo-oophorectomy is done conventionally (Dicker et al, 1982; Richard et al, 1989 and Richardson, 1929) from above downwards i.e. by clamping, cutting and ligating of the round ligament, uterine end of the tube and utero ovarian ligament, infundibulopelvic ligament followed by mobilisation of bladder, exposing the uterine vessels for clamping, cutting and ligating, which is further followed by clamping, cutting and ligation of uterosacral ligament, cardinal ligament and vaginal vault.

During this procedure there may be traumatic injury to the vessels or slipping and retraction of uterine artery and ovarian artery. If it happens during operative procedure, there may be possibility of trauma to the ureter, bladder intestine and omentum etc. due to inexperience of tackling the emergency situation which is further aggravated by fear psychosis leading to unnecessary clamping in an unwanted area.

Hence to prevent such unwanted catastrophe a new approach i.e. ligation of uterine artery and ovarian artery (in case of salpingo-oophorectomy) was performed prior to conventional hysterectomy procedure as described in different standard surgery books (Howkins & Stallworthy, 1975; Jones et al, 1983).

It is very much important to know the anatomy of uterine artery and its course, pelvic ureter and bladder and lastly relationship between uterine artery and ureter, before proceeding with such new technique.

During operative procedure- with retraction of uterine corpus-ureters will usually fall 2 cm to 3 cm lateral and inferior to the point of ligating uterine artery. Wide mobilisation and displacement of bladder base from the cervix were done following separation of utero-vesical fold of peritoneum. The posterior lip of broad ligament incised, uterus is pulled up by vulsellum, two fingers were put posteriorly 1 cm above the uterine attachment of the uterosacral ligament and 1 cm lateral from the uterine wall followed by lifting of the posterior broad ligament for exposing the uterine artery. Uterine arteries were completely skeletonised and exposed and ligated by atraumatic 1-0 with 30mm needle or by unabsorbable 1-0 suture-A (Primary step).

Utmost care is to be taken while clamping the uterine arteries. First clamp is to be placed at the level of internal cervical os close to the uterus whereas second clamp placed at right angles to lower uterine segment to be followed by cutting of ligated (A_1) uterine vessels with the scalpel in between 1st and 2nd clamp upto the tip of 1st clamp-ligated by transfixation suture (Chromic catgut-1), or vicryl 1-0 (A_2) along with the surrounding tissue at the uterine wall which is to be followed by resturing of A_1 and A_2 (A_3) (TRIPLE LIGATION).

It is also important to ligate the ovarian vessels along with infundibulopelvic ligament (B_1) by atraumatic 1-0 or vicryl (In case of salpingo-oophorectomy) to prevent slipping and retraction of ovarian vessels,

which is to be followed by clamping, cutting and ligation of ovarian vessels along with infundibulo pelvic ligament (B₂) by chromic - 1 catgut. At last clamping, cutting and ligation of round ligament along with mesosalpinx (B₃) were done by transfixation suture chromic - 1 which ultimately passes B₁ and B₂ (Triple ligation)

Following this step-conventional hysterectomy procedures were adopted. Utmost care was taken while ligating vaginal angles to secure proper haemostasis.

In the present series, total abdominal hysterectomy with both sided salpingo-oophorectomy were performed in most of the cases - 78% (780) whereas 12% (120) cases had undergone total abdominal hysterectomy with one sided salpingo-oophorectomy.

In conventional hysterectomy procedures operative complications such as trauma or slipping and retraction of uterine artery and ovarian artery leading to haematoma is very much significant as reported by various authors (Gram, 1975, Robinson, 1979 and Miyazawa, 1992) from time to time. There may also be injury to ureter (Kamala Jayram, 1992, More, 1973 and Russel and Carola, 1994) bladder, intestine and omentum etc. which usually happened while tackling haematoma and haemorrhagic situation during operative procedures.

In the present series no traumatic injury to left and right ovarian vessels, ureter and bladder, omentum and intestine were reported except 6 (0.6%) had traumatic injury to (L)

uterine vessels and 4 (0.4%) to (R) uterine vessels which were managed immediately.

The disadvantages following this operation were (1) occasionally there may be traumatic injury to uterine and ovarian vessels (2) anatomical variation of uterine or ovarian or aberrant artery and ureter may cause problem (but not seen in this series) (3). Broad ligament fibroid, endometriosis, severe adhesions and fixed uterus may cause operative problem which can be managed first by adopting conventional procedure till the region of uterine artery was reached where uterine artery was properly exposed, skeletonised and ligated to prevent slipping and retraction of uterine artery prior to traditional clamping of uterine vessels (4) lastly accidental ligation of ureter may sometimes occur.

Main advantages of this operation were

- 1) No slipping and retraction of uterine and ovarian artery.
- 2) Minimum blood loss.
- 3) Avoidance of unnecessary clamping while tackling haematoma and haemorrhagic situation.
- 4) Avoidance of ureter, bladder and intestinal injury
- 5) Good and safe for gynaecologist
- 6) Better recovery.

CONCLUSION

Hence we conclude that ligation of uterine artery prior to conventional abdominal hysterectomy is an extremely safe procedure and reduces the risks of haemorrhage

REFERENCES

1. Dicker R.C., Scally M.J. & Geenspan J.R. : *Am A* 248 : 323, 1982.
2. Gram LA *Obstet Gynec* 46: 42, 1975
3. Howard W. Jones III, Anne Colston Weniz and Lonnie S. Burnett. : *Novak's text book Gynaecology*, 11th ed, 1983, 403, pub. Williams & Wilkins.
4. John Howkins & Sir John Stallworthy: *Bonney's Gynaecological surgery*, 8th ed. 1975, 298, pub. Bailliere Tindall.
5. Kamala Jayaram : *J. Obstet and Gynec Ind.* 42 : 833, 1992.
6. Miyazawa K : *Obstet. Gynec Surv.* 47: 433, 1992
7. More J.C. : *J. Obstet and Gynec. Brit C. Wealth*, 80: 508, 1973.
8. Richard F. Mattingly & John D Thompson : *Telinde's operative Gynaecology*, 6th ed, 1989, 203, pub. J.B. Lippincott Company (Indian Edn. Joypee Brothers).
9. Richardson EH : *Surg. Gynec. Obstet.* 48: 428, 1929.
10. Robinson R.E. : *Operative Surgery*, 3rd. Ed. 1976, 169, pub. Butterworths.
11. Russel Matinak L.M.D. & Carola Wheeler M.D : *Current Obstetric and gynaecological diagnosis and treatment*, 8th Ed. 1994, 884 pub. Prentice Hall International, INC.