



AQUADISSECTION IN NONDESCENT VAGINAL HYSTERECTOMY: A COMPARATIVE STUDY OF INTRAOPERATIVE AND POSTOPERATIVE PARAMETERS

Obstetrics and Gynaecology

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ABSTRACT

Objectives: Vaginal hysterectomy is common surgical procedure in gynecology. Nondescent vaginal hysterectomy has its own advantages. In Aquadissection technique, fluid with an anaesthetic agent and a vasoconstrictor agent is pushed into the fascial spaces has further added upto the benefits by reducing the associated morbidity.

Materials And Methods: The study was carried out in dept. of Obstetrics and Gynaecology, Nalanda Medical College, Patna, Bihar, On 60 cases which were planned to undergo nondescent vaginal hysterectomy for different indications. 30 cases were operated conventionally and 30 were operated with using aquadissection.

Results: Those cases which were aquadissection supplemented there was lesser blood loss, shorter, operating time, earlier ambulation short hospital stay and fewer intraoperative and postoperative complications as compared to conventional group.

Conclusion: Aquadissection techniques supplemented to vaginal hysterectomy is advantageous.

KEYWORDS

Nondescent vaginal hysterectomy, Aquadissection, tumescent anaesthesia.

INTRODUCTION:

Hysterectomy is the commonest procedure performed in Department of Gynecology traditionally various routes for removal of the uterus have been used. Abdominal hysterectomy is undoubtedly the most popular with 70:30 ratio for abdominal versus vaginal route.

However, gynecologists were soon to learn that hysterectomy could be performed more easily, faster with least complications and with excellent patient recovery when vaginal route was used. It can be rightly said that the father of non-descent vaginal hysterectomy in modern India is certainly Sheth with his experience of 5655 vaginal hysterectomies (VH) done from 1967 to 2001. He did all hysterectomies, in private practice without laparoscopic assistance.

Aqua dissection is a technique that simplifies vaginal hysterectomy and makes it bloodless. Tissue beneath the mucosa is flooded with fluid. This compresses the vascular plane and creates a fluid tourniquet in injected area, i.e. lower part of uterus. Small vessels are compressed and oozing/bleeding at the time of surgery is prevented.

Submucosa when flooded with fluid give proper plane for dissection which then becomes easily separable ending in a fast, clean a vaginal hysterectomy.

The introduction of supplementation of tumescent anesthesia into the technique of vaginal hysterectomy has made surgical dissection easier and safer and intraoperative blood loss is also minimized. It allows dissection over larger areas than previously possible with considerable ease. It uses direct infiltration of saline-based or similar solution to deliver lidocaine, epinephrine and other medications into the subcutaneous and submucosal areas. The presence of very dilute epinephrine in the range of 1:1,000,000 causes vasoconstriction locally. This in turn reduces during and after the procedure, the local anesthetic effects of lidocaine are prolonged and systemic absorption of lidocaine is delayed, permitting larger doses to be administered than could be safely done without epinephrine.

MATERIALS AND METHODS:-

The study was conducted in the dept. of obstetrics and Gynecology, Nalanda Medical College, Patna, Bihar on 60 women who were planned to undergo nondescent vaginal hysterectomy.

Inclusion Criteria:-

1. duB (dysfunctional uterine bleeding, fibroid adenomyosis dysplasias etc.
2. A mobile uterus with size of uterus <14 weeks or 600 cm² uterus volume.

3. Vaginal size with breath of vagina more than 2 fingers supra pubic angle will be at least 80°, Intertuberous diameter should be atleast 4 knuckle tight

Exclusion Criteria:-

1. Size of uterus more than 16 weeks.
2. Any degree of prolapse.
3. Cases with cervical fibroid and broad ligaments fibroid.
4. Women with acute pelvic inflammatory disease (PID), restricted uterine mobility, limited vaginal space, adnexal pathology, previous fistula repairs, cervix flushed with vagina and carcinoma cervix, vaginal carcinoma.

All cases were divided into 2 types study group and control group of 30 cases each.

Control group went non descent vaginal hysterectomy by standardized technique. In study group 150-200 ml of aquadissection solution was infiltrated in paracervical space then surgery was performed. Aquadissection solution was prepared by adding some of 1% lignocaine and 1mg of adrenaline (1:1000,000) to 200 ml of normal saline.

The difference in duration of surgery, Blood loss as assessed by number and extent of sponges soaked and intraoperative and postoperative morbidity were assessed in both groups.

RESULTS:-

The introduction of large amounts of fluid in the fascial spaces leads to separation of the tissues or what we can term dissection of the fascial spaces. Thereafter, separating the vital tissues from their immediate relations becomes relatively easy because of tissue edema that has been produced as a result of the introduction of large amounts of water. The multidirectional force of the fluid can create a plane of deavage by way of the path of least resistance. The present study was carried out to identify the extent of utility of aquadissection in reducing the morbidity associated with conventional nondescent vaginal hysterectomy (NDVH).

Maximum cases in the aquadissection group required not more than 35 minutes for surgery, which was significantly less than the conventional group, where the maximum cases required more than 45 minutes for completion of surgery.

Most cases carried out by the aquadissection technique were completed with a moderately soaked on sponge, whereas in the conventional group more than on sponge got completely soaked with

blood. Intraoperative morbidity was significantly less in the aquadissection group.

Table-1: Intraoperative And Postoperative Parameters

Parameter	Group A (conventional NDVH)	Group B (aquadissection)	P value
Time taken for surgery (minutes)	44.50	36.40	<0.01
Duration of catheterization (hours)	42.42	21	<0.01
Postoperative intravenous drip (hours)	30.96	26.88	>0.01
Acceptance of oral sips (hours)	16.32	14.66	>0.01
Postoperative mobilization (hours)	42.48	27.12	<0.01
Duration of hospital stay (days)	8.38	6.58	<0.01

Maximum number of cases undergoing NDVH by the aquadissection technique required postoperative catheterization for less than 24 hours after which they could void normally while cases undergoing conventional NDVH required postoperative catheterization for 36-48 hours as only few patients required indwelling catheterization. Therefore, urinary problems associated with catheterization were also minimized. Only two cases of aquadissection group complained of urinary burning and one case developed urinary frequency, whereas in the conventional group 10 cases complained of urinary burning and four cases developed frequency.

Most cases of aquadissection were ambulatory in 24-36 hours postoperatively with a mean of 27.12 hours as against the conventional group, where maximum cases took 37-48 hours before being ambulatory. The mean was 42.48 hours and the difference was statistically significant. Febrile morbidity was higher in the conventional group as compared to the aquadissection group. None of cases in the aquadissection group developed discharge per vaginum. There was one case of urinary tract infection. On the other hand, in the conventional group three cases developed discharge per vaginum and there were four cases of urinary tract infection. Maximum numbers of cases in the aqua dissection group were discharged within a week, whereas most of the cases in the conventional group stayed for nine days. The difference was statistically significant.

During follow-up, 5 cases of the conventional group complained of low backache as against one in the aquadissection group. Other complaints like discharge or bleeding per vaginum were also significantly more in the conventional group. No mortality was observed in either group.

Table 2: Comparison Of Blood Loss During Surgery

Amount of blood loss	Group A (conventional NDVH)	Group B (aquadissection)
Slightly soaked on sponge	-	14
Moderately soaked on sponge	5	36
Completely soaked on sponge	28	10
More than one completely soaked sponge	27	00

Table 3: Intraoperative And Postoperative Complications

Amount of blood loss	Group A (conventional NDVH)	Group B (aquadissection)
Minor		
Discharge P/V	6	1
Low backache	20	3
Moderate		
Febrile morbidity	10	2
Vaginal bleeding	4	0
Subileus	0	0
Hemorrhage requiring blood transfusion	5	1
Urinary tract infection	3	1
Urinary retention	0	0
Severe		
Conversion to abdominal route	1	0
Bladder injury	0	0
Bowel injury	0	0
Ureteric injury	0	0
Mortality	0	0

DISCUSSION:-

Supplementation of aquadissection to the conventional technique has reduced the preoperative blood loss so much so that in most cases a single small sized sponge would suffice. Easy identification of fascial spaces and ligaments ensures minimal dissection and therefore less time consuming. In a study conducted by Rajesh Modi on the use of aquadissection during performing myomectomy in 157 cases he reported a significant reduction in blood loss and operating time in all cases. Sissi et al. conducted an Italian multicenter study of complications in 2,050 laparoscopic myomectomies, which has the use of vasoconstrictive agent in 37% cases to reduce the operative time.

Aquadissection is not related to the intraoperative problems encountered due to intraperitoneal adhesions. The action of aquadissection is limited to paracervical spaces anteriorly, posteriorly and laterally and the need for laparotomy because of dense intraperitoneal adhesions cannot be attributed either to the use of aquadissection or otherwise.

Under the effect of local anaesthetic and adrenaline used in the aquadissection solution, there is lesser pain postoperatively and minimal need for indwelling catheterization using aquadissection study hence the cases can be ambulated earlier.

The main concern with the use of vasoconstrictive agent is that it causes sudden rise in blood pressure, if it is accidentally injected directly into a blood vessel. This complication can be avoided by simply aspirating before injecting. There are concerns regarding the cardiac effect of adrenaline myocardial vessel constriction may mimic transient myocardial ischemia.

If we only use 400 ml of saline without adrenaline, then the effect of hemostasis will only be effective for 5-10 minutes, during which time it is washed out from the tissues and bleeding starts, while the surgery is still on.

CONCLUSION:-

Thus, the relative advantages and disadvantages of the NDVH by two different methods were evaluated and compared for difference in various intraoperative and postoperative parameters. Minimal handling of the bladder, ease in performing anterior and posterior colpotomy, dramatic reduction in the amount of bleeding during the course of dissection of the paracervical tissues, reduction in the need for transfusion of blood/ blood products, lesser pain postoperatively hence earlier ambulation, and shorter duration of stay in the hospital makes aquadissection technique more advantageous than the conventional one.

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