



NON DESCENT VAGINAL HYSTERECTOMY MADE EASY BY PREOPERATIVE SONOGRAPHICAL ASSESMENT – A PROSPETIVE COMPARATIVE STUDY.

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ABSTRACT

Background : NON DESCENT VAGINAL HYSTERECTOMY is one of the most commonly performed gynaecological surgeries. Debulking procedures were employed to reduce the bulk of the uterus to facilitate vaginal delivery of the uterus and by taking ultrasonographic uterine parameters we can decide preoperatively about the need and type of debulking procedure.

Methods: A Prospective Comparative Study was performed in the Department of Obstetrics and Gynaecology, S.N. Medical College, Agra from August 2014 to October 2016. Total of 100 cases were selected and divided into two groups based on ultrasonographic uterine volume assessment. Group A included Cases with uterine volume <200 cc and Group B, Cases with uterine volume > 200 cc <400cc. Patients were prepared for surgery and intraoperative parameters like Debulking procedure done or not, if done, type of debulking procedure, duration of surgery, intra operative blood loss, any intraoperative injury, need for conversion to abdominal route, intraoperative blood transfusion were recorded and compared in both groups.

Results: Our study concludes that with increase in uterine volume need for debulking procedure increases, in all cases with uterine volume more than 300 cm³ debulking procedures were used. All cases with transverse diameter between 61-65mm required bisection of uterus. Similarly, in all cases with cervical volume more than 26cc, cervical amputation was done. There was no significant difference in intraoperative and postoperative parameters in both groups.

Conclusions: Detailed ultrasonographic assessment is very helpful during NDVH in predicting feasibility, ease of surgery, need and type of debulking procedure and chances of conversion to abdominal route. Debulking procedure does not effect intraoperative and postoperative complication rate.

KEYWORDS :

INTRODUCTION

Hysterectomy is the most common operation performed by gynaecologist, next to caesarean section^{1,2}. Hysterectomy may be performed vaginally, abdominally, laparoscopically, or with robotic assistance, with the route depending primarily on physician choice³.

There are very few absolute contraindications for vaginal hysterectomy (e.g. pregnancy, cancer). However, there are some factors that may influence the surgeon's choice of a route for hysterectomy, surgeon training and experience^{4,5} accessibility of the uterus, extent of extra uterine disease, size and shape of the uterus, and need for concurrent procedures.

Debulking is reducing the size and volume of the uterus to facilitate its delivery. Uterus more than 12- 14 weeks in size are approximately 240 to 350 cm³ in volume will invariably require debulking or some assisting operative techniques to complete the hysterectomy.

The debulking procedures include cervical amputation, Hemisectioning, Myomectomy, Intramyometrial coring and Morcellation.

Ultrasonographic estimated uterine volume could be a great help in planning the procedure. The utility of the ultrasound is to assess the uterine volume, to detect the fibroid number, size, location, whether anterior or posterior and distance from internal os, endometrial surface and the fundus, uterine volume can indicate or contraindicate vaginal route for hysterectomy or trial vaginal hysterectomy.

In our study, preoperative ultrasonographic assessment of uterus was done to predict cases which will require debulking and by taking these ultrasonographic uterine parameters we can decide preoperatively about the need and type of debulking procedure.

The study was conducted on 100 patients admitted in the Department of Obstetrics and Gynaecology, S. N. Medical College, Agra. Selected cases were divided into two groups based on ultrasonographic uterine volume assessment.

GROUP A- Cases with ultrasonographic uterine volume <200 cc.

GROUP B- Cases with ultrasonographic uterine volume > 200 cc and <400cc

Patients with uterine size < 20 weeks, uterine volume <400 cc, adequate uterus free vaginal space, with good uterine mobility were included in the study. Cases with uterine prolapse, uterus with restricted or no mobility, Suspicion of malignancy, complex adnexal mass, diminished vaginal space, cervix flushed with vagina, history of vesicovaginal fistula repair were excluded from the study.

After division of cases into groups Pre-operative investigations including complete hemogram, urine analysis, blood grouping with Rh-typing, blood sugar, serum creatinine, blood urea, Pap smear, endometrial biopsy, ECG, Chest X-ray/ USG Abdomen and Pelvis was done.

Ultrasound

Uterine volume was calculated with use of prolate ellipsoid formula⁶ of

$$4 \times \pi \times (L \times W \times AP) / 32$$

$$\text{i.e. uterine volume} \approx 0.542 \times L \times W \times AP$$

where length (L=measured from fundus to the internal os of the cervix, Width (W=Transverse diameter at the level of the cornua) and anteroposterior diameter (AP= Anteroposterior diameter at the level of the cornua and perpendicular to the width)

Similarly Myoma (If present) were assessed for Size, Number,

MATERIAL AND METHODS

Location, Distance from endometrium, from os and from serosa. and Endometrium Thickness (mm) and Cervical volume(cc) were calculated using ultrasonography.

After getting informed consent, patients were prepared for surgery. All patients were given prophylactic antibiotics just before surgery. Non descent vaginal hysterectomy was performed under spinal anaesthetics. Aquadissection technique had been used in both groups.

After cleaning and draping, cervix was held with volsellum. Circumferential incision was made around the cervix, pubovesico-cervical ligament was cut and bladder mobilized upwards. Both anterior and posterior pouches were opened one after another. Uterosacral and cardinal ligaments were clamped, cut and ligated. Clamping of uterine vessels was done bilaterally. If at this time the uterine size did not allow an easy exteriorization then debulking techniques like morcellation, bisection, coring, myomectomy, or a combination of these methods were done. After delivering the uterus in the vagina, hysterectomy was completed in the usual manner

Intraoperative parameters like Debulking procedure done or not, if done, type of debulking procedure, duration of surgery, intraoperative blood loss, intraoperative injury ,need for conversion to abdominal route, intraoperative blood transfusion , minor anaesthetic problems were recorded..

RESULTS

Both groups had comparable age , parity and BMI. Mean uterine volume in Group A and Group B was 134.94± 35.33 and 314.64± 46.58 cc (Table 1).Maximum number of cases in our study had dysfunctional uterine bleeding.

Table – 1 Patient Profile

	PATIENT PROFILE	GROUP A	GROUP B
A)	Mean Age(in years)	45.04±6.64	44.50±6.94
B)	Mean Parity	3.85±1.03	3.42±1.15
C)	Mean BMI	24.183.64	24.65±3.65
D)	Mean Uterine Volume	134.94± 35.33	314.64± 46.58

With uterine volume between 151 to 200 cm³ , 201 – 250 cm³ , 251 – 300cm³ 30% cases, 50% cases ,64% cases required debulking procedure respectively and in 100% cases when uterine volume was more than 300 cm³. (Figure 1).

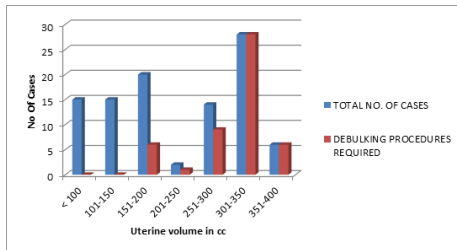


FIGURE 1 - Shows correlation of ultrasonographic assessment of uterine volume with need of debulking procedure

In group B maximum number of cases (64%) required bisection of uterus (Table 2).

Table 2 - Type Of Debulking Procedure Required

TYPE OF DEBULKING PROCEDURE REQUIRED	GROUP A		GROUP B	
	No.	%	No.	%
No Debulking procedure	44	88	06	12
Bisection of uterus	06	12	32	64
Cervical amputation	0	0	06	12
Coring	0	0	05	10
Myomectomy	0	0	08	16
Morcellation/wedge resection	0	0	04	08

As the cervical volume increases need of cervical amputation increases. All cases with cervical volume more than 26cc required cervical amputation.

As the transverse diameter increases need of bisection increases (Table – 3). All cases with transverse diameter more than 61mm required bisection.

Table -3 Correlation Of Transverse Diameter With Need Of Bisection

TRANSVERSE DIAMETER OF UTERUS (mm)	GROUP A			GROUP B		
	NO. OF CASES	NO. OF CASES REQUIRING BISECTION OF UTERUS	%	NO. OF CASES	NO. OF CASES REQUIRING BISECTION OF UTERUS	%
40-45	6	0	-	4	0	-
46-50	12	0	-	6	0	-
51-55	10	0	-	8	04	50
56-60	20	4	25	12	8	68
61-65	2	2	100	20	20	100
Total	50	06		50	32	

In Group B, single myoma with myoma volume <20cc , 33.3% cases underwent myomectomy, none of the case had undergone morcellation and in 66% cases Bisection of uterus was done .

In Group B single myoma with myoma volume >20cc , 50% cases underwent myomectomy ,17% cases had undergone morcellation and in 33% cases Bisection of uterus was done .

In Group B ,in cases with multiple myoma ,in 40% cases bisection of uterus was done and in 40% morcellation was done and in 20% cases myomectomy was done .

In Group A, 2 cases had multiple myoma and in both cases bisection of uterus was done (Table 4).

Table- 4 Correlation Of Ultrasonographic Assessment Of Myoma With Need Of Debulking Procedure

USG PARAMETERS	NO. OF CASES	TYPE OF DEBULKING PROCEDURE			
		BISECTION ALONE	MORCELLATION	MYOMECTOMY ALONE	MYOMECTOMY +BISECTION
Group A	Single myoma	4	-	-	-
	Multiple myoma	2	2(100%)	-	-
Group B	Single myoma (volume <20cc)	3	2(66.6%)	-	1(33.3%)
	Single myoma (volume >20cc)	12	4(33.3%)	2(18.8%)	2(18.8%) 4(33.3%)
	Multiple myoma	5	2(40%)	2(40%)	- 1(20%)

Mean blood loss was (193.22±68.34)ml in group A and (218.84±75.88)ml in group B and 2 cases required blood transfusion in group B. Mean time taken was (53.38±12.18) minutes in group A and (56.20±12.27) minutes in group B (Table 5)

Table -5 Intraoperative Parameters

INTRAOPERATIVE PARAMETERS	GROUP A	GROUP B	p-VALUE
Mean Blood loss(in ml)	193.22±68.34	218.84±75.88	0.0792

Mean time taken (in minutes)	53.38±12.18	56.20±12.27	0.2516
Need for blood transfusion	0	02	
Need for conversion to abdominal route	0	2	
Bladder and bowel injury	0	0	
Minor anaesthetic problem	2	2	

Postoperative parameters like febrile morbidity, urinary tract infection, duration of hospital stay were slightly more in Group B but was statistically insignificant.(Table 6)

Table - 6 Postoperative Parameters

POSTOPERATIVE PARAMETERS	GROUP A	GROUP B
Febrile Morbidity	2(4%)	3(6%)
Urinary tract infection	3(6%)	4(8%)
Duration of indwelling catheterisation(In hours)	38.88±8.36	42.00±10.36

DISCUSSION

Majority of women in our study were in the age group 41 to 50 years, majority of them were para three or more. Most common indication of hysterectomy was Dysfunctional Uterine Bleeding

In our study mean uterine volume in Group A was (134.94 ±35.33)cc and in Group B was (314.64±46.38)cc while Batista CS et al⁷ in their study has taken mean uterine volume as 327.33 cc.

In present study debulking was required as the uterine volume increases.In Group B , 88% of cases required debulking while in study done by Sushil et al 2003⁸ ,79% of cases required debulking .

In present study Bisection was most common technique to debulk the size of uterus (in 64% patients in group B) .Similar observations were seen in other studies like done by Chandana et al 2013⁹ (in 40% patients) and S P Biswas et al 2016¹⁰(in 32.1% patients).

In our study Debulking was required in 30% of cases with uterine volume between 151-200cc, 50 % of cases with uterine volume between 201-250cc, 64 % cases with volume between 251-300cc and in all the cases with volume more than 300cc.

It was seen by Sheth and Shah in 2004¹¹ that for all uteri less than 200cm³ no debulking was required. Debulking procedures were required in 28.5%of cases with volume in between 201-300 cc and was done in 71.4% of cases with volume in between 301-400 cc.

Hence as uterine size increases percentage of cases requiring debulking procedures increases .

In our study , All cases with transverse diameter between 61-65mm, required bisection of uterus and we observed that as the transverse diameter increases need for bisection increases.

Preoperative ultrasonographic assessment of a myoma site is important as myoma located on posterior wall were easily removed vaginally by delivering the uterus posteriorly. Myoma located on anterior and lower segment of uterus were difficult to remove as they usually hitch behind the pubic symphysis and makes the bladder dissection difficult.

Ultrasonographic assessment of myoma distance from endometrium also helps in deciding type of debulking

procedure. Myoma close to endometrium were removed by Bisection of uterus .

Nazah et al¹² compared 16 patients of myomectomy coring with bisection ,morcellation and found both to be safe and effective for reducing large uteri.

Edwards and Beebe¹³ advocates Vaginal Hysterectomy in all cases where size of fibroid uterus was up to 14weeks size .

In our study all cases required cervical amputation when cervical volume was more than 26 cc.

Mean blood loss in group A was 193.22±68.34 ml and in group B was 218.84±75.88 ml , which was statistically insignificant.Mean blood loss was 150±65ml in study done by Chandana et al⁹ and 205.6 ml in study done by Saha R et al¹⁴.

The mean time required for completion of surgery in the group A was 53.38±12.18 minutes whereas in group B it was 56.20±12.27 minutes and the difference was statistically insignificant.

In 2012 ,Saha R, Shrestha NS , Thapa¹⁴ M did a study to assess safety and feasibility of non descent vaginal hysterectomy, and concluded that for successful outcome of non descent vaginal hysterectomy , size of uterus in all dimension should be taken into consideration, Similarly in present study, we found that detailed ultrasonographic assessment is very helpful in deciding the feasibility of Non Descent Vaginal Hysterectomy and need for debulking procedures.

CONCLUSION

Thus we conclude by saying that detailed ultrasonographic assessment is very helpful in predicting feasibility, ease of surgery, need and type of debulking procedure and chances of conversion to abdominal route. Especially uterine volume, transverse diameter of uterus, cervical volume and myoma size , number and location are important parameters to be considered. Debulking procedure does not effect intraoperative and postoperative complication rate However, larger studies taking each ultrasonographic parameter separately and correlating it with intra and postoperative parameter is required to reach more confirmatory results.

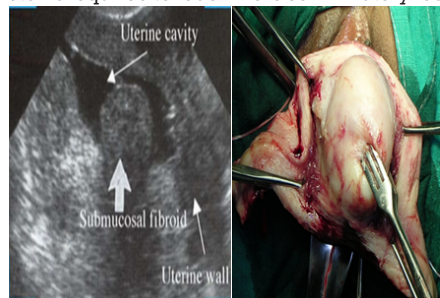


FIGURE 1 - USG showing posterior submucosal fibroid uterus and intraoperative myomectomy

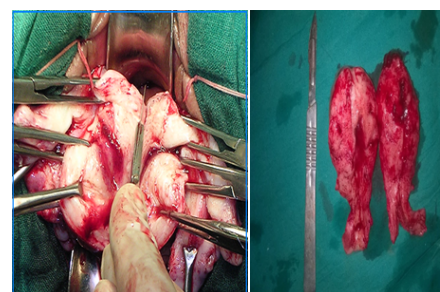


FIGURE 2 – Bisection of uterus

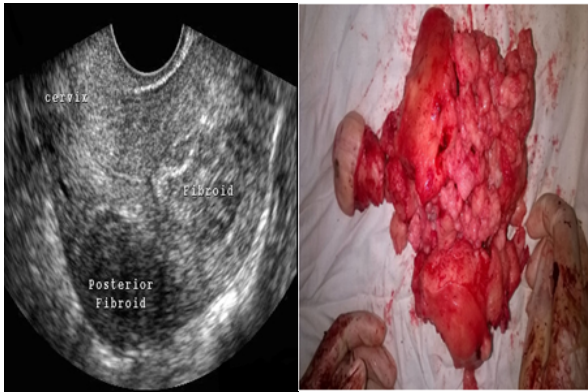


Figure 3 – Usg Showing Multiple Fibroids And The Postoperative Specimen Showing Small Pieces Of Myometrium Removed Piece By Piece To Debulk The Uterus.

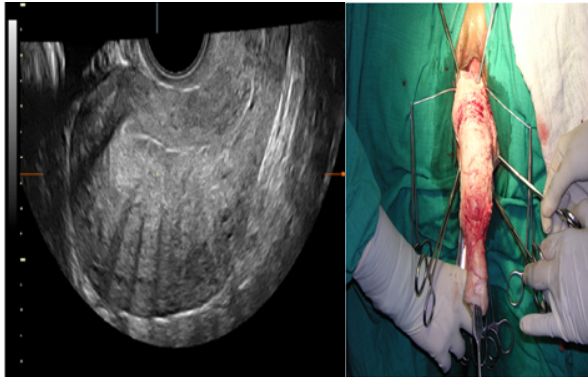


FIGURE 4 – USG showing Adenomyosis and intraoperatively Intramyometrial Coring done

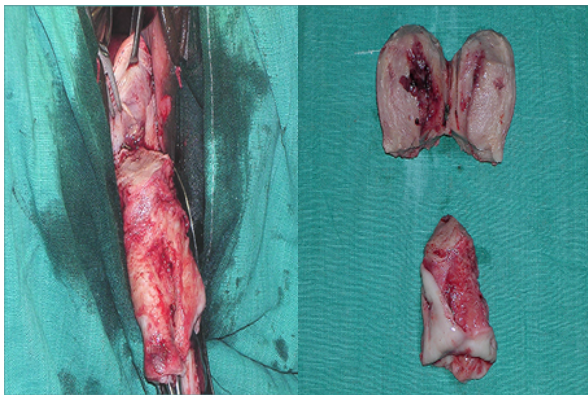


FIGURE 5 – Cervical amputation done in cases with cervical hypertrophy

REFERENCES

1. Bernstein SJ, McGlyn EA, Siu AL. The appropriateness of hysterectomy. A comparison of care in seven health plans. Health maintenance organization quality of care consortium. JAMA. 1993;269-2398.
2. Grave EJ, Gillum BS. 1994 Summary. National hospital discharge survey. Advance data from vital and health statistics No 278. National Center for Health Statistics, Hyattsville, Maryland 1996.
3. West S, Drannov P. The hysterectomy Hoax. New York: Doubleday; 1994. p. 214.
4. Umeora OJ, Onoh RC, Eze JN, Igberase GO. Abdominal versus vaginal hysterectomy: Appraisal of indications and complications in a Nigerian Federal Medical Centre. Nep Journ OG. 2009;4(1):25-29.
5. Dicker RC, Scally MJ, Greenspan JR. Hysterectomy among women of reproductive age-trends in USA 1970-78. JAMA. 1982;248:323-27.
6. Kung FT, Chang SY. The relationship between ultrasonic volume and actual weight of pathologic uterus. Gynecol Obstet Invest. 1996; 42:35-8.
7. Battista C, Capriglione S, Guzzo F, Luvero D, Sadun B, Cafà EV, Sereni MI, Terranova C, Plotti F, Angioli R. The challenge of preoperative identification of uterine myomas: Is ultrasound trustworthy? A prospective cohort study. Archives of gynecology and obstetrics. 2016 Jun 1;293(6):1235-41.
8. Sushil K, Antony ZK. Vaginal hysterectomy for benign nonprolapsed uterus. Initial Experience. J Obstet Gynaecol Ind. 2004;54(1):60-3.
9. Chandana C, Venkatesh S, Shah TN. Non-Descent Vaginal Hysterectomy for Benign Gynaecological Disease-A Prospective Study. J Evidence Based Med

- Healthcare. 2014;1(8):827-33.
10. Biswas SP, Mahmuda K, Sultana M. Safety of non-descent vaginal hysterectomy. Bangladesh Medical Journal Khulna. 2016 Mar 25;48(1-2):16-9.
11. Shirlina D, Shirish S. Uterine volume: an aid to determine the route and technique of hysterectomy. J Obstet Gynecol Ind. 2004 Jan;54(1):68-72.
12. Nazah I, Robin F, Philippe Jais J, Jeffrey L, Lelievre L, Camatte S, Taurelle R, Lecuru F. Comparison between bisection/morcellation and myometrial coring for reducing large uteri during vaginal hysterectomy or laparoscopically assisted vaginal hysterectomy: results of a randomized prospective study. Acta obstetrica et gynecologica Scandinavica. 2003 Nov 1;82(11):1037-42.
13. Edwards EA, Beebe RA. Vaginal hysterectomy. Surgery, gynecology & obstetrics. 1949 Aug;89(2):191-9.
14. Saha R, Shrestha NS, Thapa M, Shrestha J, Bajracharya J, Padhye SM. Non-descent vaginal hysterectomy: safety and feasibility. Nepal Journal of Obstetrics and Gynaecology. 2014 Sep 21;7(2):14-6.