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A STUDY TO ASSESS THE EFFECTIVENESS OF RAPID VICRYL IN COMPARISON TO VICRYL ON HEALING OF EPISIOTOMY WOUND

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ABSTRACT

Introduction: Episiotomy is an iatrogenic trauma to perineum in prevention of uncontrolled soft tissue injury during childbirth. So many times this may lead to troublesome short term and delayed complications. Since so many years there is debate going on whether to give episiotomy or not, which method to be practiced and which suture material to be used in this surgical process for best outcome. In present study we tried to observe the reduction of adverse events with the use of Vicryl Rapide in comparison to Vicryl as a suture material for episiotomy.

Method: In a prospective randomized comparative study, 400 uneventful deliveries with episiotomy were distributed into two groups out of which 200 were sutured with vicryl and the rest with Rapid vicryl. Primary outcome was measured on day 2 and day 7 by REEDA scale and VAS scale. Delayed outcomes were measured on day 45.

Result: Significant difference was seen only on 45th day and nonsignificant difference in all 400 women on day 2 and 7. Rapid vicryl group demonstrated nonsignificant number of cases of discomfort in sitting and walking and difficulty in defecation and urination on day 7 along with cases of dyspareunia and induration on day 45. There was no requirement of removal of stitches on use of rapid vicryl.

Conclusion: Vicryl Rapide for episiotomy repair leads to lesser discomfort, perineal pain and results in better healing as compared to that on using plain vicryl.

Keywords: episiotomy, perineum, vicryl, vicryl Rapide, dyspareunia, uneventful

1. INTRODUCTION

Episiotomy or perineotomy is the surgical enlargement of the vaginal orifice during labour and delivery. It is performed under local anesthesia and is then sutured. There is a possibility of increase in postpartum perineal pain which in turn results in trouble during defecation, urination and also may lead to complications dyspareunia and replacing erectile tissues in the vulva with fibrotic tissues. Episiotomy is done to prevent vaginal tears during childbirth as the baby's head passes through, that involve the perineal skin and extensions to muscle and the anal sphincter and anus. The indications of episiotomy are when there is a risk to the mother of second



or third degree tearing due to rigid perineum and in cases where a natural delivery is adversely affected, but a Caesarean section is not indicated.

Modern obstetricians became more involved in the normal, uncomplicated birth process after the worldwide rate of episiotomy increased in 1900s coinciding with the transition from more women giving birth at home to more deliveries at the hospital.³

Currently used suture materials are either absorbable or non-absorbable. Plain vicryl/dexon is a polyglycolic acid derivative which degrades hydrolytically and causes minimal inflammation, but complete absorption takes around 56 to 70 days post repair. Vicryl rapide absorption is completed in 42 days.⁴

The REEDA scale (Davidson, 1974) measures 5 components: redness, edema, ecchymosis, discharge and approximation of edges. This scale is associated with healing, graded 0-3 points. Total REEDA score ranges from 0 to 15. The score is directly proportionate to the severity of tissue trauma. This assists us in evaluating postpartum healing and makes us aware of the need for a standardized assessment tool which does not solely depend on the severity of perineal injury.⁵ In our present study, 2 sutures plain vicryl and vicryl rapide were studied in relation to a short term maternal morbidity after episiotomy repair.

2. MATERIALS AND METHODS

A prospective randomized study was conducted in department of Obstetrics and Gynaecology in Acharya Vinoba Bhave Rural Hospital, in which four hundred women admitted in obstetric ward were given episiotomies. The women with episiotomies following spontaneous deliveries were selected. The selected women were sutured with vicryl and rapid vicryl depending upon computer generated randomized number. The patients were distributed in two groups, A and B. Group A: Two hundred patients who were sutured with vicryl rapide and group B: Two hundred patients who were sutured with vicryl.

Inclusion Criteria:

Women with episiotomies following spontaneous deliveries.

Exclusion Criteria:

The women with instrumental delivery, intrapartum fever, perineal tears, cervical tears, vaginal tears, extension of the episiotomies, previous perineal surgery other than the primary repair after child birth, HIV or the hepatitis B infection.

Selected women were given episiotomies and were repaired by a standard three-step approach. The vaginal mucosa was sutured by using a continuous interlocking suture and the perineal muscle was sutured by using an intermittent suture. The skin closure was done by using a mattress suture.

The local anesthetic used was lignocaine 2% and that was followed by diclofenac suppositories and post suturing patients were given betadine ointment for local application. Routine infrared fomentation was given to every woman as a protocol of perineal care for three days post delivery.

Primary outcome were measured by REEDA Scale and Visual Analogue Scale for local conditions and symptoms of difficulty in walking, sitting, urination and defecation.

Secondary outcomes were measured on day 45 in terms of induration at episiotomy site, dyspareunia, widening of introitus and other long term difficulties.

Test of significance applied by student 't' test and p value less than 0.05 considered significant.

3. RESULTS

Majority of women in our study group were under 30 years of age, completed primary schooling only and belonged to lower middle socioeconomic status. [Table 1]

**Table 1- Demographic Profile**

Age	Vicryl N=200	Rapidevicryl N=200
<25yrs	93(46.5%)	93(46.5%)
26-30yrs	87(43.5%)	83(41.5%)
31-35yrs	15(7.5%)	17(8.5%)
>36yrs	5(2.5%)	7(3.5%)
Education		
Illiterate	44(22%)	38(19%)
Primary	63(31.5%)	76(38%)
Middle	67(33.5%)	64(32%)
Secondary	19(9.5%)	17(8.5%)
Higher	7(3.5%)	5(2.5%)
Socio economic status		
Class1	38(19%)	32(16%)
Class2	52(26%)	62(31%)
Class3	83(41.5%)	78(39%)
Class4	21(10.5%)	24(12%)
Class5	6(3%)	4(2%)

60% of them had normal BMI between 18.5 -25, more than 60% were primigravida, history of premature rupture of membrane was present in 7% of women, 6%-7% had moderate to severe anaemia and no undue prolongation of labour. [Table 2]



Table 2- Distribution Of Cases According To Maternal Factors

DISTRIBUTION OF CASES ACCORDING TO BMI	VICRYL	RAPIDE VICRYL
UNDERWIGHT 15-16	71(35.5%)	74(37%)
NORMAL 18.5-25	120(60%)	118(59%)
OVER WEIGHT 25-30	4(2%)	5(2.5%)
OBESE CLASS1 30-35	5(2.5%)	3(1.5%)
DISTRIBUTION OF CASES ACCORDING TO PARITY	VICRYL	RAPIDE VICRYL
PRIMIGRAVIDA	124[60.2%]	132[66%]
MULTIGRAVIDA	76[38%]	68[34%]
DISTRIBUTION OF CASES ACCORDING TO HISTORY OF PREMATURE RUPTURE OF MEMBRANES	VICRYL	RAPIDE VICRYL
PRESENT	17(8.5%)	13(6.5%)
DISTRIBUTION OF CASES ACCORDING TO ASSOCIATED MEDICAL FACTORS	VICRYL	RAPIDE VICRYL
MODERATE TO SEVERE ANEMIA(LESS THAN 8GM%)	13(6.5%)	14(7%)
PIH	17(8.5%)	23(11.5%)
DM	3(1.5%)	2(1%)



OTHERS	2(1%)	1(0.5%)
DURATION OF 2ND STAGE	VICRYL	RAPIDE VICRYL
0-15MIN	101(50.5%)	97(48.5%)
16-30MIN	91(45.5%)	96(48%)
31MIN-1HR	8(4%)	7(3.5%)

Almost 80% were full term and baby weight was 2.6 to 3.5kg. [Table 3]

Table 3-Distribution Of Cases According To Fetal Factors

GESTATIONAL AGE	VICRYL	RAPIDE VICRYL
PRE TERM(LESS THAN 37 WEEKS)	23(11.5%)	26(13%)
TERM(37-40 WEEKS)	167(83.5%)	157(78.5%)
POST DATISM(MORE THAN 40 WEEKS)	10(5%)	17(8.5%)
BIRTH WEIGHT	VICRYL	RAPIDE VICRYL
LESS THAN 2.5KG	5(2.5%)	7(3.5%)
2.6-3KG	96(48%)	101(50.5%)
3.1-3.5KG	87(43.5%)	84(42%)
ABOVE 3.5KG	12(6%)	8(4%)



Reeda scale 15 was observed almost similar on the 2nd and 7th day in both the groups without any statistical significance for all the parameters. On 45th day, there were unequal number of women reported in each group, hence only upto 184 maximum number were included for the study. Significant difference was seen for skin approximation on day 7 and 45, in favour of Rapid vicryl. [Table 4]

Table 4-Distribution Of Cases According To Reeda Scale Having extreme Problem Score 15

	ON (2ND DAY) N=200		ON Day 7TH DAY N=200		ON 45TH DAY N=184	
	VICRYL	RAPIDE VICRYL	VICRYL	RAPIDE VICRYL	VICRYL	RAPIDE VICRYL
Redness	142(71%)	131(65.5%)	9(4.5%)	7(3.5%)	2(1.08%)	3(1.6%)
Edema	137(68.5%)	125(62.5%)	7(3.5%)	5(2.5%)	3(1.6%)	2(1.08%)
Echymosis	112(56%)	110(55%)	6(3%)	2(1%)	1(0.5%)	0(0%)
Discharge	98(49%)	97(48.5%)	8(4%)	8(4%)	2(1.08%)	1(0.5%)
approximation of skin	87(43.5%)	81(40.5%)	11*(5.5%) *p-value <0.05 significant	7(3.5%)	7*(3.80%) *p-value <0.05 significant	3(1.6%)

According to visual analogue scale nonsignificant difference was observed in both the groups on day 2 and 7 but significant difference was seen on 45th day as rapid vicryl group was more happy. [Table 5]

Table 5- Distribution of Cases According To the Visual Analogue Scale

	ON (2ND DAY) N=200		ON Day 7TH N=200		ON 45TH DAY N=184	
	VICRYL	RAPIDE VICRYL	VICRYL	RAPIDE VICRYL	VICRYL	RAPIDE VICRYL
0-very happy no hurt	4(2%)	6(3%)	104(52%)	107(53.5%)	159*(86.4%)	173*(94.02%)
2-hurts just a little bit	2(1%)	2(1%)	33(16.5%)	32(16%)	9(4.8%)	4(2.17%)



4-hurts a little more	11(5.5%)	11(5.5%)	11*(5.5%)	5*(2.5%)	7(3.8%)	3(1.6%)
6-hurts even more	18(9%)	17(8.1%)	8(4%)	9(4.5%)	3(1.6%)	2(1.08%)
8-hurts a whole lot	42(21%)	38(19%)	27(13.5%)	26(13%)	4(2.17%)	1(0.54%)
10- Hurts as much as you can imagine.	123(61.5%)	121(60.5%)	17(8.5%)	17(8.5%) *p value – significant< 0.05	2(1.08%)	1(0.54%) *p value – significant< 0.05

Amongst primary complications redness ,edema and difficulty In sitting and walking were significantly less in rapid vicryl group. [Table 6]

Table 6- Distribution Of Cases According To Primary Complications

Overall primary complications	ON (2ND DAY) N=200		ON(Day 7TH) N=200	
	V (N=200)	Vr (N=200)	V (N=200)	Vr (N=200)
Redness	142(71%)	131(65.5%)	9(4.5%)	7(3.5%)
Edema	137(68.5%)	125(62.5%)	7(3.5%)	5(2.5%)
Ecchymosis	112(56%)	110(55%)	6(3%)	2(1%)
Discharge	98(49%)	97(48.5%)	8(4%)	8(4%)
Approximation of skin	87(43.5%)	81(40.5%)	11(5.5%)	7(3.5%)
Hematoma formation	2(1%)	1(0.5%)	0	0
Discomfort in sitting and walking	36*(18%)	14(7%)	22*(11%)	3(1.5%)
Difficulty in defecation and urination	36*(18%)	14(7%)	22*(11%)	3(1.5%) *Discomfort in sitting and walking was significantly low in rapid vicryl group [p –value <0.05]



For secondary complications dyspareunia, induration, need of secondary suturing were significantly high in vicryl group in comparison to rapid vicryl group. [table 7]

Table 7- Distribution Of Cases According To Secondary Complications

	vicryl N=184	Rapid vicryl N=184	
Local pain	5 (1.5%)	4(2%)	NS
Paraesthesia	6(2.5%)	3(1.5%)	NS
Dyspareunia	9(2.5%)	4(2%)	Significant p<0.05
Difficulty in defecation	4(2%)	2(1%)	NS
Urine incontinence	2(1%)	1(0.5%)	NS
Induration present	9(3.5%)	5(2.5%)	Significant p<0.05
Secondary suturing required	9(4.5%)	3(3.5%)	Significant p<0.05
Widening of introitus	6(3%)	4(2%)	NS
Itching	2(1%)	Nil	NS
Suture removal	13 (1%)	Nil	Significant p<0.05

4. DISCUSSION

There are controversial opinions in existing literature even about the need of episiotomy procedure mainly due to documented discomforts after it, long-term complications after episiotomy repair are also common. Women suffer from perineal pain, dyspareunia and other complications like removal of suture material, extensive dehiscence and need for resuturing.⁶

The selection of the suture depends on its absorption rate, knot tying properties, size of suture, and the type of needle. Ideal suture material may play some role in reduction of overall difficulties with retention of full function and complete healing of perineal muscles after childbirth.

In our study the 400 parturient were examined after 24 hrs, after 7 days, and on 45 th day. 65.5% patients complained of redness in cases of rapid vicryl versus 71% in plain vicryl group. Similarly, there were less complaints regarding edema, ecchymosis, discharge and approximation of skin on whom rapid vicryl suture material was used in comparison to those on whom plain vicryl was used.

Studies carried out by Kettle et al, Mackenrodt et al and an Ulster study showed that the use of vicrylrapide was more advantageous than coated vicryl/plain vicryl 7, 10, 17 in aspects of faster absorption rate due to an irradiation process with 50% tensile strength at day 5, clinically leading to less visible sutures and faster healing of skin wound, lesser wound problems and decreased incidence of dyspareunia at six weeks. In our study, complaints of visible stitches, wound pain or discomfort, and infection were less common in association with the use of the vicrylrapide although it degrades much faster and there is a concern about poor and insufficient wound healing. The reduced removal rate on use of vicrylrapide is a result of a subcuticular continuous non-locking technique of episiotomy repair.⁸ A small Danish randomized control trial (RCT) showed no difference in short- and long-term perineal pain, with a reduction



in pain when walking on day 14 or episiotomy dehiscence in a vicryl rapide group. 15

Three trials have compared vicryl and vicrylrapide.15, 16, 17 in which either only a standard plain/coated vicryl or only vicrylrapide was used for all layers in which perineal pain and short term complications of the repair were studied without any concern regarding the pelvic floor muscle function.

Kettle et al. randomized women into 2 groups where either a standard coated vicryl or vicryl rapide is used, in which the vaginal mucosa was always sutured continuously in both groups whereas those of the perineal muscles and the skin were either, only interrupted, or only continuous, non-locking.8 Pain at day 10 was not significantly different; however, some secondary pain measures were significant. The reduction in pain is achieved by inserting the skin sutures into the subcutaneous tissue and so avoiding nerve endings in the skin surface.18 The difference at day 10 might be explained by a difference in rate of absorption Vicryl rapide is absorbed in 42 days and its tensile strength is none after two weeks. The suture begins to fall off in just 7 to 10 days. So this is ideal material if no wound tension after 7-10 days is acceptable. Coated Vicryl is absorbed in 56-70 days and its tensile strength is at 75% after two weeks8.

In our study over all patient compliance was good in cases of vicrylrapide group, because of its good absorbability suture removal was not required in comparison with vicryl group (1%), because of 50% tensile strength in vicryl rapid group, extra knots during suturing were required but none of the patient complained of itching because of it, similarly, in another study17, On day two, the type of suture material used created no significant difference in the pain score. Prior to discharge, no significant difference in the analgesic requirements between the two groups was noted. At six weeks, a significant difference in dyspareunia scores between the two groups was noted. The vicrylrapide experienced considerably less pain than the vicryl group. The difference in the mean scores was statistically very significant. Thirty percent of patients sutured with standard coated vicryl experienced wound problems (infection, gaping wound, pain or residual material requiring removal), compared with 1.7% of patients on whom vicrylrapide was used.

5. CONCLUSION

This study concludes that vicrylrapide rather than plain vicryl for episiotomy repair leads to lesser discomfort, perineal pain and a better healing. The vicrylrapide group experienced lesser wound resuturing, discomfort, pain and no uncomfortable stitches to be removed. The wound healing was more secured with vicrylrapide. The wound dehiscence was also less with vicrylrapide.

The suturing the mucosa and perineal skin with rapid vicryl and perineal muscles with other absorbable synthetic suture could be the best option in view of cost effectiveness as well as patient satisfaction. The long term beneficial effects of the type of suture material which was used for the episiotomy repair, cannot be concluded.

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