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Original Research Article

Comparison of Polyglactin 910 Rapide versus Chromic catgut for episiotomy repair

SeehraNeha[1], VyasJyotsna[2],khicharmoolchand[3],SainiNeetu[4], RajoriaLata[5]
[1]Resident ,[2]Professor ,[3]Resident[4]Assistant professor, [5]Professor and head,Dept of Obstetrics and Gynaecology, Sawai Man Singh medical college and Hospital, Jaipur, India

***Corresponding author**
Jyotsnavyas
Email: drjyotsnavyas@gmail.com

Abstract: With the objective of comparing the efficacy of polyglactin 910 rapide in continuous locking technique versus chromic catgut in interrupted technique for episiotomy repair regarding perineal pain, analgesic requirement, healing status & dyspareunia , 140 primigravida patients admitted to the hospital for delivery were divided in 2 groups ; one group (cases) underwent episiotomy repair with Polyglactin 910 rapide in continuous layer & other group (controls) with chromic catgut in interrupted layer. Outcomes measured in terms of time & number of suture material required for episiotomy repair, intensity of perineal pain, need for analgesia, healing status & resumption of pain free intercourse. Suturing with Polyglactin 910 rapide was associated with less perineal pain & analgesic requirement , a better wound healing & early resumption of pain free intercourse in post partum period when compared with Chromic catgut . Mean time & number of suture material required for episiotomy repair was less in repair with PG 910 rapide in continuous suturing technique.Polyglactin 910 rapide in continuous technique is ideal for episiotomy repair which results in less perineal pain, a better wound healing and earlier resumption of pain free intercourse. Also repair with continuous suture is quicker & less suture material is required.
Keywords:episiotomy, polyglactin 910 rapide, chromic catgut, perineal pain, wound healing, suturing technique

INTRODUCTION

In all societies, the family is the central nucleus for their lives, their dreams and their health. A women in her role as mother forms the backbone of the family [1]. Concept of safe motherhood initiative (1987)[2] is a global effort to reduce maternal mortality and morbidity and now it is one of the central component of the reproductive health care. (IMPAC) Integrated management of pregnancy and child birth is a strategy focused on improving quality of maternal and neonatal health care. One of the most important contributing factors of IMPAC is proper management of labour.

It is the basic moral duty of the obstetrician, to be deeply concerned in prevention of morbidity, keeping it as low as possible, impart a pleasant feeling of motherhood an eternal bless rather than a feared, painful and traumatic experience. Unfortunately, many women will remember the agony and suffering of episiotomy, even long after the delivery.

Episiotomy is a deliberate surgical incision given on perineum to facilitate childbirth. Its use is justified for prevention of severe perineal tears, both future sexual functions and a reduction in urinary and fecal incontinence. Conventionally it is sutured by chromic catgut, by interrupted suture technique. However, recent studies have shown that more rapidly absorbed form of polyglactin 910 for perineal closure is associated with significant reduction of pain and dyspareunia [3].

Chromic catgut is a natural absorbable suture material treated with chromic acid salts, degraded by lysozymes and digested within 90 days. When used in skin it causes inflammatory response which causes scarring and thus serves a nidus for infection.

Polyglactin 910 rapide (vicrylrapide) has same composition as polyglactin 910 but rapid absorption achieved by exposure to gamma radiation. This suture material degrades more rapidly and absorbed completely in 42 days. It is intended for use in the

superficial soft tissue where only short term support is needed.

MATERIAL AND METHOD

This prospective randomized clinical trial study of vicrylrapide in continuous suturing versus chromic catgut in interrupted suturing for episiotomy repair was conducted on 140 primigravida women. Randomization done by even / odd registration numbers, Eligible & consenting women assigned to 2 groups:

A. Cases - Polyglactin 910 rapide 2-0 (PR) was used in continuous suturing technique.
B. Controls - Chromic catgut 1-0 (CC) was used in interrupted suturing technique.

Patients were not aware of the kind of suture material and technique of repair used. Routinely all women were put on analgesic tablet ibuprofen 400 mg 8 hourly for 5 days and antibiotic capsule amoxicillin 500 mg, 8 hourly for 5 days. Both the groups were compared in terms of time required in episiotomy repair, number of suture material used. Follow up was done till discharge (day 2), at 7 days, 4 weeks, 6 weeks, 8 weeks postpartum to study the following variables:

- Intensity of perineal pain by visual analogue scale ,
- need for analgesia ,
- Healing status by REEDA scoring system ,
- Resumption of pain free sexual intercourse.

REEDA Score 0 represents good while score 15 represents worst healing of wound –

Grade	Redness	Edema	Ecchymosis	Discharge	Approximation
0	None	None	None	None	No separation
1	Within 0.25 cm of incision	Less than 1 cm	Within 0.25 cm bilaterally or 0.5 cm unilaterally	Serum	Skin separation 3 mm or less bilaterally from incision
2	Within 0.5 cm of incision bilaterally	1-2 cm from incision	0.25 -1 cm bilaterally or 0.5 -2 cm bilaterally	Sero-sanguineous	Skin and subcutaneous fat separation
3	Beyond 0.5 cm of incision bilaterally	Greater than 2 cm from	Greater than 1 cm bilaterally or 2 cm	Bloody, purulent	Skin, subcutaneous fat, and fascia

RESULT AND DISCUSSION

The results of both groups were correlated & all statistical data were analyzed. Both groups were studied in terms of following variables -

1. Postpartum perineal pain perception-

On day 2 post partum severe pain was felt by 7.4% of cases in comparison to 10% of controls. None of the cases suffered from severe pain in comparison to 7.14% of controls on day 7. At 4th week, only 2.9% cases had mild pain than 28.57% of controls. At 6th week, only 8.57% of controls had mild pain whereas none of the cases had similar complaint. At 8th week, both groups were pain free.

Table 1: Perception of perineal pain at variable intervals

	Case					Control				
	No pain No.(%)	Mild pain No. (%)	Moderate Pain No. (%)	Severe Pain No. (%)	Total	No pain No. (%)	Mild pain No. (%)	Moderate Pain No. (%)	Severe pain No. (%)	Total
Day 2	22(31.40)	33(47.10)	14(20)	1(1.4)	70	5(7.2)	28(40)	30(42.85)	7(10.00)	70
Day 7	50(71.40)	14(20)	6(8.6)	0	70	15(21.42)	27(38.60)	23(32.90)	5(7.14)	70
4 week	68(97.20)	2(2.9)	0	0	70	50(71.40)	20(28.60)	0	0	70
6 week	70(100)	0	0	0	70	64(91.43)	6(8.57)	0	0	70
8 week	70(100)	0	0	0	70	70(100)	0	0	0	70

2. Number of analgesic tablets required –

On day 7 only 21.43% of cases required analgesics in contrast to 54.29% of controls with a P-value of <.001 which was highly significant. At 4 weeks none of the cases needed analgesics while 14.29 % of controls took analgesics on & off when required.

Table 2: Distribution of Analgesia Required at Different Time Intervals

Time Period	Case			Control			P-value
	Required	Not Required	Total	Required	Not Required	Total	
At 7th day	15 (21.43)	55 (78.58)	70 (100.00)	38 (54.29)	32 (45.72)	70 (100.00)	χ^2= 16.060, d.f.=1 P < .001, HS
At4th Wks	0 (0.00)	70 (100.00)	70 (100.00)	10 (14.29)	60 (85.71)	70 (100.00)	–
At 6th Wks	0 (0.00)	70 (100.00)	70 (100.00)	3 (4.29)	67 (95.52)	70 (100.00)	–
At 8th Wks	0 (0.00)	70 (100.00)	70 (100.00)	0 (0.00)	70 (100.00)	70 (100.00)	–

3. Wound healing at variable intervals -

The mean REEDA score in both groups was compared at day 2 and day 7 postpartum, we found better wound healing in cases as compared to controls with a P-value of <.001 which was highly significant .

Table 3: Healing at Variable Intervals (In terms of REEDA SCORE)

Time period	Cases (mean REEDA score)	Controls (mean REEDA score)	P-value
Day 2	1.70 ± 0.66	2.66 ± 1.20	<.001 HS
Day 7	0.03 ± 0.17	0.91 ± 0.99	<.001 HS

4. Pain free intercourse at different time intervals

None of the patient from both groups had intercourse till one month postpartum. At 6 weeks pain free intercourse was resumed in 54.29% of cases &35.72% of controls with a P-value of <.05 which was significant. At 8 weeks 81.43% of cases & 48.57% of controls resumed pain free intercourse with a P-value of <.001 which was highly significant

Table 4: Pain Free Intercourse at Different Time Intervals

Time Period	Case			Control			P value
	Yes	No	Total	Yes	No	Total	
At 6th Wks	38 (54.29)	32 (45.72)	70 (100.00)	25 (35.72)	45 (64.29)	70 (100.00)	χ^2= 4.880, d.f.=1 P < .05, Sig
At 8th Wks	57 (81.43)	13 (18.57)	70 (100.00)	34 (48.57)	36 (51.43)	70 (100.00)	χ^2= 16.610, d.f.=1 P < .001, HS

5. The time required for episiotomy suturing in minutes approximately –

The mean time required for episiotomy repair following continuous suturing was found to be 19.77 ±4.29 minutes and that of interrupted sutures was 25.06 ± 4.40 minutes with a highly significant P-value of <.001, showing that less time is required to repair by continuous technique.

Table 5 : Distribution According to Time Required in Episiotomy Suturing

Time	Case		Control	
	No.	%	No.	%
13-16	20	28.57	0	0.00
17-20	24	34.29	17	24.28
21-24	11	15.71	10	14.29
25+	15	21.43	43	61.43
Total	**70**	**100.00**	**70**	**100.00**
Mean ± SD	19.77 ± 4.29		25.06 ± 4.40	

6. The number of suture material packets used in episiotomy repair

Only 1 case required 2 packets of suture material in contrast to 38 patients of control, showing less requirement of polyglactin 910 rapide in continuous technique over chromic catgut in interrupted technique.

Table 6: Distribution According to Number of Packets of Suture Used

Packets	Case		Control	
	No.	**%**	**No.**	**%**
One	69	98.55	32	45.72
Two	1	1.45	38	54.28
Total	**70**	**100.00**	**70**	**100.00**

A high frequency of pain and discomfort is felt by women after childbirth and identifying even the relatively small improvements which would reduce the morbidity are important. This study is an effort to search for the more effective material and technique of episiotomy repair.

In a study by Abed GulabNagur*et al.;* [4]the mean time taken for episiotomy suturing was less in continuous technique than interrupted technique . In our study the mean time required for episiotomy repair in continuous suturing was 19.77 ± 4.29 minutes and in interrupted suturing was 25.06 ± 4.40 minutes, which was statistically significant.

ShirinHasanpoor*et al.;* [5] found that the number of used threads were significantly lower in the continuous repair group (P < 0.001) than the interrupted technique. Similar results were obtained in our study i.e. 98.55% of cases in contrast to 45.72 % of controls required only 1 packet to repair the episiotomy.

Masson *et al.;* [6] studied 2000 episiotomies repaired with PR and found excellent pain relief in short and long term postpartum period and good wound healing. Anatomical and functional results were excellent in 1997 cases; only 2% had skin dehiscence.

In 2013 Abed GulabNagure[4] concluded that in terms of perineal pain, patient with continuous group had less average pain score than patient with interrupted group in postpartum period. Bharathi*et al.;* [7] found a statistically significant reduction in the wound induration was observed on the 3rd-5thdays (7% vs 13.5%) in vicrylrapide versus chromic catgut.

Our findings correlate well with their study by showing polyglactin 910 rapide (PR) in continuous suturing to be better compared to chromic catgut (CC) in terms of short and long term pain relief and in wound healing. Kurian Joseph et al [8] found significant decrease in analgesia use in polyglactin 910 rapide than chromic catgut in perineal repair post partum.

Greenberg *et al.;* [9] found a statistically significant decrease in analgesic use (5% versus 10%; P <.048) in subjects randomly assigned to fast-absorbing polyglactin 910 in comparison to chromic catgut. Our study showed similar results i.e. on day 7 only 21.43% of cases required analgesics in contrast to 54.29% of controls with a P-value of <.001 which was highly significant. At 4 weeks none of the cases needed analgesics while 14.29 % of controls took analgesics on & off when required.

Kettle C *et al.;* [10] found evidence of less dyspareunia in participants that had continuous suturing for perineal repair. Leroux N *et al.;* [11] found that perineal repair with fast-absorbing polyglactin 910 was associated with a higher rate of sexual intercourse (odds ratio, 2.55; 95% CI, 1.07-6.10) and a higher rate of pain-free sexual intercourse (odds ratio, 2.51; 95% CI, 1.03-6.10) at 6 weeks after delivery in comparison with chromic catgut .Our study showed that at 6 weeks pain free intercourse was resumed in 54.29% of cases & 35.72% of controls with a p value of <.05 which was significant. At 8 weeks 81.43% of cases & 48.57% of controls resumed pain free intercourse with a p value of<.001 which was highly significant .

CONCLUSON:

Polyglactin 910 rapide in continuous technique is ideal for episiotomy repair which results in less perineal pain, a better wound healing and earlier resumption of pain free intercourse. Also repair with continuous technique is quicker with less suture material required.

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