

# To Evaluate and Compare the Efficacy of Adding Spongostan Soaked with Bupivacaine at Episiotomy Bed in Relieving Post Episiotomy Pain, A Randomized Prospective Study

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## ABSTRACT

**Introduction:** The perineal pain resulting from episiotomy is a stressful factor in mothers, which interferes with their ability of nursing and doing their duties as a mother and may interfere with urination and defecation. Study aimed to evaluate and compare the efficacy of adding spongostan soaked with bupivacaine at episiotomy bed in relieving post episiotomy pain.

**Material and methods:** A prospective comparative study was conducted at department of anaesthesiology and obstetrics and Gynaecology in Adesh teaching hospital during the period March 2021 to August 2021. A total number of 80 primi gravida women were recruited in the study who had vaginal deliveries with mediolateral episiotomy and met the inclusion criteria after obtaining informed and written consent. They were enrolled into 2 groups and evaluated.

**Results:** In our study, both the groups were comparable with regard to age, gestational age, maternal weight and baby birth weight. The episiotomy length, perineal length and episiotomy construction time were comparable in both the groups. (P value>0.05). The VAS (visual analogue scale) score at 0 hour was significantly lower in the bupivacaine group (2.31±0.94) as compared to the control group (6.31±0.74). Then the pain scores at 1, 2, 6, 12 and 24 hour for the spongostan with bupivacaine group were significantly lower than the control group. The number of patients requiring rescue analgesia were significantly lower in the bupivacaine group [1(2.6%)] as compared to the control group [12(30%)].

**Conclusion:** Adding of spongostan soaked with bupivacaine at episiotomy bed is more superior in pain relieving when compared to control saline and its use can reduce unwanted side effects of systemic analgesics.

**Keywords:** Episiotomy Pain, Spongostan, 0.5% Bupivacaine

## INTRODUCTION

The perineal pain resulting from episiotomy is a stressful factor in mothers, which interferes with their ability of nursing and doing their duties as a mother and may interfere with urination and defecation<sup>1</sup>. Usually opioids or NSAIDs drugs are used to relieve post delivery episiotomy pain. Opioids are associated with associated problems like nausea, vomiting and drowsiness<sup>2</sup>. Local anesthetic drugs can be used locally at surgical wound site to relieve pain with minimal side effects and are cost effective. A spongostan is absorbable gelatin material used to achieve hemostasis from bleeding or oozing wounds, it can also be used as drug reservoir for the sustained release of drug<sup>3</sup>.

Study aimed to evaluate and compare the efficacy of adding

spongostan soaked with bupivacaine at episiotomy bed in relieving post episiotomy pain. The post operative pain was assessed by VAS score and the numbers of patients requiring rescue analgesia doses were calculated.

## MATERIAL AND METHODS

A prospective comparative study was conducted after taking departmental ethical committee approval, combined at department of anaesthesiology and department of obstetrics & Gynecology in AIMSR, Bathinda, at teaching hospital, during the period of March, 2021 till the end of August, 2021. During the period of the study, 80 full term booked primi gravida women were recruited in the study having vaginal deliveries with mediolateral episiotomy and who met the inclusion criteria after obtaining informed consent. All the patients were randomly enrolled into one of the two groups assigned. The randomization was done by computer generated data. The first group including 40 women received 15-20 ml of only 2% lidocaine locally infiltrated at episiotomy site prior to repair and adding spongostan soaked with 10 ml saline at episiotomy bed served as control group (Group C). The second group (Group S) including 40 women received in addition to the 15 to 20 ml of local 2% lidocaine, an absorbable gelatin sponge (spongostan) soaked with 10 ml of 0.5% bupivacaine placed in the episiotomy bed. All the patients in both the groups were given additional analgesia of injection paracetamol @ dose of 10 mg / kg body weight slow iv over 15 mins immediately after

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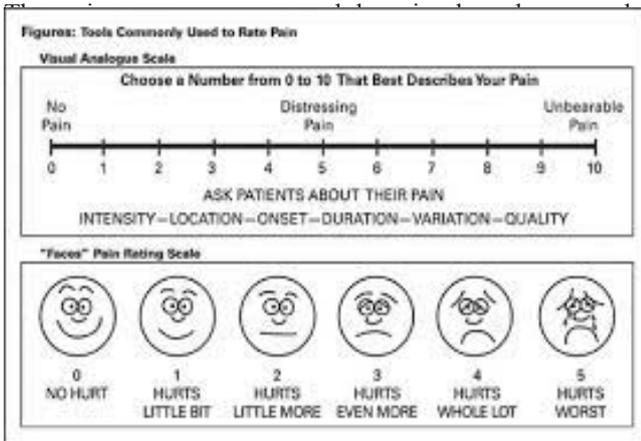
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shifting patient to recovery room. The rescue analgesia was given iv tramadol 1mg /kg body weight and the number of times patient requiring rescue analgesia were calculated.



**Inclusion criteria**

1. Full term primi gravida with regular antenatal checkups.
2. The patients who were willing to stay at least 24 hours post delivery in hospital for monitoring.

**Exclusion criteria**

1. Those with extension of episiotomy or labial, periurethral, vaginal wall lacerations.
2. Deliveries under epidural anesthesia.
3. Patients who needed forceps or vacuum application during delivery
4. Patients with post partum hemorrhage either due to

episiotomy or cervical tear.

5. Patients with known allergic reaction to local anesthetic drugs.

**STATISTICAL ANALYSIS**

Sample size has been calculated using sample size calculator method with confidence level 95% and margin of error 5%. Sample size is found to be 80 (40 per group). The discrete and categorical variables have been analysed using Chi-square test; continuous variables analyzed using unpaired t-test. Results expressed as percentage or Mean +/- SD.

**RESULTS**

In our study, both the groups were comparable with regard to age, gestational age, maternal weight and baby birth weight. Table (1)

There were no significant differences in demographic and obstetric characteristics among the two groups, the differences in the length and depth of episiotomy and the time for the reconstruction of the episiotomy were also comparable in the two groups. The two patients in group spongostan with bupivacaine (n=38) were excluded from study as one patient developed post partum hemorrhage and second patient was discharged early because of some family issues and was not available for follow up. The pain score of the two comparative groups was scored on a 10 cm Visual Analogue Scale (VAS) at (0, 1, 2, 6, 12 and 24 hours) respectively with verbal contact. In VAS, score at 0 hour was recorded during and immediately after the repair

N=80	Group- C(N=40) Mean±SD	Group- S(N=38) Mean±SD	P value
Age	26.78±3.64	23.18±4.88	>0.5
Gestational age	39.06±0.61	38.84±1.42	
Maternal weight(kg)	66.38±4.68	69.38±5.72	
Baby birth weight(kg)	3.04±0.38	2.92±0.30	

SD: standard deviation, P value <0.5: significant

**Table-1: Demographic data and obstetric characteristics**

	Group- C Mean±SD	Group- S Mean±SD	P value
Episiotomy length (cm)	5.1±0.72	4.9±0.81	>0.05
Perineal length (cm)	4.76±0.60	4.4±0.42	
Episiotomy reconstruction time (minutes)	18.48± 1.68	16.21± 2.72	

SD: standard deviation, P value <0.5: significant

**Table-2: The episiotomy length, perineal length and episiotomy construction time were comparable in both the groups. (P value>0.05)**

	Group- C Mean ± SD	Group- S Mean ± SD	P value
VAS 0hr	6.31±0.74	2.31±0.94	P<0.05
VAS 1hr	2.11±0.66	0.42±0.48	
VAS 2hr	3.22±0.44	0.11±0.24	
VAS 6	4.21±0.74	0.68±0.56	
VAS 12hr	4.46±0.61	0.74±0.42	
VAS 24hr	4.22±0.54	2.33±0.34	

**Table-3: Pain score (visual analogue scale) for two groups**

	Group C (N=40)	Group S (N=38)	
Analgesia required	12 (30%)	1(2.6%)	P<0.05
SD: standard deviation, P value <0.5: significant			
<b>Table-4:</b> No. of patients requiring rescue analgesia doses			

of the episiotomy, The pain score in the spongostan with bupivacaine group was significantly lower than control group and the P value was <0.05.

## DISCUSSION

Perineum a sensitive area, in which there are muscles involved in various positions like sitting, walking, bending down, squatting, urination and defecation<sup>4</sup> Any kind of incision in this area will cause pain and disorder which will have mental, social and physical effects on women. So the perineal pain resulting from episiotomy is a stressful factor in mothers, which interferes with their ability of nursing and doing their duties as a mother and interfere with urination and defecation. When making decisions on the choice of pain killers for post episiotomy pain, we come to see that traditional regimens of oral analgesic agents have limitations in that they are often prescribed after the pain has started, and this mean a further delay between patients requesting and receiving analgesia.<sup>4</sup> Sanders et al reported that pain of sutures of perineum was described as “distressing”, “horrible” and “excruciating” by 16.5% of women after vaginal delivery.<sup>5</sup> Other parenteral analgesic drugs like diclofenac, one of the NSAIDs, is used for pain control in many surgeries but are with side effects like stomach ache, gastrointestinal discomfort, nausea, diarrhoea, headache, vertigo, dizziness, drowsiness, insomnia, and rash.<sup>6</sup> The use of opioid along with narcotic analgesics has yet to be proven as a better pain-reliever for this acute perineal pain<sup>7</sup>. The mostly used parenteral narcotic is tramadol hydrochloride, its mode of action not fully understood, but it is believed to work through modulation of the noradrenergic and serotonergic systems in addition to its mild agonism of the u-opioid receptor. It has reported adverse drug reactions like most commonly nausea, vomiting, sweating, and constipation. Drowsiness is also reported, Respiratory depression, a common side effect of most opioids but not in normal doses.<sup>8</sup> These side effects made a limitation in the use of systemic analgesia so the work and efforts are switched towards the use of local analgesia.

In our study, we tried to see the effect of local anesthesia on pain control and the difference between the type and the way of introducing these drugs as post episiotomy pain killer. The local anesthetic agent modulate peripheral pain transduction by inhibiting the transmission of noxious impulses from the site of injury.<sup>6</sup> Also the pain scores for the bupivacaine group at 1, 2, 6, 12 and 24 hour were significantly lower than the pain scores of control saline, the P value <0.05. The number of patients requiring rescue analgesia was significantly lower in the bupivacaine group as compared to the control group. The onset of action with Bupivacaine is rapid and long-lasting. The duration of analgesia is significantly longer with bupivacaine than with

any other commonly used local anesthetic. It has also been noted that there is a period of analgesia that persists after the return of sensation, during which time the need for strong analgesics is reduced Mohammed I.<sup>10</sup> Akhtar et al 2009 showed that wound infiltration with bupivacaine 0.25% was better for pain relief in comparison with ketorolac regarding percentage of pain relief, onset and duration of action<sup>11</sup>. Azin Alavi et al 2007 found that bupivacaine wound infusion was a simple and safe technique that provides effective analgesia and reduces morphine requirement after cesarean delivery.<sup>12</sup> While D. Churchill et al 1995 failed to show any benefit from infiltration of episiotomy wound with bupivacaine and adrenaline as distinct from saline alone.<sup>13</sup> The gelatin sponge was mainly used to arrest bleeding by the formation of an artificial clot and by producing a mechanical matrix that facilitates clotting.<sup>14</sup> The spongy physical properties of the gelatin sponge hasten clot formation and provide structural support for the forming clot. In addition to its hemostatic effect, spongostan may be used as a drug reservoir, and may provide sustained release of some drugs<sup>15, 16</sup>. We soaked the Spongostan with 0.5 % bupivacaine and placed at episiotomy bed, it showed a significant less pain score at 1 hour with prolongation of its action up to 24 hours. We thought that the slow release of the drug from its granules is responsible for its delayed action but it prolongs action duration. Hasan Kafali et al 2008 found that placement of bupivacaine soaked spongostan into the episiotomy bed resulted in decreased postpartum pain and drug requirement. It may be attributed to a higher drug concentration at episiotomy bed and prolonged drug effect.

## CONCLUSIONS

Adding of spongostan soaked with bupivacaine at episiotomy bed is more superior in pain relieving when compared to control saline and its use can reduce unwanted side effects of systemic analgesics.

## REFERENCES

1. Mohamed HA, El-Nagger NS. Effect of self perineal care instructions on episiotomy pain and wound healing of postpartum women. *Journal of American Science*. 2012; 8:640-50.
2. Kafali H, Duvan Cİ, Gözdemir E, Simavli S, Turhan NÖ. Placement of bupivacaine-soaked Spongostan in episiotomy bed is effective treatment modality for episiotomy-associated pain. *Journal of minimally invasive gynecology*. 2008;15:719-22
3. Ricci J, Lunardi LO, Nanclares DMA, Marchetti JM. Sustained release of lidocaine from Poloxamer 407 gels. *Int J Pharm*. 2005;288:235-244.
4. W.C. Yoong, F. Biervliet and R. Nagrani The prophylactic use of diclofenac (voltage) suppositories in perineal pain after episiotomy. *Arandom allocation*

- double-blind study. *J. of obs&gynecol* 1997;17:39-41
5. Franchi M, Cromi A, Scarperi S, Gaudion F, Siesto G, Ghezzi F: comparison between lidocaine-prilocaine cream (EMLA) and mepivacaine infiltration for pain relief during perineal repair after child birth: a randomized trial. *Am ObstetGynecol* 2009;201: 1-5
  6. Fabio Fascinate et al.: Diclofenac pyrrolidine versus ketoprofen for the relief of pain from episiotomy : a randomized controlled trial *Acta Obstet GynecolScand* 2005 ;48:951-955
  7. Peter EA, Janseen PA, Grange CS, Douglas MJ, Ibuprofen versus acetaminophen with codeine for the relief of perineal pain after child birth : a randomized controlled trial. *Can Med J* 2001;1: 203-9
  8. Surakarn J, Tannirandorn Y. Intramuscular :diclofenac for analgesia after cesarean delivery : a randomized controlled trial: *J Med Assoc Thai* 2009 ;92:733-8
  9. Dvickers M, Morgan M, P. S. J. Spenser, M. S. Read : *Drugs in anesthesia and intensive care practice*. 3rd edition , London 1999, p 204-212
  10. Boogaerts J, Declercq A, Lafont N, Benamer H, Akodad EM, Dupont JC, Legros FJ: toxicity of Bupivacaine encapsulated into liposomes and injected intravenously: comparison with plain solutions. *Anesthesia and analgesia* , 1993;76:553-5.
  11. Mohammed irfanakhtar, mohammedsaleem, jawadzaheer, wound infiltration with bupivacaine versus ketorolac for postoperative pain relieve in minor to moderate surgeries, *J Pak Med Assoc* 2009;59:385-438
  12. Azin Alavi, Saghar Salehpour, Mahnaz Narimani: The efficacy of postoperative wound infusion with bupivacaine for pain control after cesarean delivery: Randomized double blind clinical trial, 2007;1: 59-64.
  13. D, Churchill, E. J. Buxton, M. Mann, D.M. Luesley: Bupivacaine with adrenaline infiltration following episiotomy repair, *J of Obst&Gyneco* 199; 15: 29-30
  14. Guralnick W, Berg L: Gelfoam in oral surgery .[www.exmed.com/b2...Gelfom.html](http://www.exmed.com/b2...Gelfom.html).
  15. Ragusa R, Faggian G, Rungatscher A, Cugola D, Marcon A, Mazzucco A: Use of gelatin powder added to rifamycin versus bone wax in sternal wound hemostasis after cardiac surgery. *Interact Cardiovasc. Thorac Surg.* 2007;6: 52-55.
  16. Ferroli P, Broggi M, Franzini A : Surgifoam and mitoxantrone in the glioblastoma multiforme postresection cavity: the first step of locoregional chemotherapy through an ad hoc-placed catheter; technical note. *Neurosurgery*. 2006; 59: 433-434.

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