Section: Gynaecology

Original Research Article

GLANDIN E2 GEL VS GLANDIN E2 TABLET FOR INDUCTION OF LABOR AND SUCCESSFUL DELIVERY

Sanobar Baloch[1], Kanta Bai Ahuja[2], Azra[3], Shahneela Moosa[4], Saba Ijaz[5], Ghazala Arshad[6]

[1]*Associate Professor Gynaecology and OBS, Indus Medical College Tando Muhammad Khan Pakistan.*
[2]*Professor Gynaecology and Obs, Pir Abdul Qadir Shah Jellani Institute of Medical Science (PAQSJIMS) Gambat Pakistan.*
[3]*Associate Professor Gynaecology and OBS, Suleman Roshan Medical College Tando Adam Pakistan.*
[4]*Assistant Professor Gynaecology and OBS, Ghulam Muhammad Mehar Medical College Hospital Sukkur Pakistan.*
[5]*Consultant Gynaecology and OBS, Services Institute of Medical Sciences / Services Hospital Lahore Pakistan.*
[6]*Women Medical Officer, Liaquat University of Medical and Health Sciences Jamshoro Pakistan.*

Received *: 06/02/2026*
Received in revised form *: 20/03/2026*
Accepted *: 12/04/2026*

Corresponding Author:
Dr. Sanobar Baloch,
Associate Professor Gynaecology and Obs, Indus Medical College Tando Muhammad Khan Pakistan.
Email: Sanober_dr@hotmail.com

DOI: 10.70034/ijmedph.2026.2.138

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (2); 803-806

ABSTRACT

Background: Induction of labour is one of the most frequently performed obstetric interventions worldwide, accounting for nearly 20% of deliveries. Vaginal dinoprostone (prostaglandin E2) is widely used for cervical ripening and labour induction. Different formulations, including gel and pessary (tablet), are available; however, comparative effectiveness remains a subject of clinical interest.

Objective: To compare the efficacy and safety of Glandin E2 gel versus Glandin E2 tablet (pessary) for induction of labour and achievement of successful vaginal delivery. **Study design:** A randomised controlled study. **Duration and place of study:** This study was conducted at Indus Medical College Tando Muhammad Khan from January 2025 to January 2026

Materials and Methods: This randomised controlled trial was conducted in the Department of Obstetrics and Gynaecology. A total of 120 pregnant women with singleton, live, cephalic presentation pregnancies at ≥37 weeks of gestation with intact membranes were enrolled. Participants were randomly allocated into two equal groups (n = 60 each). Group A received Glandin E2 tablet (dinoprostone pessary), while Group B received Glandin E2 gel, both administered intravaginally in the posterior fornix. Data were analysed using SPSS version 20. Maternal age and gravidity were recorded, along with induction outcomes

Results: There were a total of 120 females included in this study. All the participants of this study were divided into 2 groups having an equal number of patients in each group (n=60). The mean age calculated for group A was 27.8 years while for group B, it was 26.4 years. The majority of the females were primigravida in both the groups.

Conclusion: Glandin E2 gel appears to be more effective than Glandin E2 tablet in achieving successful induction of labour and vaginal delivery

Keywords: Labour induction; Dinoprostone; Prostaglandin E2; Cervical ripening; Glandin E2 gel; Glandin E2 pessary; Randomised controlled trial.

INTRODUCTION

Induction of labour is one of the most commonly performed obstetric procedures worldwide.[1] In low- and middle-income countries such as Pakistan, it is a frequently practiced intervention in routine obstetric care.[2] Rather than awaiting spontaneous onset of labour, induction is undertaken to initiate cervical ripening and uterine contractions with the aim of achieving timely delivery.[3] It is indicated when continuing pregnancy poses a risk to maternal or fetal wellbeing.[4]

Approximately 20% of all pregnant women undergo labour induction.[5] The most common indication is post-term pregnancy. About two-thirds of women achieve vaginal delivery following pharmacological induction of labour.[6] However, approximately 15%

require instrumental delivery, while nearly 22% may require emergency caesarean section.

According to the National Institute for Health and Care Excellence (NICE), vaginal dinoprostone is the preferred pharmacological agent for cervical ripening and induction of labour.[7] Its use is associated with the onset of labour and delivery within 24 hours in many cases. Dinoprostone is available in multiple formulations,[8] including intravenous, oral, vaginal, extra-amniotic, and intracervical routes. Vaginal prostaglandin E2 preparations are commonly available as gel, tablet (pessary), and suppository forms. According to the Royal College of Obstetricians and Gynaecologists (RCOG, 2021), gel and tablet formulations are preferred over pessary or suppository forms due to better clinical outcomes.[9]

Failed induction of labour is defined as the inability to achieve active labour or vaginal delivery within 24 hours of induction or after one complete cycle of treatment.[10] The reported rate of failed induction is up to 15%. Recently, two formulations of vaginal dinoprostone have been introduced for labour induction,[11]: Glandin E2 gel (2 mg) and Glandin E2 tablet (3 mg). The aim of this study was to compare the effectiveness of Glandin E2 gel versus Glandin E2 tablet in achieving successful induction of labour and vaginal delivery.

MATERIALS AND METHODS

This was a randomised controlled trial conducted in the Department of Obstetrics and Gynaecology. A non-probability purposive sampling technique was used. A total of 120 pregnant women were enrolled in the study. Inclusion criteria comprised women with singleton viable pregnancies, gestational age ≥37 weeks, cephalic presentation, and intact membranes. Ethical approval was obtained from the Institutional Ethical Review Committee. Written informed consent was taken from all participants prior to enrolment.

Exclusion Criteria

Women who did not provide consent were excluded from the study. Additional exclusion criteria included multiple gestation, previous caesarean section (scarred uterus), malpresentation, intrauterine fetal demise, and any contraindication to vaginal delivery.

Study groups and intervention

Participants were randomly allocated into two equal groups (n = 60 each). Group A received Glandin E2 tablet (dinoprostone pessary), while Group B received Glandin E2 gel. Both preparations were administered intravaginally in the posterior fornix. If labour was not established, a second dose was administered after 6 hours.

Monitoring and outcome measures

Fetal wellbeing was monitored using intermittent auscultation. Maternal vital signs were recorded every 4 hours. The primary outcomes assessed included time from induction to active labour, mode of delivery, and total induction-to-delivery interval. Failed induction was defined as failure to achieve active labour despite two doses of the drug within 24 hours of initiation.

Statistical Analysis

Demographic and outcome data were recorded and analysed using SPSS version 20. The Chi-square test was used to compare categorical variables between groups. A p-value of <0.05 was considered statistically significant.

RESULTS

There were a total of 120 females included in this study. All the participants of this study were divided into 2 groups having an equal number of patients in each group (n=60). The mean age calculated for group A was 27.8 years while for group B, it was 26.4 years. Table number 1 shows the demographics for the study participants.

Table 1: Frequency of Fetomaternal Outcomes in Obese Pregnant Women (n = 200)

Parameters	Group A (n=60)		Group B (n=60)	
	N	%	N	%
Age (yrs)				
• **15 to 25**	24	40.0	23	38.4
• **26 to 35**	28	46.7	31	51.6
• **More than 35**	8	13.3	6	10.0
Gestational Age (weeks)				
• **Less than 40**	12	20.0	10	16.7
• **More than 40**	48	80.0	50	83.3
Parity				
• **Primigravida**	38	63.3	42	70.0
• **Less than 3**	16	26.7	8	13.3
• **More than 3**	6	10.0	10	16.7
Bishop score				
• **Less than 6**	37	61.7	28	46.7
• **More than 6**	23	38.3	32	53.3

Table number 2 shows the indications of induction of labor.

Table 2

Indications	Group A (n=60)		Group B (n=60)	
	N	%	N	%
Pregnancy Induced HT	12	20.0	11	18.3
Post-date pregnancy	37	61.7	38	63.3
Leaking P/V	4	6.7	5	8.4
Pregnancy with Diabetes	7	11.6	6	10.0

Table number 3 shows the mean time for onset of labor.

Table 3

Variables	Group A	Group B	p-value
Doses of drug used	1.7 ± 0.63	1.4 ± 0.48	0.56
Induction Labor Interval (hrs)	11.2 ± 6.4	6.4 ± 4.3	0.01
Induction Delivery Interval (hrs)	15.1 ± 7.2	10.1 ± 5.9	0.03

Table number 4 shows the mode of delivery.

Table 4:

Mode of delivery	Group A (n=60)		Group B (n=60)	
	N	%	N	%
C-section	25	41.7	16	26.7
Instrumental	4	6.7	2	3.3
SVD	31	51.6	42	70.0

DISCUSSION

Induction of labour remains a common yet challenging obstetric intervention for clinicians. Approximately 20% of all pregnancies require induction for various maternal or fetal indications, and its rate has steadily increased over the past decade. In the present study, the mean maternal age was 27.8 years. The majority of participants were primigravida, accounting for 63.3% in Group A and 70% in Group B. These findings are consistent with previously published studies.[12,13,14]

According to the National Institute for Health and Care Excellence (NICE, 2021), induction of labour is recommended from 41 weeks of gestation when no spontaneous labour occurs.[15] In our study, the most common indication for induction in both groups was post-date pregnancy, observed in 61.7% of Group A and 63.3% of Group B cases, which aligns with established clinical guidelines.

The findings of our study demonstrate that Glandin E2 gel is more effective than Glandin E2 tablet for labour induction. The gel group showed better cervical ripening, reflected by improved Bishop scores and a significantly shorter induction-to-active labour interval (p = 0.01). Similar findings have been reported by Ishaqul et al. and Lokeshwari et al., who concluded that dinoprostone gel is an effective cervical ripening agent for induction of labour.[16,17] The shorter induction-to-active labour interval in the gel group further supports its superior efficacy over the tablet formulation.

However, some studies have reported contrasting results. Khan ZA and KHO Ee Min found no significant difference between dinoprostone gel and tablet in terms of induction outcomes.[18,19] In contrast, our study demonstrated clear clinical advantages of the gel formulation across multiple parameters.

In our study, 70% of women in the gel group achieved spontaneous vaginal delivery, while 26.7% underwent caesarean section and 3.3% required instrumental delivery. In comparison, the tablet group showed a lower spontaneous vaginal delivery rate of 51.6%, with a higher caesarean section rate of 41.7% and 6.7% instrumental deliveries. These findings suggest that Glandin E2 gel is associated with more favourable labour outcomes compared to the tablet formulation. Similar trends have also been reported in other studies.[20]

The main limitation of this study is that it was conducted at a single tertiary care hospital, which may limit the generalisability of the results. Larger multicentre, randomized controlled trials are recommended to further validate these findings and strengthen external applicability.

CONCLUSION

Glandin E2 gel appears to be more effective than Glandin E2 tablet for induction of labour. It is associated with shorter induction-to-active labour and induction-to-delivery intervals, higher rates of spontaneous vaginal delivery, and lower caesarean section rates. Therefore, Glandin E2 gel may be considered a better option for cervical ripening and labour induction in appropriately selected patients. However, further large-scale multicentre studies are recommended to confirm these findings and improve generalisability.

Funding source
This study was conducted without receiving financial support from any external source.
Conflict in the interest
The authors had no conflict related to the interest in the execution of this study.
Permission
Prior to initiating the study, approval from the ethical committee was obtained to ensure adherence to ethical standards and guidelines.

REFERENCES

1. Iqbal N, Nisar M, Khurshid N, Nisar F, Mukhtar K, Nawaz N. Comparative study of Glandin tablet versus Glandin gel for successful labour induction. Journal of the Society of Obstetricians and Gynaecologists of Pakistan. 2021;11(4):250–253.
2. Du H, Zhang N, Xiao CY, Sun GQ, Zhao Y. Effectiveness of dinoprostone and Cook's balloon for labour induction in primiparous women at term. Current Medical Science. 2020;40(5):951–959.
3. Nisiya KS, Devi U, Ahmed FM. A prospective study comparing the effectiveness and safety of dinoprostone intracervical gel and dinoprostone vaginal insert for induction of labour. International Journal of Clinical Obstetrics and Gynaecology. 2022;6(1):152–160.
4. Katare N. Dinoprostone gel (PGE2) for induction of labour and its effect on fetomaternal outcome: a case-control study in a tertiary care centre of Middle East India. (Details incomplete).
5. Swaroop N, Bano S, Vishwakarma S, Mittal N, Kanti V, Gupta V, et al. Comparative analytical study of dinoprostone gel and hyaluronidase injection for induction of labour in term primigravida in a tertiary rural medical centre of Western Uttar Pradesh. Journal of Family & Reproductive Health. 2022;16(3):177.
6. Patel MS, Jani SK, Patel BS, Shah AC. Role of dinoprostone gel in induction of labour. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2021;10(3):1018–1022.
7. National Institute for Health and Care Excellence (NICE). Inducing labour (draft guideline). London: NICE; 2021.
8. Kelly AJ, Malik S, Smith L, Kavanagh J, Thomas J. Vaginal prostaglandin (PGE2 and PGF2α) for induction of labour at term. Cochrane Database of Systematic Reviews. 2009;(4):CD003101.
9. Royal College of Obstetricians and Gynaecologists (RCOG). Induction of labour. Evidence-based clinical guidelines. London: RCOG; 2021.
10. Rayburn WF. Prostaglandin E2 gel for cervical ripening and induction of labour: a critical analysis. American Journal of Obstetrics and Gynecology. 1989;160(3):529–534.
11. Thomas J, Fairclough A, Kavanagh J, Kelly AJ. Vaginal prostaglandin (dinoprostone) for induction of labour at term. Cochrane Database of Systematic Reviews. 2017;(6):CD003101.
12. Kurian MJ, Rao B, Rao A, Shameem VP. Effect of vaginal pH on efficacy of dinoprostone gel for labour induction. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2016;5(4):1196–1202.
13. Singh A. Comparison between two preparations of dinoprostone (PGE2)—pessary and gel for induction of labour at term. Journal of South Asian Federation of Obstetrics and Gynaecology. 2022;14:579–582.
14. Sahu R, Janjewal K. A randomized prospective comparative study evaluating prostaglandin E2 (dinoprostone) controlled-release vaginal insert versus sublingual prostaglandin E1 (misoprostol) for induction of labour at term gestation. Indian Journal of Obstetrics and Gynecology Research. 2021;8(4):457–462.
15. Boulvain M, Kelly AJ, Irion O. Intracervical prostaglandins for induction of labour. Cochrane Database of Systematic Reviews. 2009;(3).
16. Ishaqul AA, Shabkah SA, Hassan W, Akbar Z, Al Arab M, Haq I. Comparison of dinoprostone vaginal tablet and vaginal insert in primigravida women for induction of labour. Journal of Clinical Gynecology and Obstetrics. 2018;7(2):52–56.
17. Lokeshwari J, Vishwanathan S, Singh A. Comparative study of oxytocin and prostaglandin E2 gel in induction of labour in high-risk pregnant women from Tamil Nadu. Saudi Journal of Medical Pharmacology Sciences. 2017;3(2):85–88.
18. Khan ZA, Abdul B, Majoko F. Induction of labour with vaginal prostaglandin tablet versus gel. Journal of Obstetrics and Gynaecology. 2011;31:492–494.
19. KHO EE M, Sadler L, McCowan L. Induction of labour: comparison between controlled-release dinoprostone vaginal pessary and intravaginal gel. Australian and New Zealand Journal of Obstetrics and Gynaecology. 2008;48:473–477.
20. Hussain SS, Fatima SS, Qazi Q, Shafqat T. Comparison of effectiveness of prostaglandin E2 vaginal gel versus vaginal tablet for induction of labour at term. Medical Forum Monthly. 2015;26(6):6–8.