

# Malpresentation, Cord Prolapse and Induction of Labour

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## Introduction:

More than 25% of pregnant women will undergo induction of labour (IOL) in Australia. In the setting of an unfavorable cervix, IOL typically begins with either trans-cervical placement of a balloon catheter or vaginally administered prostaglandin. Whilst pharmacological cervical ripening is associated with uterine hyperstimulation, mechanical ripening using a balloon catheter has been reported to be associated with higher rates of malpresentation. Given the paucity of data on this risk, we report on the rate of malpresentation in women undergoing induction of labour with balloon catheters compared to prostaglandins.

## Objective:

To determine the rate of malpresentation in women undergoing IOL with balloon catheters compared to prostaglandins.

## Method:

Data was extracted for all births from a tertiary care center between 2012 – 2017. All term singleton births following IOL were included. Premature birth and those with fetal anomalies were excluded. The analysis compared baseline characteristics and clinical outcomes for a cohort of women undergoing cervical priming using a balloon catheter with those undergoing cervical ripening using prostaglandins. The primary outcome measured was fetal malpresentation at birth.

## Results:

1936 women were included in the balloon induction group and 2935 women were included in the prostaglandin induction group.

Characteristics	Balloon n (%)	Prostaglandin n (%)	p-value
Nulliparous	1258 (65.0%)	1813 (61.8%)	<0.001
Maternal Age >35y	378 (19.5%)	572 (19.5%)	0.975
Ethnicity			
ATSI	67 (3.5%)	85 (2.9%)	<0.001
African	56 (2.9%)	97 (3.3%)	
Asian	576 (29.85%)	736 (25.1%)	
Caucasian	1016 (52.5%)	1731 (59.0%)	
Other	221 (11.4%)	286 (9.7%)	
Indication for IOL			
Maternal / fetal	1289 (66.6%)	1479 (50.4%)	<0.001
Post-term	428 (22.1%)	1118 (38.1%)	
Other	219 (11.3%)	338 (11.5%)	
Bishop Score at start of IOL <sup>a</sup>	3.6 (1.3)	3.2 (1.4)	<0.001
Bishop Score at ARM <sup>a</sup>	6.1 (1.8)	6.1 (2.0)	0.896
Birth weight (g) <sup>a</sup>	3339 (509)	3486 (509)	<0.001
Gestation at birth <sup>a</sup>	39.1 (1.4)	39.5 (1.5)	<0.001
Head circumference <sup>a</sup>	34.5 (1.5)	35.1 (1.6)	<0.001

<sup>a</sup> Presented as mean(SD)

Small differences were observed in the baseline characteristics between the groups being induced using balloon and prostaglandins in terms of parity, ethnicity, indication for IOL, Bishop's score at the start of the IOL, birthweight, gestation at birth and head circumference.

There was no statistically significant differences between the groups in the incidences of malpresentation and cord prolapse

	Balloon n (%)	Prostaglandin n(%)	p-value
Malpresentation	19 (0.98%)	22 (0.75%)	0.386
Cord prolapse	6 (0.31%)	2 (0.07%)	0.065

## Discussion:

Malpresentation is a risk following both mechanical and pharmacological cervical ripening. The event rate of malpresentation was very low and not different between the two methods of IOL. The incidence of cord prolapse was also very low occurring in 6 births in the balloon group and 2 births in the prostaglandin group.

A number of differences are noted in the baseline characteristics between the two groups, which is not unexpected given the retrospective nature of the analysis. These differences, however, also include an number of risk factors for malpresentation and cord prolapse such as parity, gestation, and fetal size. Differences in ethnicity and indication between the groups may also be important factors influencing the incidence of these rare events. IOL itself is a recognized risk factor for malpresentation and cord prolapse. Given that women are not routinely scanned for fetal presentation prior to IOL, it is also plausible that some cases reflect a misdiagnosis of presentation at the commencement of IOL, rather than any adverse effect of IOL using one or either method. This raises an important questions as to whether there is a place for routine presentation scanning prior to commencing IOL.

## Conclusion:

**In the analysis of 4871 women undergoing IOL at term, the incidence of cord prolapse and malpresentation amongst women undergoing IOL using balloon catheters and prostaglandin gel is not significantly different**