Outcomes of cervical ripening for induction of labour following caesarean section: A retrospective study of Illawarra Shoalhaven Local Health District 2008-2018

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Introduction

The rates of Caesarean sections (CS) continue to rise in Australia[1]. It has recently been reported that up to 85% of births in multiparous women who have had a previous CS have repeat CS[2]. Increasing the rates of vaginal birth after caesarean (VBAC) is one method of mitigating the increasing rates of CS. Furthermore, with greater prevalence of medical comorbidities associated with pregnancy (such as diabetes, advanced maternal age and obesity), induction of labour rates are also increasing.

Ensuring safe and successful induction methods for women electing to attempt a VBAC is a necessity. A recent Cochrane review[3] concluded there are insufficient studies and inadequate evidence to detect clinical differences in various methods of inducing VBACs. Foley catheters (FC) are commonly used for cervical ripening as part of the induction process, with the additional benefit of low cost and easy accessibility. Despite this, there is inconsistent literature on the safety and efficacy of using FC for IOL in women wanting a VBAC. A notable concern for safety is uterine rupture, however studies have reported conflicting findings as to whether or not FC IOL increases the risk of uterine rupture in VBAC, when compared to spontaneous labour VBACs[4].

Additionally, there is a discrepancy between the success rates of achieving a VBAC following FC for IOL. Studies have reported between 56.4 – 79.8%[4,5,6], with confounding factors such as previous vaginal delivery contributing to the likelihood of successful VBAC. Emergency CS rates were significantly higher in FC IOL group versus spontaneous labour in women aiming for VBACs in one comparative study[5], which also reported on no significant difference in maternal or neonatal outcomes between groups. Overall, comparative studies were limited, and no study has currently examined the use of FC for IOL in women attempting VBAC within an Australian population.

Methods

This is a retrospective cohort study. Data was obtained from Obstetrix software for the Illawarra Shoalhaven local health district between 2008 – 2017, for births following a previous CS. Inclusion criteria were live, term (>37 weeks), cephalic, singleton births, with only one previous CS. Women were categorised into 3 groups – spontaneous labour, induction of labour (IOL) with Foley catheter, or artificial rupture of membranes to assist labour. Primary outcome was mode of delivery, which was classified as normal vaginal delivery (NVD), assisted (forceps and vacuum), or CS. Secondary measures were maternal and neonatal outcomes including perineal trauma (grade 3 & 4 tears), post-partum haemorrhage (PPH), and low APGAR <7 at 5 minutes.

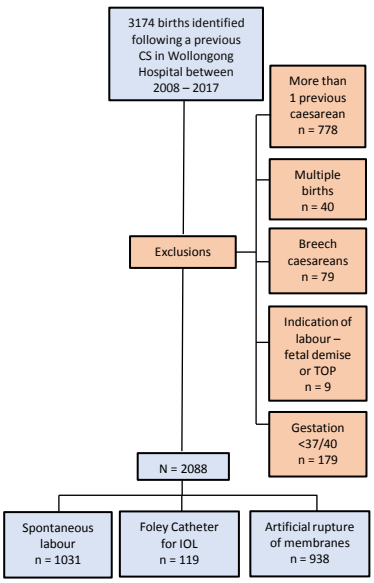

Fig. 1. Study selection/exclusion criteria

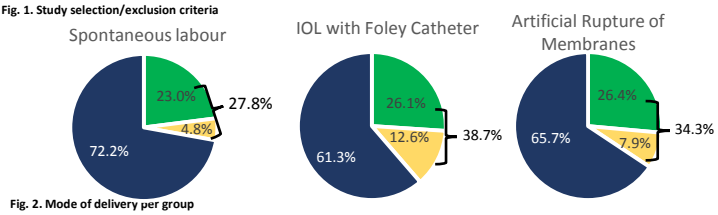

Fig. 2. Mode of delivery per group

Results

Table 1. Percentage and frequency for induction of labour (IOL) indication

	Frequency	Percent
Postdates	41	34.5
Diabetes	27	22.7
Hypertension	12	10.1
IUGR	9	7.6
Social	7	5.9
Macrosomia	6	5
Other	17	14.3
Total	119	100

Table 2. Percentage of maternal and neonatal outcomes per mode of delivery

	n	% perineal trauma	% PPH	% of low APGAR
Mode: NVD	516			
Spontaneous labour	237	2.1%	11.0%	3.4%
Foleys IOL	31	9.7%	3.2%	3.2%
ARM only	248	3.6%	15.7%	5.2%
Mode: Instrumental	139			
Spontaneous labour	50	6.0%	16.0%	6.0%
Foleys IOL	15	0.0%	13.3%	6.7%
ARM only	74	8.1%	24.3%	6.8%
Mode: Caesarean	1433			
Spontaneous labour	744		14.1%	6.7%
Foleys IOL	73		11.0%	5.5%
ARM only	616		16.7%	4.7%

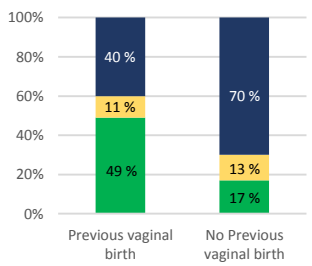

Fig. 3. Mode of delivery per previous vaginal or no previous vaginal birth

Objectives

This study aims to investigate success rates of VBACs in women requiring cervical ripening compared to spontaneous onset of labour, within an Australian population.

Maternal and neonatal outcomes were secondary measures.

Discussion/Conclusion

Rates of successful VBAC following cervical ripening using FC (38.7%), were greater when compared to women who went into spontaneous labour (27.8%%) or had an artificial rupture of membranes (34.3%) to assist labour. Within the FC IOL group, women who had a previous vaginal birth were twice as successful at achieving a vaginal birth than women who had not previously delivered vaginally (60% vs 30%). Oxytocin was used following FC cervical ripening in 83% of inductions. Perineal trauma was greater in women who had FC for IOL and delivered vaginally, whilst PPH rate was the lowest in this group. APGARs were comparable across all modes of delivery. Postdates and diabetes accounted for over half of IOL indications. There were no cases of uterine rupture noted. This suggests that FC as a means for cervical ripening appears to be an effective and safe method of inducing women who are aiming for a VBAC.

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