

McDonald vs. Shirodkar technique for ultrasound or exam-indicated cerclage: Is one technique superior to the other?

Mia Heiligenstein¹, Jiwoo Park¹, Zahava Michaelson¹, Brian Lee¹, Guillaume Stoffels¹, Leonardo Antelo¹, Thomas Owens¹, Olivia Grubman¹, Xiteng Yan¹, Zainab

Al-Ibraheemi¹, Nathan Fox¹, Jennifer Lam-Rachlin², Andrei Rebarber², Lois Brustman¹

1. Icahn School of Medicine at Mount Sinai West, Division of Obstetrics and Maternal-Fetal Medicine
2. Maternal Fetal Medicine Associates

PURPOSE

To evaluate the outcomes of the Shirodkar versus McDonald cerclage technique in a cohort of patients undergoing ultrasound or exam-indicated cerclage.

METHODS

- This was a retrospective cohort study of patients with a singleton pregnancy who had an ultrasound or exam-indicated cerclage from 2018-2023 in a NYC Hospital.
- We compared patients who had a McDonald versus Shirodkar procedure.
- Primary outcome was delivery < 32weeks.
- Secondary outcomes included delivery< 35 weeks and complications related to cerclage placement.
- Statistical methods included chi-square tests, Student’s t-tests, and multiple regression analyses.



RESULTS

- Of 275 patients, 133 received a McDonald cerclage, 142 a Shirodkar.
- Baseline characteristics varied between groups: McDonald cerclage patients had higher BMIs, were more likely to be non-white, have had a prior D&C and had a history of a 1st trimester miscarriage. In contrast, Shirodkar patients were more likely to have had prior preterm deliveries.
- The McDonald procedure was associated with an increased odds for preterm birth < 32 weeks. The McDonald procedure was associated with an 18% (24/133) preterm birth rate < 32 weeks while a Shirodkar had a 9.5% (13/142) preterm birth rate < 32 weeks,(OR 2.19, 95% CI 1.06-4.50, p-value 0.034).
- There was no significant difference in delivery at < 35 weeks gestation between the two techniques(Figure 1). However, Shirodkar cerclage was associated with a significant blood loss(S 18.9+/-27.1cc vs. M 9.7+/-7.1cc, p=0.0056)and longer OR time(S 46.7 +/- 14.9min vs McDonald 25.9min +/- 11.1 min, , p < 0.0001).
- In addition, the need for anesthesia at time of cerclage removal was less for M vs S(OR 0.16, 95% CI 0.08-0.32, p-value < 0.001).

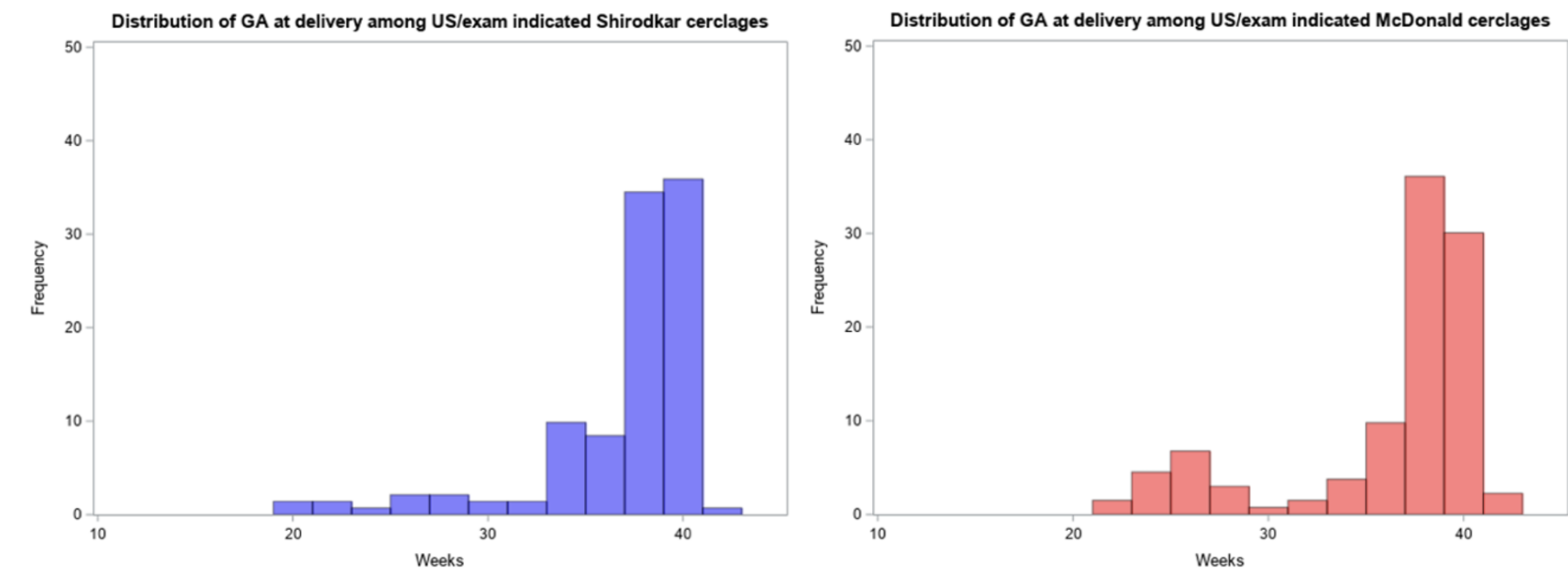
Table 1. Comparing outcomes between cerclage techniques among US and exam-indicated cerclage

McDonald v Shirodkar	Unadjusted		Adjusted	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Delivery < 32 weeks	2.19 (1.06, 4.50)	0.034	2.07 (0.98, 4.38)	0.058
Delivery < 35 weeks	1.09 (0.61, 1.94)	0.78	1.03 (0.56, 1.89)	0.92
Revision of initial cerclage	0.34 (0.09, 1.29)	0.112	0.28 (0.073, 1.07)	0.062
Complications with cerclage placement	0.13 (0.02, 1.02)	0.052	0.11 (0.013, 0.86)	0.036
Anesthesia needed for cerclage removal	0.16 (0.08, 0.32)	<.0001	0.15 (0.074, 0.30)	<.0001

A p-value < 0.05, marked in red, denotes a significant estimate in log odds scale as determined by an unadjusted simple logistic model or a multiple logistic regression model if the data affords. The letter denotes the confounder included in adjusted analysis: a) prior preterm birth. The odds ratio (OR) is the exponentiation of the estimates.



Figure 1. Distribution of GA at delivery by cerclage procedures among US and exam-indicated cerclage



CONCLUSIONS

- Our data suggests that the Shirodkar cerclage trends towards being slightly more effective than the McDonald technique in US or exam-indicated cerclage for preterm birth <32 weeks.
- There is no statistically significant difference between the two techniques at less than 35 weeks
- However blood loss, use of anesthesia and OR times were longer with this procedure.

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