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OB GYN Posters - 2019

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Clinical Significance of Amniotic Fluid Debris in Cervical Cerclage Patients

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OBJECTIVE

To investigate for an association between amniotic fluid debris and preterm delivery in singleton pregnancies managed with ultrasound or physical exam indicated transvaginal cerclage.

BACKGROUND

• Preterm delivery is delivery between 20 and 37 weeks of gestation; the prevalence of prematurity is approximately 12% among US births, only 50% of which can be associated with preterm labor.

• Short cervical length (cervical length less than 25mm before 24-28 weeks) independently increases in the risk of preterm birth.

•The presence of amniotic fluid sludge on antenatal ultrasound has also been identified as a potential independent risk factor for spontaneous preterm delivery

METHODS

This is a retrospective cohort study including women with a singleton pregnancy who underwent a transvaginal cerclage for ultrasound or physical exam indications between January 2001 and December 2016 at Baystate Medical Center.

Key Inclusion Criteria:
• Cerclage placement prior to 24 weeks gestation
• Ultrasound imaging prior to cerclage placement for determination of presence or absence of amniotic debris
•Complete/ accessible clinical records

Primary Outcome: Preterm delivery less than 37 weeks.

Secondary Outcomes: Mode of delivery, 5 minute Apgar <7, birthweight, chorioamnionitis, preterm premature rupture of membranes (PPROM) and defined adverse neonatal outcomes

RESULTS

•A total of 354 transvaginal cerclage patients were identified during the study period with 98 meeting inclusion criteria.

•There was no difference in progesterone use or prior preterm birth history for women with or without debris.

•Women with amniotic fluid debris were found to generally have a shorter pre-cerclage cervical length (8 vs 15 mm, p<.001)

•Women with amniotic fluid debris were also more likely to have visible membranes at time of cerclage (53.8% v. 26.2% p=0.015).

Table 1. Pregnancy Outcomes

	Sludge (Total N = 98)		
	Yes (N=70)	No (N=28)	p value
PTB <37 weeks	16 (57)	38 (54)	0.8
Chorioamnionitis	4 (14.3)	3 (4.5)	0.1
Mean GA at Delivery (weeks)	31 (7.8)	34 (6.1)	0.05
Birthweight (SD)	1973 (1248)	2532 (1021)	0.03
Data presented as n(%) or mean (SD)			

•There was no difference in the rate of preterm delivery <37 weeks, regardless of presence of amniotic debris.

•Data analysis also lacked any difference in second trimester loss.

RESULTS

•There were no differences in PPROM, chorioamnionitis, or neonatal secondary outcomes.

Table 2. Neonatal Outcomes

	Sludge (Total N = 98)		
	Yes (N=70)	No (N=28)	p value
5 minute Apgar <7	8 (32)	11(16.7)	0.1
NICU Admission	8 (32)	23 (35)	1.0
NICU Length of Stay (SD)	54.38 (40.64)	37.53 (37.08)	0.2
Neonatal Sepsis	3 (12)	5 (7.4)	0.4
Baby Expired	6 (23.1)	5 (7.6)	0.06
Data presented as n(%) or mean (SD)			

CONCLUSION

•No significant association between the presence of amniotic fluid debris and preterm delivery. Previously published studies have reflected mixed results.

•There were significant trends towards delivery at earlier gestational age and lower birth weight for neonates with amniotic fluid debris documented.

•No difference in chorioamnionitis or neonatal sepsis in the two study groups.
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•Limitations of this study include small sample size and retrospective design.

•Despite the lack of association identified in this study, this investigation adds to the data that can be used to counsel cerclage candidates and shape expectations.

Do Trophectoderm Biopsies Affect Pregnancy and Neonatal Outcomes Following Cryopreserved Single Embryo Transfer?

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BACKGROUND

- Preimplantation genetic testing is used to select euploid and unaffected embryos.
- Following trophectoderm biopsy, blastocysts are cryopreserved while awaiting biopsy results for frozen embryo transfer in subsequent cycles.
- We hypothesize that removing tropectoderm cells may affect maternal and neonatal outcomes.

METHODS

- Single-center retrospective cohort of singleton pregnancies delivered after 20 weeks gestation at Baystate Medical Center resulting from transfer of cryopreserved-warmed embryos between January 1, 2013 and May 31, 2018
- Inclusion: all singleton deliveries following frozen embryo transfer with or without trophectoderm biopsy
- Exclusion: Donor egg, gestational carrier
- Primary outcome: Rate of preeclampsia
- Secondary outcomes: Rates of preterm delivery, low birth weight, still birth
- Means, medians, and percentages were compared using Student's t-test for continuous variables, Kruskal-Wallis test for non-parametric variables, and Fisher's exact test for percentages.

RESULTS

- 198 pregnancies : 19 biopsied, 179 not biopsied embryos
- Baseline variables were similar (Table 1).
- Rates of preeclampsia and preterm delivery were 2-fold higher following trophectoderm biopsy vs. no biopsy, but not statistically increased (Figure 1 and Table 2).
- Rates of low birth weight and still born were small and similar between biopsy vs. no biopsy groups (Table 2).

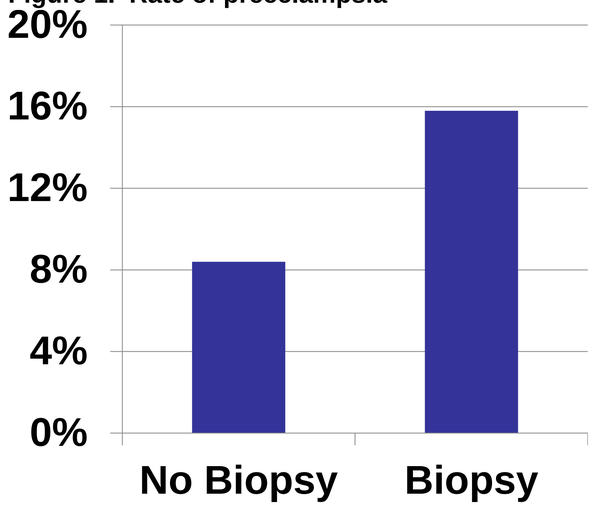
Table1. Baseline demographics

	No biopsy	Biopsy	
	(N = 179)	(N = 19)	p-value
Age (Q1, Q3)	33.0 (31.0, 37.0)	34.0 (33.0, 38.0)	0.24
Maternal pre-pregnancy BMI	25.7 (22.5, 31.3)	25.1 (23.8, 31.3)	0.97
Gestational age at delivery	39.0 (38.0, 40.0)	39.0 (39.0, 40.0)	0.98
Maternal race/ethnicity			0.28
White	156 (87.2%)	17 (89.5%)	
Asian	4 (2.2%)	0 (0.0%)	
Black/African American	4 (2.2%)	2 (10.5%)	
Hispanic	11 (6.1%)	0 (0.0%)	
Other	4 (2.2%)	0 (0.0%)	
Nulliparity	102 (57.0%)	11 (57.9%)	>0.99
History of preterm delivery	13 (7.3%)	2 (10.5%)	0.64
History of SGA infant	1 (0.6%)	1 (5.3%)	0.19
Pre-gestational diabetes	4 (2.2%)	1 (5.3%)	0.40
Pre-gestational hypertension	10 (5.6%)	2 (10.5%)	0.32
Maternal smoking	20 (11.2%)	1 (5.3%)	0.76

Table 2. Outcomes for biopsied and not-biopsied embryos

	No biopsy	Biopsy	
	(N = 179)	(N = 19)	p-value
Preeclampsia			0.39
No	164 (91.6%)	16 (84.2%)	
Yes	15 (8.4%)	3 (15.8%)	
Birth status			>0.99
Live born	177 (98.9%)	19 (100.0%)	
still born	2 (1.1%)	0 (0.0%)	
Preterm delivery			0.39
>=37 weeks	164 (91.6%)	16 (84.2%)	
<37 weeks	15 (8.4%)	3 (15.8%)	
Low Birth Weight			>0.99
>=2500g	170 (95.0%)	19 (100.0%)	
<2500	9 (5.0%)	0 (0.0%)	

Figure 1. Rate of preeclampsia



CONCLUSION

Rates of preeclampsia and adverse neonatal outcomes do not appear to be affected by trophectoderm biopsy. To see a twofold increase in pre-eclampsia rates (8% vs 16%) at 80% power would require a sample size of 500 patients.

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Preparing Ob/Gyn Residents for the Fundamentals of Laparoscopic Surgery (FLS) Assessment

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INTRODUCTION

The purpose of this report is to describe the training curriculum that has been successful in preparing Obstetrics & Gynecology residents for Fundamentals of Laparoscopic Surgery (FLS) certification at the University of Massachusetts Medical School (UMMS)-Baystate campus.

BACKGROUND

In January of 2018, the American Board of Obstetrics & Gynecology (ABOG) announced the plan to make FLS certification a requirement for board certification in Obstetrics and Gynecology. There are few published works focused on FLS implementation into Ob/Gyn education. FLS certification during resident training was first offered to UMMS-Baystate Ob/Gyn residents in 2011. After this initial trial, FLS certification was made mandatory for graduation by the 2012 academic year.

Our curriculum has maintained a 100% pass rate on the skills assessment and a a 94% pass rate on first attempt of the of the cognitive portion of the FLS exam with a 100% pass rate by second attempt.

Access to Simulation Practice

In order to facilitate practice, our residents have open access to:

- Goldberg Surgical Skills Center which features two FLS trainer systems with ergonomic set up
- Colodny Satellite Simulation Center *(pictured on the right)* with one FLS trainer system located right on Labor and Delivery

Structured Practice

FLS practice in our main surgical skills lab is built into the resident training curriculum:

- Hour long sessions, 1 to 4 times each week during 1 to 2 rotations in each of the first three years of residency
- 2 hours of protected monthly simulation time with 2 to 3 residents assigned to the skills lab over each hour
- Residents make their way through tasks involving the FLS system and virtual reality trainers using a level appropriate checklist with tasks of increasing difficulty (i.e. off axis operator position, inverted camera)

Feedback

•Structured training sessions include real-time feedback from either our surgical skills lab specialist, or an appropriate attending

•Feedback on progress is built into resident evals

Operating Room Cases

Residents work towards taking a primary role in OR laparoscopic cases based on skill level:

- PGY3s teach PGY1s basic surgeries
- PGY4s teach PGY2s advanced surgeries
- Sim lab practice prior to cases is encouraged

RESULTS

FLS Certification Requirements

1. *Web based education modules*
2. *Hands on skills training*
3. *FLS Test: two part assessment tool, evaluation of cognitive and technical skills*

Our residents work towards proficiency times on each technical skills task during simulation practice prior to exam day.

Task	FLS Proficiency Time	Mean # of Attempts to Proficiency
Peg Transfer	48 Seconds	8.45
Precision Cutting	98 Seconds	4.58
Endoloop	53 Seconds	3.75
Extracorporeal Knot Tying	136 Seconds	4.46
Intracorporeal Knot Tying	112 Seconds	4.69

PGY1: Primary & Preventative Care, Gyn/ Gyn Basics
PGY2: Critical Care & Critical Thinking (CCCT), Elective
PGY3: Minimally Invasive Medicine & Surgery (MIMS), Elective

Completion of online FLS modules to prepare for the cognitive exam is done during these rotations.

At the start of the 2018 academic year, our FLS certification requirement was moved up to from PGY3 to PGY2 year.

CONCLUSION

This analysis highlights a strong curriculum, which has been successfully incorporated into our Ob/Gyn program at UMMS- Baystate. We present this information as a blueprint for other programs to follow and/or modify in the setting of the new ABOG requirements for FLS certification.

While our cognitive pass rate is also high, performance is limited by inclusion of questions about instruments and techniques not utilized by the average OB/Gyn practitioner. We hope that our educational leaders work towards production of a more appropriate cognitive assessment tool.