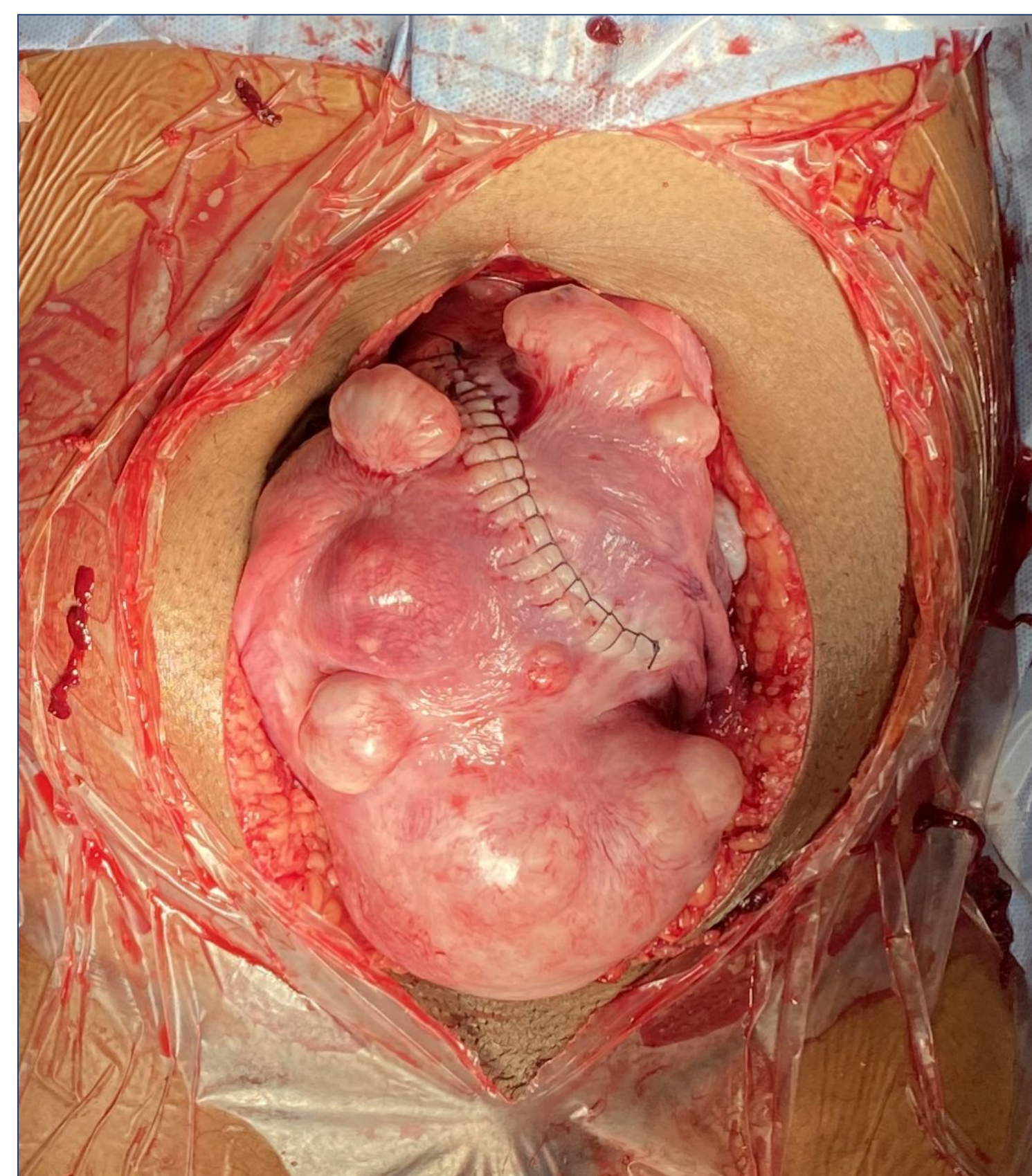


## INTRODUCTION:

Uterine fibroids are the most common benign smooth muscle tumors affecting women of reproductive age. Their prevalence in pregnancy is about 3-12%<sup>1,2</sup> and have been implicated in obstetric complications such as hemorrhage, pain, miscarriage, fetal growth restriction, premature labor<sup>3</sup>, abnormal fetal presentation, placental abruption, cesarean section<sup>4</sup>, and peripartum hemorrhage<sup>5</sup>.



**Figure 1.** Uterine fibroids and closed hysterotomy at time of cesarean section at 23w2d for placental abruption.

Currently data is limited on the impact of fibroids and their association with blood loss during delivery. The purpose of this reports is to determine whether fibroids during pregnancy affect estimated blood loss at time of delivery, regardless of mode of delivery, and to test the hypothesis that increased fibroid number and/or increased fibroid volume is associated with increased estimated blood loss at time of delivery.

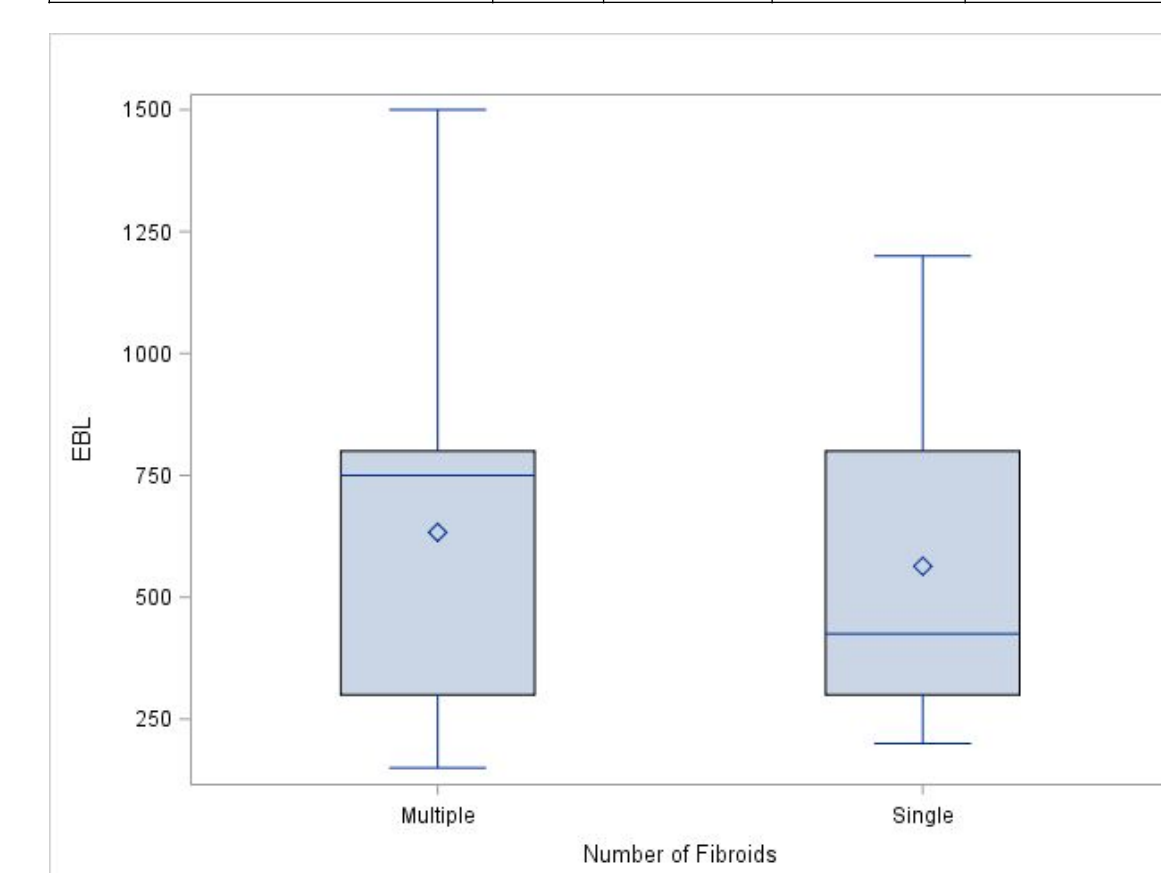
## METHODS :

This is an IRB-approved retrospective cohort study of pregnant women with fibroids who were identified through the ultrasound reporting database (AS OB/GYN) at Mount Sinai West. Data on fibroids were collected for each trimester and included gestational age, fibroid number, location, type, and volume. Images were reviewed to verify accurate information. 118 participants met inclusion criteria. Estimated blood loss (EBL) at delivery was recorded. The association of EBL with solitary or multiple fibroids, number of fibroids, total fibroid volume, single largest fibroid volume, and fibroid location was evaluated.

## RESULTS:

### Is there an association between multiple fibroids and EBL?

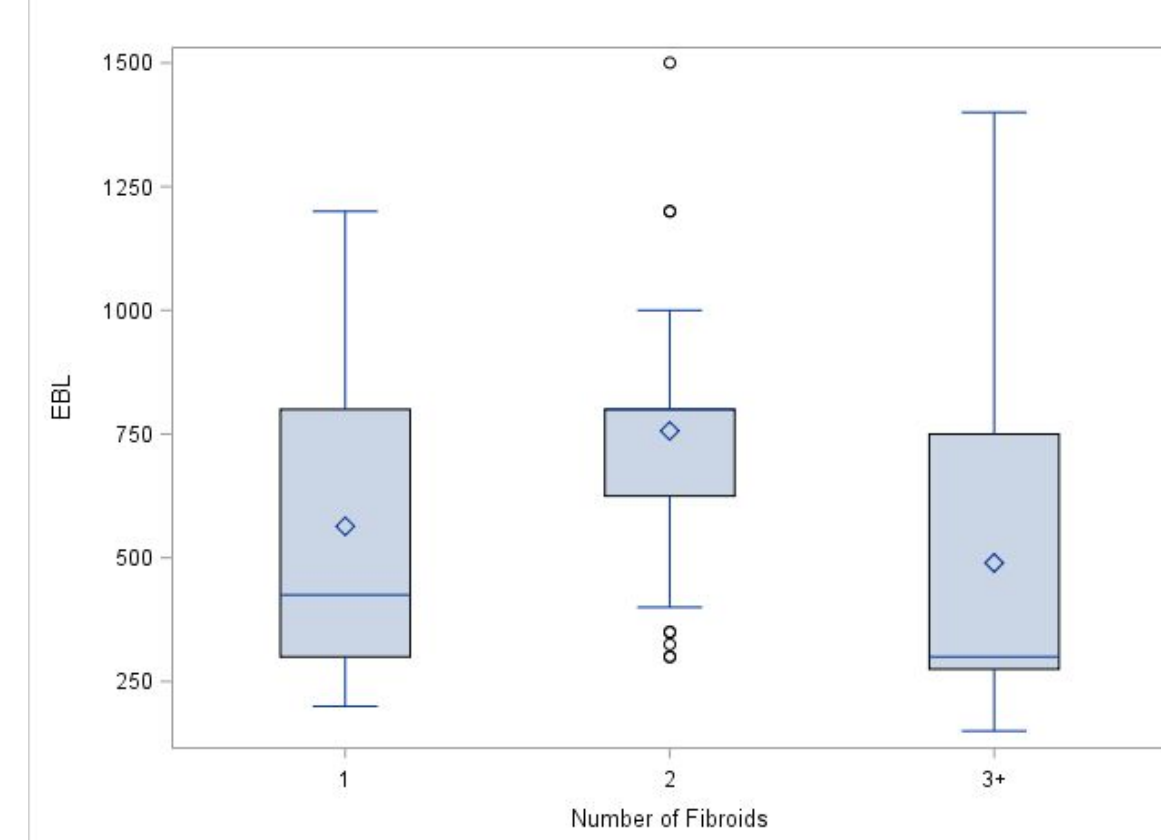
Number of Fibroids	N	Mean	Median	Std Dev	Q1	Q3
Multiple	52	633.17	750.00	338.20	300.00	800.00
Single	66	563.64	425.00	300.07	300.00	800.00



**Figure 3.** Descriptive statistics and a boxplot for EBL by number of fibroids (multiple or single). Patients with multiple fibroids have a mean EBL of 633.17 and a median of 705, while patients with a single fibroid have a mean EBL of 563.65 and median of 425, p-value = 0.41.

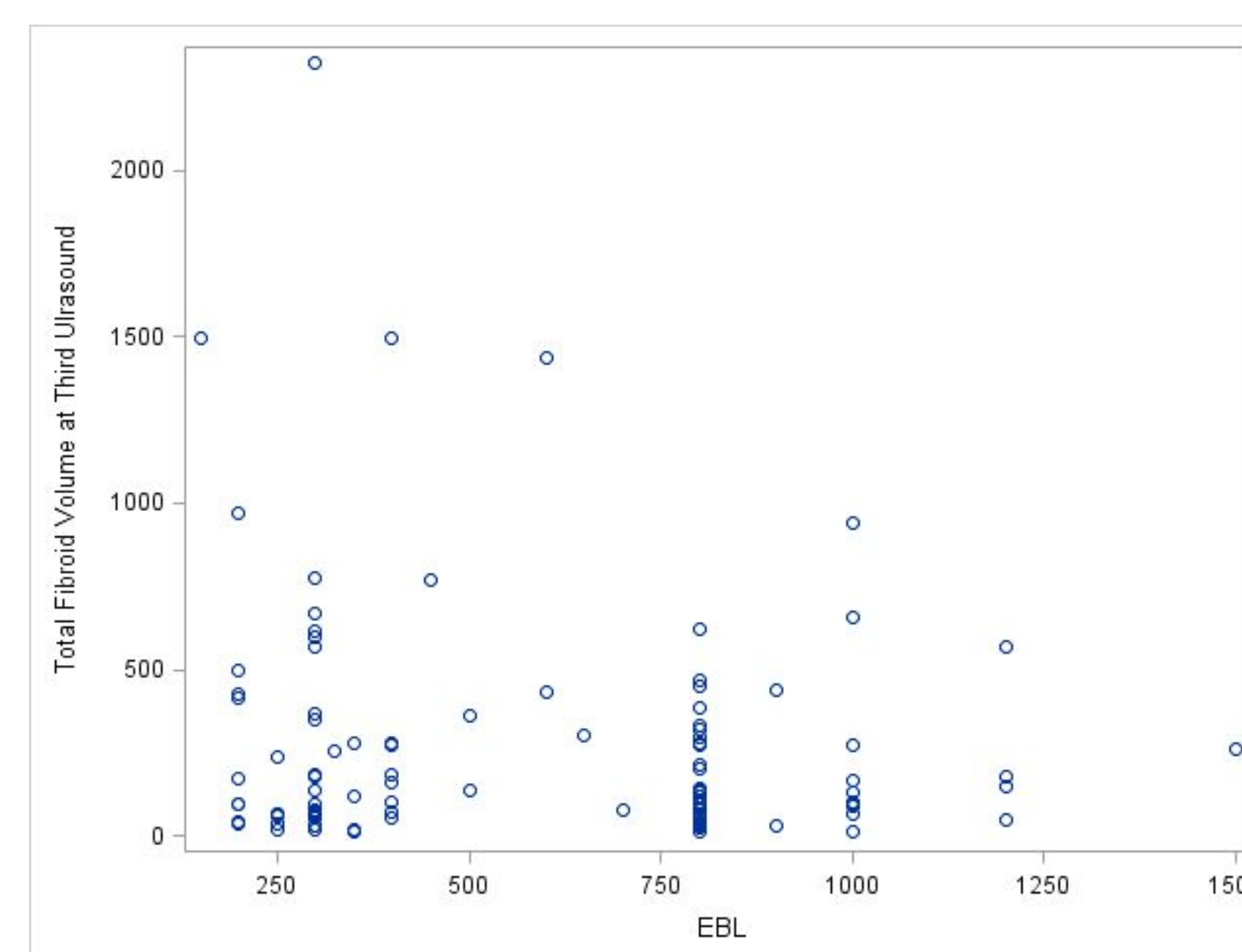
### Is there an association between number of fibroids and EBL?

Number of Fibroids	N	Mean	Median	Std Dev	Q1	Q3
1	66	563.64	425.00	300.07	300.00	800.00
2	28	756.25	800.00	284.77	625.00	800.00
3+	24	489.58	300.00	344.20	275.00	750.00



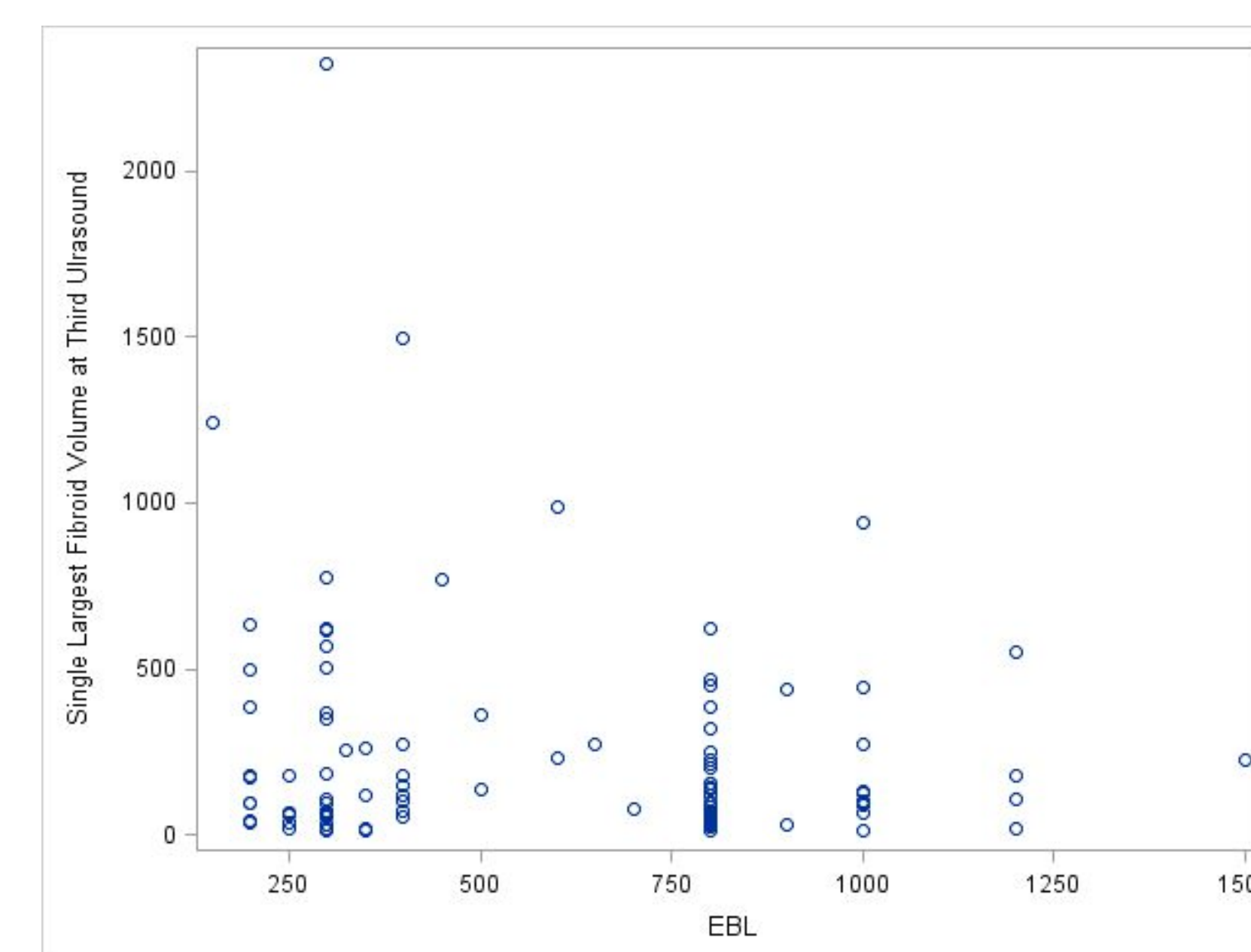
**Figure 4.** Number of fibroids categorized into 1, 2, or 3+ fibroids. Descriptive statistics and a boxplot for EBL by number of fibroids (1, 2, or 3+). Patients with a single fibroid have a mean EBL of 563.65 and median of 425, patients with two fibroids have a mean EBL of 756.25 and median of 800, and patients with three or more fibroids have a mean EBL of 489.58 and median of 300, p-value = 0.003.

### Is there an association between total fibroid volume at third trimester and EBL?



**Figure 5.** Scatterplot of total fibroid volume and EBL. The correlation coefficient (Spearman) between total volume and EBL is -0.02, with a p-value of 0.86.

### Is there an association between single largest fibroid volume at third trimester and EBL?



**Figure 4.** Scatterplot of single largest fibroid volume and EBL. The correlation coefficient (Spearman) between single largest fibroid volume and EBL is -0.02, with a p-value of 0.89.

### Is there an association between fibroid location and EBL?

Location	Any Fibroid in Location?						P-Value
	No			Yes			
	N	EBL Mean ±SD	EBL Median (IQR)	N	EBL Mean ±SD	EBL Median (IQR)	
Lower Uterine Segment	109	601.38 ±320.48	650.00 (500.00)	9	508.33 ±287.77	40.00 (475.00)	0.69
Retropelvic	117	596.37 ±318.49	600.00 (500.00)	1	350.00	350.00	-
Fundal	108	600.69 ±322.64	675.00 (500.00)	10	525.00 ±265.88	450.00 (500.00)	0.66
Anterior	56	593.30 ±307.13	575.00 (500.00)	62	595.16 ±329.89	600.00 (500.00)	0.86
Posterior	96	577.34 ±312.40	475.00 (500.00)	22	668.18 ±338.60	800.00 (500.00)	0.25
Left Lateral	102	615.44 ±318.24	750.00 (500.00)	16	459.38 ±289.95	300.00 (575.00)	0.03
Right Lateral	100	592.75 ±316.99	600.00 (500.00)	18	602.78 ±332.31	525.00 (500.00)	0.80

**Figure 7.** Descriptive statistics for EBL by each location. The "yes" category indicates at least one fibroid in that location at the third trimester, and the "no" category is no fibroid in that location. Patients may have a fibroid in more than one location. Wilcoxon p-values are presented. EBL is significantly different between patients with at least one fibroid in the left lateral category (mean EBL 459.38 ±289.95), as compared to those with no fibroids in the left lateral category (mean EBL 615.44 ±318.24), with lower EBL when a fibroid is present (p-value = 0.03).

There was no significant difference in EBL at the time of delivery in those with solitary versus multiple fibroids. However, the number of fibroids was significantly associated and EBL, with two fibroids having the greatest mean EBL (756.25 ±284.77 cc), followed by single fibroids (563.64 ±300.07 cc), and three or more fibroids (489.58 ±344.20; p=0.003). EBL is also significantly different between patients with at least one fibroid in the left lateral location (459.38 ±289.95 cc) and patients with no fibroids in the left lateral location (615.44 ±318.24; p=0.03). No association between total fibroid volume or single largest fibroid volume with EBL was observed.

## CONCLUSIONS:

Single versus multiple uterine fibroids and fibroid volume are not associated with EBL at time of delivery. The statistically significant associations between the number of fibroids and EBL, as well as the presence or absence of fibroids in the left lateral position and EBL likely represent a Type 1 error. Further research is needed to understand the implications of fibroid characteristics and their impact on blood loss at time of delivery.

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