

PREVALENCE OF SCAR NICHE FOLLOWING ELECTIVE VERSUS EMERGENCY CESAREAN SECTION, A CROSS-SECTIONAL STUDY

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INTRODUCTION

CS is now the most common surgery performed worldwide. In some countries, the national prevalence of CS has increased by 10 folds in over the last two decades. The high rate of CS made the magnitude of CS complications more serious. The cesarean scar niche is one of the many possible complications imposed by CS. CS niche has a lot of possible complications as postmenstrual spotting, dysmenorrhea and chronic pelvic pain. A less common complication of CS scar niche is secondary infertility and ectopic pregnancies. Radiologically, a scar niche will appear as "A hypoechoic area within the myometrium in the isthmus (lower uterine segment) with discontinuation of myometrium at the site of previous CS".

AIM OF THE WORK

To compare between prevalence rate of scar niche following category one and two cesarean sections (emergency cesarean section) (EmCS) versus the prevalence rate of scar niche following category four cesarean section (elective cesarean section) (ElCS) at El Shatby Maternity University Hospital, Alexandria, Egypt.

SUBJECTS AND METHODS

A prospective cross-sectional study conducted on 300 cases divided into two groups; elective group (150 cases) and emergency group (150 cases). Cases had been reviewed after 12 weeks from last CS using 2D TVUS with expert supervision. The uterus and uterine scar had been examined in a standardized way. The uterus had been screened for the presence of CS scar niche using parallel sagittal planes and also transverse planes until the largest scar niche depth is defined. The residual myometrium and the adjacent normal myometrium had been measured. Statistical analysis was performed using IBM SPSS software package version 20.0. The used tests were: Chi-square test, Fisher's Exact or Monte Carlo correction, Student t-test and Logistic regression.

RESULTS

Table 1: Prevalence of CS niche following EmCS versus ElCS

Niche	Overall (n = 300)		Elective (n = 150)		Emergency (n = 150)		χ^2	p
	No.	%	No.	%	No.	%		
Absent	244	81.3	124	82.7	120	80.0	0.351	0.553
Present	56	18.7	26	17.3	30	20.0		

Table 1 shows that the prevalence of CS scar niche in our study is 18.7%. Regarding the relationship between CS niche prevalence and type of CS operation (EmCS versus ElCS), there seems to be no statistically significant relationship between type of CS and the presence or absence of CS niche. (P-value: 0.553).

Table 2: Multivariate logistic regression analysis to detect the most independent factor affecting isthmocele presence.

	p	OR (LL – UL 95% C.I)
Indication		
Elective®		1.000
Emergency	0.056	1.994 (0.981 – 4.052)
CS order		
1®		1.000
2	0.024*	3.157 (1.164–8.568)
3	0.046*	2.817 (1.019 – 7.786)
4	0.004*	5.473 (1.707 – 17.551)
>4	0.006*	5.904 (1.648 – 21.151)
Age (years)	0.982	0.999 (0.947 – 1.055)
Gestational age (weeks)	0.093	1.127 (0.980 – 1.296)
Position of uterus		
AVF®		1.000
RVF	0.026*	2.267 (1.102 – 4.661)

Table 2 presents the findings of a logistic regression model fit to predict the relationship between CS niche presence and several risk factors. Being a multivariate technique, the model accounts for the possible confounder/modifier variables included in the model. The model identifies RVF position of the uterus as a significant risk factor for CS niche. Compared to AVF cases, RVF position is associated with 2.26 times higher risk of developing a scar niche (p-value: 0.026). The most pronounced risk factor for CS niche appears to be the order of CS performed. Having history of more than a single CS is associated with significantly higher risk of CS niche (p-values: 0.046). After performing the second CS, the risk for CS niche multiplies by 3.157 folds (p-value: 0.024). Having a history of four (or more) CSs is associated with nearly 600% increase in CS niche risk. EmCS cases are nearly 2 times more vulnerable to develop a CS niche compared to ElCS (statistically insignificant, p-value: 0.056). The age of the mother at delivery seems to pose no risk of niche formation (p-value: 0.982). On the other hand, with each week of gestational age, the odds of developing a scar niche seems to increase by 12.7%, yet statistically insignificant (p-value: 0.093).

CONCLUSION

Prevalence rate of CS niche following ElCS is 17.3% and prevalence rate following EmCS is 20% with overall prevalence of 18.67% with no statistical significance between both groups. Prevalence of CS niche significantly increases with the increase in CS order. The risk multiplies with consecutive CSs reaching up to 6 folds risk in cases with history of four or more CSs. RVF uteri have 2.26 folds risk for developing CS niche compared to AVF uteri. Neither certain category of EmCS nor certain EmCS indication seems to have higher risk for developing CS niche.