

*Research Article***Sonohysterographic evaluation of the uterine scar after single or double layer closure during cesarean section****Hany H. kamel, Essa M. Mohamed, Ahmed M. Abd elghany and Mahmoud B. Ahmed**

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**Abstract**

**Introduction:** There has been an increase in cesarean section rate over the past 20 years, Vaginal birth after cesarean section (VBAC) has become an integral part of modern obstetrics. The present study tries to evaluate C.S scar by sonohysterography and describing the role of sonohysterography in evaluating the integrity of C.S scar in non pregnant women and finding if there is any correlation between the sonohysterographic finding and the type of uterine scar closure. **Aim of the Work:** To investigate short and term effects on residual myometrial thickness ( RMT ) of adding a second layer to a single unlocked closure of a cesarean uterine incision by using sonohysterographic technique. The purpose of the presenting study was to investigate uterine scar thickness by sonohysterography in patient randomized to receive single or double layer closure of the cesarean section incision when an unlocked technique was used. **Patients and Method:** The present study was conducted at the Department of Obstetrics & Gynecology, Minia University Hospital; and department of obstetrics & Gynecology Elminia general Hospital . It included 100 patients who had primi cesarean section. (50%) of these patients had uterine scar closure by single layer and the other (50%) of the patients with double layer closure. **Results:** A total of 100 women with one previous C.S were included in this study . (50%) of these women had uterine scar closure by single layer, and in the other (50%) women the uterine scar was closed by double layers. There is no clinical difference in the manner of uterine incision closure either single or double layer closure on the uterine scar rupture or dehiscence scar, presence or absence of uterine scar niche or postpartum hemorrhage. **Conclusion and Recommendation:** Based on the results of this study we conclude that saline infusion sonohysterography is able to detect filling defect in women who previously had cesarean deliveries.

**Keywords:** Sonohysterographic, cesarean section, non pregnant women**Introduction**

As the Caesarean Section (C.S) rate has increased at an accelerated pace over the past two decades from 5% to 25% in the United States and some other countries (Cepicky et al., 1991). In Egypt cesarean sections rate increased from a low of 4.6 percent in 1992 to 6.7 percent in 1995 to a high of 10.3 percent in 2000 (Marwan Khawaja et al., 2004), with repeat C.S accounting for as much as 35% to 50% of the increased abdominal deliveries (Shiono et al., 1987). A post-partum history of four or more previous caesarean sections is a clear risk factor for intra-operative complications (Hanley et al., 1996).

This rapid increase in cesareans was accompanied by a rise in maternal morbidity and mortality, lengthened hospitalization and

higher costs-consequences that led to a national effort to reduce the rate of cesarean in the 1980s.

Vaginal birth after cesarean section (VBAC) has become an integral part of modern obstetrics. With more than 100,000 VBACs achieved each year nationwide, this procedure may be viewed as a simple and routine method of delivery (Flamm, 1997). However, experience has shown that VBAC is not risk free, and uterine rupture has been increasingly recognized as one of the complications that physicians should be ready to manage.

**Aim of the Work**

To investigate short and term effects on residual myometrial thickness (RMT) of adding a

second layer to a single unlocked closure of a cesarean uterine incision by using sonohysterographic technique.

**Patients & Methods**

The purpose of the presenting study was to investigate uterine scar thickness by sonohysterography in patient randomized to receive single or double layer closure of the cesarean section incision when an unlocked technique was used .

The present study was conducted at the Department of Obstetrics & Gynecology, Minia University Hospital; Hospital for health insurance and department of obstetrics & Gynecology Elminia general Hospital. It included 100 patients with history of previous one cesarean section. (50%) of these patients had uterine scar closure by single layer and in

the other (50%) patients, the uterine scar was closed by double layer. It was carried out from the 1st of July 2017 to the 1st of March 2019. This study was explained to all patients & all patients consented to participate in the study.

**Results**

Thickness of myometrium bordering the scar and residual myometrium in cases with niches in relation to type of scar closure. The mean thickness of anterior myometrium in women with single layer closure was 9.2±2.6mm and for those with double layer closure was 10±1.9mm (the difference was not statistically significant p>0.05). The mean thickness of residual myometrium in women with single layer closure was 3.1±1.3mm and for those with double layer closure was 6.2±1.4mm (the difference was statistically significant p<0.05).

Type of C.S scar closure	Thickness of anterior myometrium (mm)		Position of uterus	
	Single layer closure (n =50)	8.6±2.02	6.7-14.5	AVF 43
Double layer closure (n =50)	8.8±2.1	6.8-15	47	3
PV	0.6		0.0001**	

\*\*=significant.

**Thickness of myometrium bordering the scar in all women in relation to type of scar closure**

**Discussion**

SIS has been used extensively to assess the uterine cavity in patients with suspected endometrial or intracavitary disease in which TVU alone fail to suggest a definitive diagnosis.

Because the uterine defect seen on TVU alone may appear smaller than that seen on sonohysterography and SIS may facilitate the detection and measurement of depth of niche, we performed this study to evaluate the integrity of C.S scar by sonohysterography as; once saline has distended the defect we can evaluate cesarean section scar by showing the difference between single layer closure and double layer closure of uterine scar.

We were able to identify a niche measuring 5.4±2.5mm (range 1.9-11.3mm) by using SCSH

in 25/100(25%) women. Of the 25 niches noticed, 20/50(40%) niches measuring 6.8±2.4mm (range 2.5-11.3mm) were found in women who had uterine scar closure by single layer.

**Conclusion and Recommendation**

Based on the results of this study we conclude that saline infusion sonohysterography is able to detect filling defect in women who previously had cesarean deliveries. Considering the widespread use of single layer closure of C.S scar and its apparent impact on later uterine rupture, it is urgent and important for us to evaluate the integrity of uterine scar by using sonohysterography. The number and depth of niches and dehiscence were much higher in women who had single layer closure than those who had double layer closure. Thus attention must be focused on the transvaginal sono-

graphic appearance of the detectable uterine scar (niche) with or without use of saline infusion sonohysterography in non pregnant women especially in women who had single layer C.S scar closure as it will train our eyes to look for the scar in the pregnant uterus. In addition another study should be made to follow up these women at subsequent pregnancy to measure the impact of a single layer or double layer closure on uterine rupture and find if there is any correlation between the sonographic finding and the incidence of uterine rupture to evaluate the result of this study. Considering the widespread use of single layer closure, its apparent impact on latter uterine rupture, comparable short term morbidity with single layer and double layer closure technique and sonohysterographic findings noticed in this study, we advice using double layer closure technique especially for women who may experience a subsequent trial of labour.

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