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ORIGINAL RESEARCH ARTICLE

ASSESSMENT OF POST CAESAREAN SCAR IN PREGNANT WOMAN WITH THE HELP OF ULTRA SONOGRAPHY AND HISTO PATHOLOGY

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ABSTRACT

Background: Defects of the uterine scar seem to be a rapidly increasing problem caused by increasing Cesarean delivery rates worldwide. In recent decades, there has been an increasing number of studies that describe Cesarean section (CS) scars, but it is not known how the CS scar niche is associated with an increased risk of uterine dehiscence or rupture in labor. Ultrasonographic evaluation of the uterine scar has become an important element of obstetric and gynecologic practice, especially in further pregnancies. **Aims and Objectives:** This study aims to assess and evaluate the radiological findings in Caesarean Section Scar and to find out the Histopathological Findings of Caesarean Section Scar. **Materials and Methods:** This was hospital based observational longitudinal study conducted at R.G. Kar Medical College & Hospital from June 2018 to December 2019. Total 80 post cesarean pregnant women were

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included in the study. Template was generated and analysis was done on SPSS software. **Results:** Among 80 post cesarean pregnant women majority of the mother are from 20 to 25 years and 31 to 35 years age group (34%). Most of the mothers have gestational age more than and equal to 37 weeks (71%), 29 % of mothers present with SCAR tenderness. Placental position in Previous pregnancy (by USG) at Fundal Position (41%). Most of the mothers have placental position in present pregnancy also at fundal Position (51%). most of the mothers have no complication (44%) in Present pregnancy, 18% have GDM, 11% have Gestational Hypertension, 17% have Bleeding P/V etc. Most of the mothers have Echogenic Structural Changes of Heterogeneous Type in LUS (91.3%) when interval between two subsequent pregnancy <=2 years. Most of the mothers have Congested Endometrial Fold (91.3%) when interval between two subsequent pregnancy <=2 years. **Conclusions:** It can be concluded that when there is decrease in inter Pregnancy interval, chance of Presence of Scar Tenderness is more and when there is Presence of Scar Tenderness, TVS findings Like Ballooning of the Scar, decreased Scar Thickness etc. may be present.

Keywords: Cesarean scar, Caesarean section, histopathological aspects, ultrasonography, uterine rupture

Introduction

The number of deliveries by Cesarean section has been increasing steadily worldwide in recent decades.

Although it is often assumed that Cesarean section improves neonatal outcomes, there is no hard scientific evidence to support this view.[1] The safety of Cesarean section, however, has increased owing to improvements in surgical and anaesthetic techniques, increased safety of blood transfusion and routine use of antibiotics and thromboprophylaxis.[2,3] Cesarean section is also associated with long- term risks such as postoperative pelvic adhesions, uterine scar rupture, and placental complications such as placenta previa and accreta.[4,5,6] The latter two complications are likely to be associated with the poor uterine scar healing following Cesarean sections. Uterine scar dehiscence may present as an acute event in the antenatal or intrapartum period, leading to significant fetal and maternal morbidity. The frequency of uterine rupture is estimated at 0.2–3.8% and that of uterine dehiscence is between 0.6 and 3.8%.[7,8,9]

Three layers of the lower uterine segment (LUS) can be identified on ultrasound: the chorioamniotic membrane with decidualized endometrium; the middle muscular layer; and the uterovesicalperitoneal reflection juxtaposed with muscularis and mucosa of the bladder.[10] Rozenberg et al.[11] too reported a significant relationship between the transabdominal sonographic measurement of the entire LUS thickness in women near term who had had a previous Cesarean section and the risk of uterine rupture or dehiscence, the separation of the muscular layer with an intact serosa.[12] No uterine rupture ordehiscence was noted when the entire LUS thickness was >4.5 mm. Furthermore, the risk of uterine rupture or dehiscence

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was 0.66% when this measurement was ≥3.5 mm, compared with11.7% inwomen who had a LUS thickness <3.5 mm. Attention has focused on the future performance of theuterus after CS. Of particular interest is the development of protocols to predict performance duringtrials of VBAC. The appearance of the CS scar using ultrasound may be relevant, but there is limitedevidence to relate the scar appearances with function. There are also concerns about the incidence of implantation within the scar as well as the association between a scarred uterus and abnormal uterinebleeding and subfertility.

Histopathological examination will be there to strengthen the conclusion.

Today as well as for the last two decades in obstetrics practice, one of the major topics of debate is decision making in caesarean birth. A history of a previous cesarean birth creates more difficulty in such a situation. The old dictum "Once a caesarean always a caesarean" has changed now because of the awareness of obstetricians about the safety of vaginal birth in a scarred as well as the awareness of greater maternal morbidity and increased risk of maternal mortality in caesarean birth.[13] The cost of this major operation is also another factor to make the obstetricians think about the trial of labor by the vaginal route in scarred uterus as an alternative of routine repeat caesarean section. All though the rate is very low the estimated frequency of uterine rupture in scarred uterus with trial of labour is between0.3% to 0.8%. This may be due to the lack of awareness of the integrity of the scarred lower uterine segment and to blindly selecting patients for trial of vaginal birth. With the availability of ultrasonography, assessment of the integrity of the lower uterine scar has become possible. Overall the trans vaginal approach is less investigated for assessing the intactness of scarred LUS. In the present study we measured the scar shape, scar thickness(mm), scar continuity, scar outer border, scar vascularisation, Echogenic structure in Lower Uterine Segment and Scar Volume of LUS in women with the previous C/S by transvaginal ultrasonography. Our aim is to assess the predictive value for the safety of trial of vaginal delivery in patients having previous ceaserean delivery form the assessment of Transvaginal ultrasonography. The pathological evaluation of scar in the form of congested endometrial fold, Lymphocytic infiltration, Focal Adenomyosis, Polyps in scar recess, distortion of Lower Uterine Segment, disorganized muscle fibres in Scar site, Hyalinization of Scar, and nature of Scar done in this study in order to Strengthen the radiological finding to decide the mode of delivery but not in this study, may be in Future another study.

Objectives:

The objective of the study is

1. To assess and evaluate the radiological findings in CaesareanSection Scar.
2. To find out the Histopathological Findings of Caesarean SectionScar.
3. Any Co relation between the radiological and Histo Pathological findings and also to correlate all this features with clinical findings like Scar tenderness, etc

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Method and Materials:

Type of study: Hospital based observational prospective study

Study design: Observational, Longitudinal study design

Study setting: Hospital based study in Department of Gynecology & Obstetrics, R.G. Kar Medical College & Hospital, Kolkata, West Bengal, India

Place of study: Department of obstetrics and Gynecology, R.G.KAR Medical College and Hospital.

Period of study: From June 2018 to December 2019

Study population: Post cesarean pregnant women (Fulfill the inclusion criteria of the study)

Sample size

The sample size is calculated using proper statistical

(n)= [$(Z_{1-\alpha/2}+Z_{1-\beta})^2\{p_1(1-p_1)+p_2(1-p_2)\}]/(p_1-p_2)^2$1 (absolute precision) =
5/0

= $[(1.96+0.84)^2\{28(100-28)+10(100-10)\}]/(28-10)^2$

=70.56 ~ 71

So sample size will be 71+(71x10%)=78.1 approximately 80

Inclusion criteria

1. Pregnant women of History of previous caesarean section.
2. Pregnant women who are given informed consent.
3. Mothers visited in R.G. Kar medical college and Hospital's antenatal clinic
4. Mothers who will conduct TVS in their antenatal period (specially during 3rd trimester)
5. Mothers who will have repeat caesearean section in our institution

Exclusion criteria:

a. Mothers with history of previous vaginal delivery.
b. Pregnant Woman who had Hysterotomy by Low Transverse Section or by T-Section.
c. Woman who have Previously performed surgery on the uterus for other reasons or a Scar ofUnknown

Study variables

A predesigned pretested data collection form which was include age, parity, gravidity, ethnicity, BMII, socioeconomic status etc.

Laboratory investigations, parameters and procedures include Complete haemogram, Blood urea, creatinine, LFT, Sodium, Potassium, Serology for HIV 1&2, HbSAg, AntiHCV ,VDRL, Blood for FBS, TSH, Blood grouping And Rh typing, Blood for HPLC (High Performance Liquid Chromatography), TVS / USG for lower abdomen, pelvis, foeto placental profile and scar thickness, Urine RE/ME and Histopathololgical examination of scar tissue.

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Data collection and interpretation

The case records are studied, analysed and compared with suitable Statistical method. Correlation between different findings is established by table, bar charts wherever feasible.

Statistical Analysis:

For statistical analysis data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS (version 27.0; SPSS Inc., Chicago, IL, USA). Data had been summarized as mean and standard deviation for numerical variables and count and percentages for categorical variables. p-value ≤ 0.05 was considered for statistically significant.

Ethical clearance: The study will be conducted only after obtaining written approval from the Institutional Ethics Committee. Written informed consent was taken from every study patient or their logical representative

Results : This hospital based observational prospective, longitudinal study was conducted at Department of Gynecology & Obstetrics, R.G. Kar Medical College & Hospital, Kolkata, West Bengal, India from June 2018 to December 2019. During the period 80 post cesarean pregnant women fulfilling the inclusion criteria were included in the study. Template was generated in MS excel sheet and analysis was done on SPSS software.

Table 1: Demographic distribution of the participants.

Age (years)	Frequency	Percentage
20-25	27	34
26-30	19	24
31-35	27	34
>35	7	8
Total	**80**	**100**
Gravida		
G2	21	26
G3	15	19
G4	32	40
G5	12	15
Parity		
P1+0	21	26
P1+1	15	19
P2+1	32	40
P2+2	12	15
Number of LSCS		
1	36	45
2	44	55

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Interval between Two Subsequent Pregnancy(Years)		
1 – 2	21	26
3 – 5	40	50
5 - 10	19	24
Gestational Age (Weeks)		
34-36	23	29
>:= 37	57	71
Scar Tenderness		
Present	23	29
Absent	57	71

In our study, it shows majority of the mother are from 20 to 25 years and 31 to 35 years age group (34%). Most of the mothers are fourth gravida (40%), most of the mothers are p2+1 (40%), most of the mothers have previous two Cesarean section (55%). Distribution of the mothers according to interval between two subsequent pregnancies and it shows most of the mothers have 3 to 5 years (50%). Most of the mothers have gestational age more than and equal to 37 weeks (71%). 29 % of mothers present with SCAR tenderness and it is statistically non-significant. (Table 1)

Table 2: Distribution of Mothers According to Placental Position in Previous and Present Pregnancy (By USG)

Placental Position in Previous Pregnancy	**Total (n=80)**
Fundal	33 (41%)
Fundo Lateral	3 (4%)
Lower Segment Anterior	8 (10%)
Lower Segment Posterior	1 (1%)
Lower Segment Lateral	3 (4%)
Low Lying	26 (32%)
Placenta Previa	6 (8%)
Placental Position in Present Pregnancy	
Fundal	41 (51%)
Fundo Lateral	6 (8%)
Lower Segment Anterior	7 (8%)
Lower Segment Lateral	8 (10%)
Low Lying	6 (7%)

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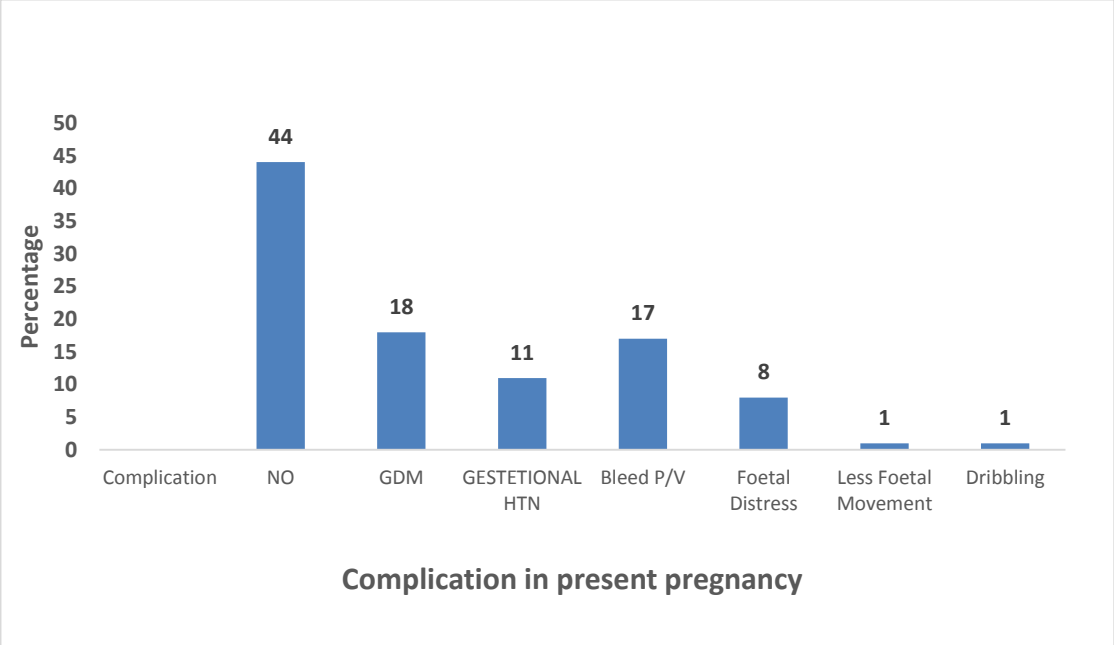
Placenta Previa	6 (8%)
Placenta Acreta	2 (3%)
Placenta Increta	1 (1%)
Over previous scar	3 (4%)

In our study, most of the mothers have placental position in Previous pregnancy (by USG) at Fundal Position (41%). Most of the mothers have placental position in present pregnancy also at fundal Position (51%) and it is statistically non-significant. (Table 2)

Figure 1: Distribution of Mothers According to Any Complication In Present Pregnancy



In our study, most of the mothers have no complication (44%) in Present pregnancy, 18% have GDM, 11% have Gestational Hypertension, 17% have Bleeding P/V etc and it is Statistically non significant. (Figure 1)

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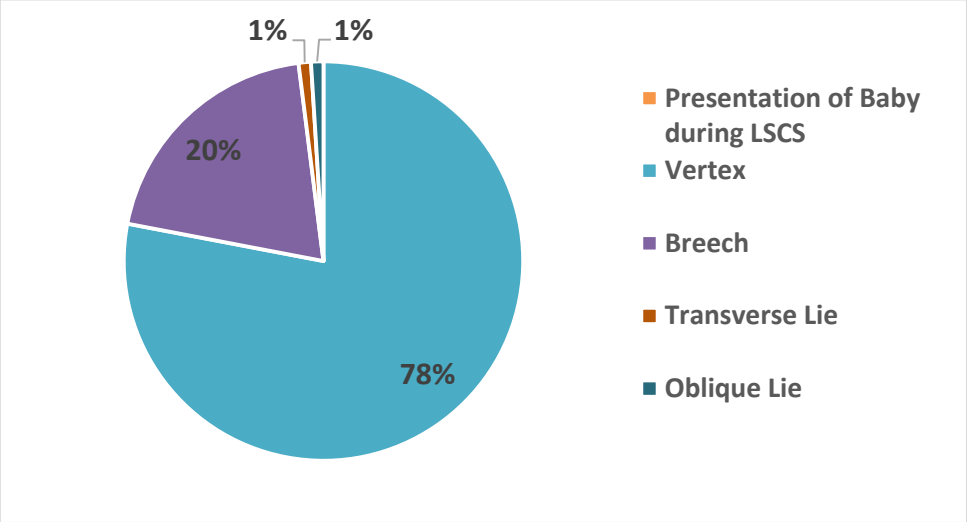
Figure 2: Distribution of Mothers According to Presentation of Baby during LSCS



In our study, most of the mothers have VERTEX (78%) presentation of Baby during LSCS and it is statistically non-significant. (Figure 2)

Table 3:.Distribution of Mothers According to gender and birth weight of Baby.

Gender	Total (n=80)
Boy	17 (21%)
Girl	63 (79%)
Birth Weight (KGs)	
1.5 – 2.0	7 (9%)
2.1 – 2.5	16 (20%)
2.6 – 3.0	39 (48%)
3.1 – 3.5	17 (22%)
>3.5	1 (1%)

Table 3 Shows Most of the mothers have girl baby (79%). Most of the mothers have baby's birth weight in between (2.6 to 03.0) kgs (48%) and it is statistically non-significant

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Table 4: Distribution of Mothers According to TVS Findings

Scar Shape	Total (n=80)
Triangular	56 (70%)
Balloon	24 (30%)
Scar Thickness (mm)	
>3.5	50 (63%)
3.5 – 3	13 (16%)
2.9 – 2.5	17 (21%)
Scar Continuity	
Continuous	57 (71%)
Discontinuous	23 (29%)
Scar Outer Border	
Inside	58 (73%)
Outside	22 (27%)
Scar Vascularity	
Hypo Vascular	16 (20%)
Hyper Vascular	64 (80%)
Echogenic Structure (in LUS)	
Homogeneous	57 (71%)
Heterogeneous	23 (29%)
Scar Volume (mm)	
>10	62 (78%)
<10	18 (22%)

In our study, most of the mothers have Triangular Scar shape (70%), most of the mothers have Scar Thickness >3.5 mm (63%), most of the mothers have Continuous Scar (71%), most of the mothers have Outer Scar Border Inside (73%), most of the mothers have Hyper Vascular Scar (80%). Most of the mothers have Homogeneous (71%) Echogenic Structure in LUS. Most of the mothers have Scar Volume >10mm (78%) and it is statistically non-significant. (Table 4)

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Table 5: Distribution of Mothers According to Histopathological Findings of Caesarean Scar Tissue

Congested Endometrial Fold	Total (n=80)
Present	23 (29%)
Absent	57 (71%)
Lymphocytic Infiltration	
Present	23 (29%)
Absent	57 (71%)
Focal Adenomyosis	
Present	7 (9%)
Absent	73 (91%)
Polyps in Scar Recess	
Present	23 (29%)
Absent	57 (71%)
Distortion of Lower Uterine Segment	
Present	23 (29%)
Absent	57 (71%)
Disorganised Muscle Fibres At Scar Site	
Present	23 (29%)
Absent	57 (71%)
Hyalinisation of Scar	
Present	23 (29%)
Absent	57 (71%)
Nature of Scar	
Fibro muscular	57 (71%)
Fibro Collageneous	23 (29%)

In our study, most of the mothers don't have Congested Endometrial Fold (71%), most of the mothers don't have Lyphocytic Infiltration (71%), most of the mothers don't have Focal Adenomyosis (91%), most of the mothers don't have Polyps in Scar Recess (71%). Most of the mothers don't have Distortion Of Lower Uterine Segment (71%), most of the mothers don't have Disorganized Muscle Fibres at Scar Site (71%), most of the mothers don't have Hyalinisation of Scar (71%) and Most of the mothers have Firbromuscular Type Scar (71%) and it is statistically non-Significant. (Table 5)

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Table 6 : Incidence of Scar Shape Changes, Continuity Of Scar Changes, scar tenderness

Interval of Two Subsequent Pregnancy (Years)	**Balloon**	**Triangular**	**P Value**
<=2	21 (91.3%)	0 (0%)	p < 0.05
3 - 5	2 (8.7%)	38 (66.7%)	
>5	0 (0%)	19 (33.3%)	
Interval between two subsequent pregnancy	**Continuous**	**Discontinuous**	
<=2	0 (0%)	21 (91.3%)	p < 0.05
3 - 5	38 (66.7%)	2 (08.7%)	
>5	19 (33.3%)	0 (0%)	
Scar Tenderness	**Continuous**	**Discontinuous**	
Absent	57	0	p < 0.05
Present	0	23	

Table 6 shows that shows Most of the mothers have Scar Shape of Balloon Type (91.3%) when interval between two subsequent pregnancy is <=2 years. Pearson's Chi Square Value 70.725 and p value is 0.000 and it is statistically significant. Most of the mothers have Discontinuous Scar (91.3%) when interval between two subsequent pregnancy <=2 years. Pearson's Chi Square Value 70.725 and p value is 0.000 and it is statistically significant. all the mothers have Discontinuous Type of Scar (100%) when Scar tenderness presents. Pearson's Chi Square Value 60.000 and p value is 0.000 and it is statistically significant

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Table 7: Incidence of Echogenic Structural Changes in LUS

Interval between two subsequent pregnancy		Echogenic_Structure_in_Lower_Uterine_Segment_RAD		Total
		Heterogeneous	Homogeneous	
<=2 YEARS	Count	21	0	21
	% within Echogenic_Structure_in_ Lower_Uterine_ Segment_RAD	91.3%	.0%	26.2%
3-5 YEARS	Count	2	38	40
	% within Echogenic_Structure_in_ Lower_Uterine_ Segment_RAD	8.7%	66.7%	50.0%
> 5 YEARS	Count	0	19	19
	% within Echogenic_Structure_in_ Lower_Uterine_ Segment_RAD	.0%	33.3%	23.8%

Table 7 shows Most of the mothers have Echogenic Structural Changes Of Heterogeneous Type in LUS (91.3%) when interval between two subsequent pregnancy <=2 years. Pearson's Chi Square Value 70.725 and p value is 0.000 and it is statistically significant

Table 8: Incidence of Congested Endometrial Fold.

Interval between two subsequent preganancy		Congested_Endometrial_Fold HIST		Total
		A	P	
<=2 YEARS	Count	0	21	21
	% within Congested_Endometrial_ Fold_HIST	0%	91.3%	26.2%
3-5 YEARS	Count	38	2	40
	% within Congested_Endometrial_ Fold_HIST	66.7%	8.7%	50.0%
> 5 YEARS	Count	19	0	19
	% within Congested_Endometrial_ Fold_HIST	33.3%	.0%	23.8%

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Table 8 shows Most of the mothers have Congested Endometrial Fold (91.3%) when interval between two subsequent pregnancy <=2 years. Pearson's Chi Square Value 70.725 and p value is 0.000 and it is statistically significant.

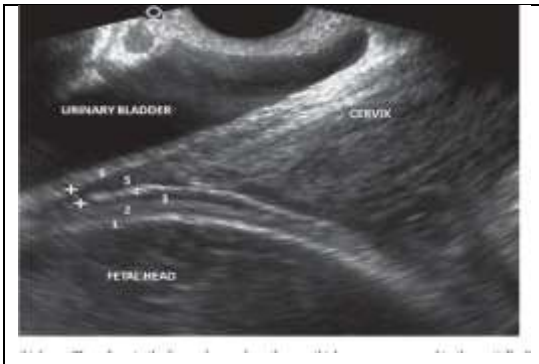

Figure 3 : Uterine Scar Thickness Measurement

Figure 4 : Uterine Scar Measurement Width, Depth etc measurement.

Figure 5 : Image of Niche

Figure 6 : Impending Scar Rupture

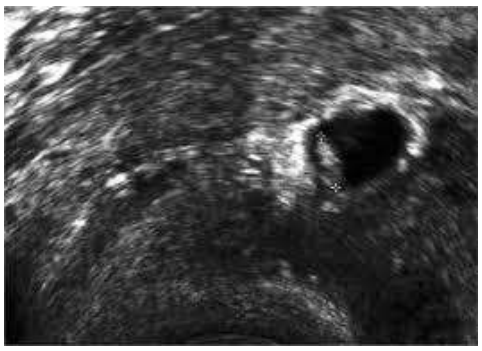

Figure 7 : Caesarean scar pregnancy

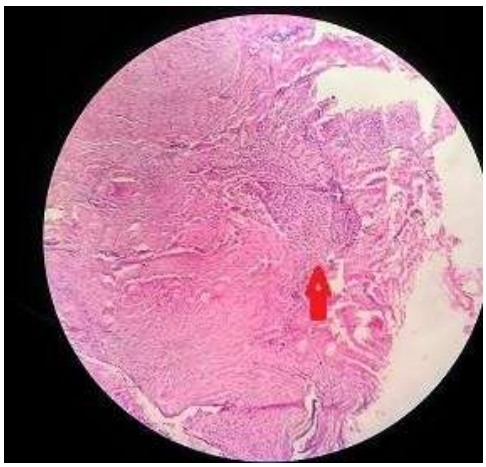

Figure 8 : Caesarean scar

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Discussion :

There is no such study assessing post cesarean scar by both that is TVS and Histopathological parameters in one single study so literature were given separately one by one, at first started with Ultrasonography (TVS).

Study by Asakura et al. (2000)[12] based on measuring the thickness of the lower uterine segment as a predictor of uterine scar dehiscence. "Cut-off" value of the lower uterine segment was established at 1.6 mm. Sensitivity and specificity of trans- vaginal ultrasound was 77.8% and 88.6%, respectively. At the same time the positive predictive value of ultrasound was 25.9% and negativepredictive value 98.7% (Asakura H et al., 2000).[12]

Another study (Leb- edev et al., 1991)[14] analyzed using sonography the uterine myometrium and determines the following criteria:

Myometrium adequate for vaginal delivery: a V shape of the lower uterine segment, the minimum thick- ness of 3-4 mm, continuous contour of the lower uterine segment, homogeneous echo structure or structures with small areas of increased echogenicity. Myometrium inadequate for vaginal delivery: Balloon like shape of the lower uterine segment, thickness less than 3 mm, the discontinuity of uterine structures, predominance of areas of increased echogenicity in the scararea. Study by Flamma et al. (1988)[15] examined the percentage of successful vaginal delivery in pregnant women who have previously given birth by Caesarean section. 74% of pregnant women with previous cesarean section were delivered successfully without significant maternal and fetal mortality. Conclusion by Flamma et al. is that vaginal delivery is possible and safe for most patients who have previously given birth by LSCS.

Bujold E., Pas quier JC.[16] Ultrasound studies were published in the literature related to the thickness of the lower uterine segment in relation to the risk of scar separation and uterine rupture during labor in women who delivered their babies by Caesarean section. The incidence of scar separation during delivery was 7%. Analysis of the thickness of the lower uterine segment found that the lower uterine segment thickness 2mm and less was found in 17.4% of women and that in 22% of them scar separation occurred. In 3.4% of patients in whom the scar was thicker than 2 mm was found scar separation. Scar thickness from to 3.5 mm was found in 36% of cases, of which 18% of cases of scar separation is found. Tableconcluded that the lower uterine segment thickness of 2 mm and 3.0–3.5 mm are associated with the risk of separation scars on the uterus during pregnancy and childbirth. The thickness of the lower uterine segment from 3.0 to 3.5 mm is associated with very low risk of uterine scar separation from previous cesarean section and in these patients allows the vaginal childbirth. Patients in whom the lower uterine segment thickness is below 2.0 mm have a high risk of uterine scar separation.

Poidevin[17] performed hysterographic examination on 43 women 6 months after CS. He described a typical small wedge- shaped morphological 'defect' in 27 patients, which he believed was an indication of healing and considered this safe for vaginal delivery in the future. Burger *et al.*[18] performed TAS on 48 women who had undergone CS. They described a son lucent area, with

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varied degrees of echogenicity, at the wound site between the anterior wall and the cavity of the uterus. This pattern was found in 15 out of the 48 patients involved in the study, and was classified as an incompletely healed uterine scar. Chen *et al.*[19] described a wedge-shaped hypo echoic area at the CS wound site that was easily distinguishable from the neighboring part of the lower uterine segment (LUS).

Few histopathological studies of lower uterine segment and Cesarean section scar have been published compared with that in other tissues. Our objective was to describe the incidence of various histopathological findings at the site of cesarean section scar defect (niche).[20]

Several small studies have demonstrated that niche may be responsible for abnormal gynecological symptoms such as prolonged postmenstrual spotting, dysmenorrhea, secondary infertility, dyspareunia, chronic pelvic pain (Fabres et al., 2003).[21] Many reports emphasized that using unenhanced ultrasound imaging is not always easy to determine the number and size of scar defects or the thickness of the remaining myometrium over the defect. There has been very little published material on the histopathology of scarring in myometrium. Although there are a few studies exploring the biochemistry and biomechanics of human uterine scars (Buhimschi et al., 2006).[22] Because variation in myometrial wound healing is not widely discussed in gynecology or pathology textbooks, intensive scrutiny of myometrial wound healing is not performed by pathologists in routine practice. However, obstetrician–gynecologists in daily clinical practice are now frequently witnessing the relevance of uterine wound healing with regard to the dehiscence of uterine scars and subsequent rupture during parturition (ACOG 2010). Several hypotheses have been postulated to explain the etiology of bleeding disorders in relation to the scar defect. It has been assumed that abnormal uterine bleeding may be due to the retention of menstrual blood in the niche, which is intermittently expelled after the majority of the menstruation has ceased, causing postmenstrual spotting. Fabres et al., 2005[23] reported that this condition may depend on poor contractility of the uterine muscle around the niche.

In addition, the presence of fibrotic tissue below the niche may impair the drainage of menstrual flow through the cervix (Fabres et al., 2005).[23] It cannot be ruled out that the accumulated blood is produced in situ, as suggested by Morris 1995[24] based on the presence of free blood cells in the lining stroma, suggesting a recent hemorrhage.

Alshiemy, 2013[25] proposed the presence of a valve like action of an endometrial fold or polyp at the mouth of the niche which causes accumulation of menstrual blood inside the niche and this valve opened post menstrual during uterine contraction causing post menstrual bleeding. This valve action may be augmented by the presence of RVF uterus.

Roeder et al., 2012[26] and revealed evidence of altered healing including myofiber disarray MD), elastosis, tissue edema, and inflammation. Small fibroids, myometrial hyperplasia (MMH), a keloid-like region of scar and adenomyosis were also observed. Myofiber disarray (MD) or disorganized muscle fibers was smooth muscle fibers swirling in all directions, in contrast to the usual alignment noted in uninvolved myometrium. It was seen in the 7 cases (100%) of Roeder et al.,2012[26] study. Elastosis is a focal globular accumulation of thick elastic fibers that can best

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be visualized by light microscopy with Weigert-Van Gieson stain, it was detected in 3 cases of Roeder study oneof them had CS scar.

In Roeder study a myometrial hyperplasia (MMH) was noted adjacent to scar of the corpus inone case, also a myometrial keloid-like area was seen at the scar of the corpus in 1 case. Their study shows that the larger the defect size the more associated clinical symptoms. These results arein agreement with Wang et al., 2009.[27]

In brief, their study shed a light on the role of histopathology in detection of cesarean scar defects and its long term complications and also helping in understanding its pathogenesis. Hence, treatment of cs scar defects may be the optimal management for many symptomatic patients with a non-significant other uterine pathology instead of a major surgery such as hysterectomy. Scanning of an old cs scar should be mandatory. It must be said that cesarean scars should have more concern in the future studies in order to learn more about its nature.

Limitations of the study

This study two different investigating modality were used (TVS and Histopathology) to assess the integrity of Post Cesarean Scar. There was too much cumbersome to collect Histopathological Specimen after LSCS, and also make agree to all the antenatal mother to do TVS (per vaginally) at third trimester of pregnancy. We can also try for VBAC, in this study, which was not done. The study has been done in a single centre. Therefore, further studies should be conducted with bigger sample sizes and hospitals in rural and urban area.

Conclusion and Recommendations :

From the present study it can be concluded that, a) when there is decrease in inter Pregnancy interval, chance of Presence of Scar Tenderness is more. b) When there is Presence of Scar Tenderness, TVS findings Like Ballooning of the Scar, decreased Scar Thickness etc. may be present (It denotes decreased strength of Scar when scar tenderness present). c) When there is presence of Scar Tenderness, Histopathological Findings Like presence of congested endometrial fold, Lymphocytic infiltration etc. may be Present (It denotes decreased strength of Scar when scar tenderness present). d) When there is decrease in Inter Pregnancy Interval TVS findings Like Ballooning of the Scar, decreased Scar Thickness etc. may be present (It denotes decreased strength of Scar when Inter Pregnancy Interval decrease). e) When there is decrease in Inter Pregnancy Interval Histopathological Findings Like presence of congested endometrial fold, Lymphocytic infiltration etc. may be Present (It denotes decreased strength of Scar when Inter Pregnancy Interval decrease).

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