



ROLE OF ULTRA SONOGRAPHY IN PREVIOUS CAESAREAN SECTION

Gynecology

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ABSTRACT

AIMS AND OBJECTIVES

- To assess whether sonographic surveillance is a reliable and practical means of evaluating the lower uterine segment scar after conception and before labour or delivery.
- anagement and mode of delivery may be determined in the present pregnancy.
- The study is an observational study and would not allow to test performance of the LUS by giving trial of labour when defect is found on sonography.

KEYWORDS

INTRODUCTION

Caesarean section aims at a decrease in maternal & foetal mortality and morbidity by virtue of its cautions and careful approach, which has made it a common practice in modern obstetrics.

The rising rate also means an increasing number of pregnancies following previous Caesarean section, thereby increasing the number of pregnancies at risk.

Once upon a time the unshakeable belief that "once a Caesarean section always a Caesarean section" has been contradicted and has now been replaced by the dictum "one a Caesarean section always a hospital delivery".

Direct inspection at the time of Caesarean section does not help to evaluate the scar before labour, but now a days sonographic surveillance of scar has made it possible to evaluate it before labour, so that a larger proportion of patient could be considered for a trial of scar in future protocol.

Present study was conducted with the view of establish a prospective evaluation of scar integrity of the previous Caesarean section scar with help of ultrasonography, so that a correct and timely decision regarding the mode of delivery can be taken in this pregnancy.

MATERIAL AND METHOD

The present study is a prospective study of 100 multigravidas at risk for possible uterine rupture due to presence of a scar because of a previous Caesarean section. The total study population of 100 patients was examined prospectively by ultrasound to document development of lower uterine segment and to diagnose any defect.



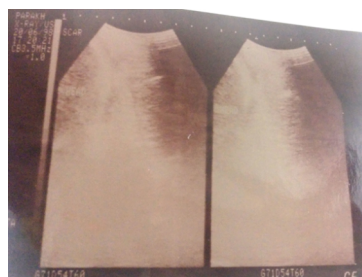
Normal Sonograph Lower Uterine Segment
a. On transabdominal sonography in longitudinal plane



Symmetrical thinning of lower uterine segment



Asymmetry in thickness of lower uterine segment



Sonographic class - 3, wedge defect



Balloon defect of lower uterine segment

SELECTION OF PATIENTS

For proper selection of patients detailed clinical history was taken and detailed clinical examination was carried out. All significant findings and variations have been looked for and entered in the records as far as possible.

The U.S.G. machine used for this study was Shimasonic SDU-500 real time ultrasound scanner. A frequency of 3.5 Mhz was used. The linear and sector probes used for the examinations. Image picture of significant findings were recorded by applying polaroid camera.

The total population was divided into three sonographic classes as shown in this table -

S.No.	Class	Observation	Modifier
1.	Normal	Thinning	Sym/asym
		Thickness	> 5 mm
		Ballooning	Absent
		Movement	Slight

		Wedge defect	Absent
2.	Abnormal thinning	Thinning	Sym/asym
		Thickness	< 5 mm
		Ballooning	+ / -
		Movement	Variable
		Wedge defect	Absent
3.	Wedge defect	Thinning	Asym
		Thickness	Variable
		Ballooning	Variable
		Movement	Variable
		Wedge defect	Present

Class 1. Patients were considered normal.

Class 2. Patients had abnormalities with either an obvious defect or abnormal thinning, as defined which were considered as classing windows.

Class 3. Patients were considered separately because their defects were well circumscribed and appeared to be unrelated to the thickness or movement classes (2) and (3) were considered potentially pathologic if test functionally.

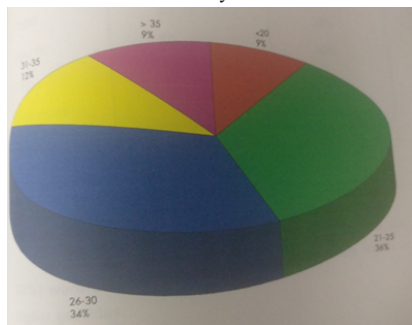
All the patients were delivered by elective Caesarean section. For analysis intra-operative findings were compared with sonographic description of the lower uterine segment.

INTRA-OPERATIVE FINDINGS WERE CLASSIFIED AS FOLLOWS

1. A well developed lower uterine segment that was either symmetrically or asymmetrically thin was considered normal, when a continuous and well defined myometrial layer was seen, slight variations in thickness of the lower uterine segment were considered normal.
2. A classic windows or abnormally thin segment was diagnosed when the uterine contents could be visualized through the lower uterine segment. The segment was also abnormal, when described as paper thin but not thin enough to visualize the uterine contents.
3. An obvious defect was defined as an area of extreme asymmetric thinning that could be palpated and/or visualized. The defect was surrounded by a normally developed lower uterine segment.
4. Although similar, a wedge defect was diagnosed when a more circumscribed area of myometrium was involved.

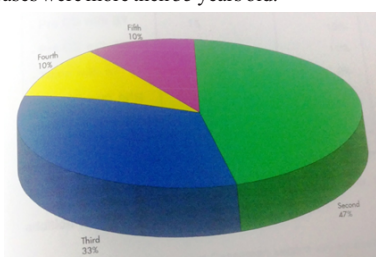
OBSERVATION

The observations and results of study were as follows -



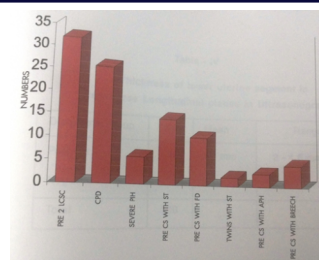
1. Showing Age Distribution

It is observed that majority of patients (i.e. 70%) were in age group of 21 to 30 years, 9% of cases were below 20 years of age and equal number of cases were more than 35 years old.



2. Distribution According to Gravidity

As it is depicted in the graph, majority of patients (i.e. 80%) were second & third gravidae, remaining were fourth or higher gravidae.

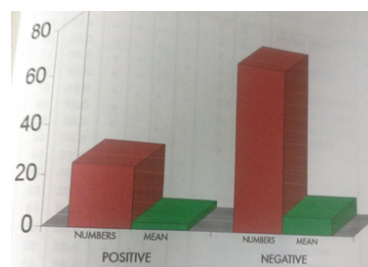


3. Indications of repeat Caesarean Sections

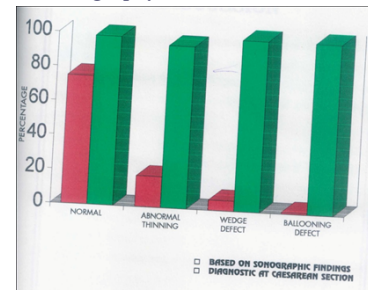
All these patients had different complicating factor, in addition to previous Caesarean section.

The most common indications were previous 2 LSCS (32%) followed by previous Caesarean section with CPD (26%). These two indication constituted around (58%) of cases, Scar tenderness & Foetal distress, severe PIH & malpresentations were other common indications for repeat Caesarean section.

All the patients in study group had transverse incision at the previous Caesarean section. There was no patient with lower segment vertical incision.



4. Thickness of lower uterine segment in transverse Longitudinal planes in Ultrasonography



5. Distributions of Sonographic Classes

The mean thickness of the lower uterine segment was significantly less in positive group of patients (2.8 mm) as compared to normal or negative group (8 mm).

As shown in graph V three stage classification was evolved on the variable sonographic anatomy of the lower uterine segment Class I patient had normal sonography findings, class (2) and class (3) were abnormal of the 100 cases, 75 were classified as class I, whereas 25 were classified as either 2 or 3.

On false positive and false negative scans were found. The false positive rate for abnormal cases was 4% (1 in 25) for entire population the false positive rate was 1% (1 in 100), false negative rate was 1.33% (1 in 75), for entire population 1% (1 in 100). The sensitivity and specificity for all patients examined were 96% and 98.6% respectively.

The predictive value of a normal test was 98.6%. The predictive value of an abnormal test was 96%.

DISCUSSION

"Good amount of prenatal care can compensate for poor care at the time of delivery and good care at the time of delivery can often compensate for lack of prenatal care and can be the most potent single factor for good or bad obstetrics."

Labour after prior Caesarean section is now common and usually uneventful. The safety of such vaginal births have been documented for most women. Successful management of labour in women with uterine scar requires careful patient selection, preparation and management.

The determining factor in recognizing the integrity of uterine scar is the appearance of scar in sonography and not the presence or absence of symptoms. The accurate recording of this observation will of necessity result in a higher incidence of dehiscence/rupture than is generally reported in the literature and will more closely represent the true picture.

Healing power and surgical techniques are the most important factors in determining the integrity of the Caesarean section scar. Neither can be accurately judged without knowing the knowledge of previous surgeon.

Prior to labour most defective or ruptured lower uterine segments are asymptomatic. There is little doubt that some will withstand labour while others will progress and become symptomatic and will have serious sequelae.

Our study establishes that sonographic surveillance of a defective lower uterine segment is possible. The high positive and negative predictive value of the study as well as low false positive and false negative rates demonstrate that prospective sonographic surveillance of scarred lower uterine segment is a reliable clinical tool in obstetrics.

CONCLUSION

Ultrasonography as a non invasive procedure has been upto date proved to be absolutely safe to conceptus inspite of repeated exposures at any stage of pregnancy. If ultrasound screening method for diagnosis of lower uterine segment defects are adopted, atleast 75% of candidates with previous Caesarean section can be considered for trial of labour with improved safety. At the same time, prior judgment and anticipated elective Caesarean section can be undertaken in patients who otherwise may end up with a scar dehiscence or rupture if the patient is allowed to go for an unnecessary trial of labour.

This study demonstrates that sonographic surveillance of the scarred lower uterine segment for defect of abnormal thinning before labour is both possible and accurate.

References

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