ORIGINAL ARTICLE

ROLE OF UTERINE SHAPE AND VOLUME ABNORMALITIES IN RECURRENT PREGNANCY LOSS (RPL)

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ABSTRACT

Background: Certain uterine factors like bicornuate, unicornuate and septate uterus being prime examples are more predictably associated and repeated pregnancy loss. These can be accurately investigated by HSG, 2D Transabdominal Sonography and Transvaginal Sonography.

Methodology: The present study is a cross-sectional study conducted on the patients of Recurrent Pregnancy Loss (RPL) with history of two or more abortion with no live issue coming to the Outdoor Patient Department (OPD) of Sheth K.M.School of Post Graduate Medicine and Research, Ahmedabad. The study was based on the interview consisting of preformed questionnaire with the cases of RPL followed by the detail investigation by hysterosalpingography (HSG), 2D ultrasonography (Transabdominal Sonography (TAS) and Transvaginal Sonography (TVS)).

Results: It was found that 11.8% of the cases of RPL were due to uterine malformations. Decrease in the uterine volume was observed in 3 out of 35 cases of RPL patients. HSG and 2D TVS were correctly able to diagnose all the 4 cases of uterine malformations.

Conclusion: It is concluded that 10 percent of our cases of recurrent pregnancy loss are due to uterine malformations. HSG and 2D TVS has equal sensitivity in detecting uterine malformations.

Keywords: Uterine volume, Recurrent Pregnancy Loss, Sonography

INTRODUCTION

Spontaneous termination of pregnancy before 20th week of gestation with weight < 500 gm occurring at least 3 times in succession is considered as recurrent pregnancy loss.[1] The anomalous uterus has long been recognized as a cause of obstetric complication. Recurrent pregnancy loss, preterm labour, abnormal fetal presentation and prematurity constitute the major reproductive problem encountered with developmental and acquired uterine malformations.[2]

Whereas certain factors like shape of uterus and volume of uterus described as causal role in early pregnancy loss. Distinction must further be made between failure to conceive and subsequent poor nidation or early pregnancy wastage.[3]

Thus certain uterine factors like bicornuate, unicornuate and septate uterus being prime examples are more predictably associated and repeated pregnancy loss.[4] These can be accurately investigated by HSG, 2D Transabdominal Sonography and Transvaginal sonography.[4] Most common used tool for diagnosis of uterine anomalies is HSG.[5] But HSG be technically complicated by several factors. The bicornuate uterus cannot always be reliably diagnosed with 2D USG except with co-existing pregnancy and other methods of diagnosis such as hysteroscopy and HSG are superior in these cases.[5] The investigations used in concluding the anatomic uterine anomalies causing recurrent pregnancy loss is focused in our study.

OBJECTIVE

The present study was planned with an objective to study role of uterine shape and volume factors in RPL in patients attending obstetrics and gynecology OPD.

METHODOLOGY

The present study is a cross-sectional study conducted on the patients of Recurrent Pregnancy Loss (RPL) with history of two or more abortion with no live issue coming to the Outdoor Patient Department (OPD) of Sheth K.M.School of Post Graduate Medicine and Research, Ahemdabad. The present study was conducted during July 1999 to June 2000 over a period of one year. The study was based on the interview consisting of preformed questionnaire with the cases of RPL followed by the detail investigation by hysterosalpingography, 2D ultrasonography (Transabdominal Sonography (TAS)

and Transvaginal Sonography (TVS)) and blood examination. Hysterosalpingography was performed on the cases post menstrualy between 7 to 10th day of cycle followed by TAS and TVS. The preformed questionnaire included the information about the demographic profile, chief complaints, and general physical examination of the patient and blood examination findings of the participants. The study was conducted after taking ethical permission from the Institutional Ethical Committee. All the participants are involved in the study after taking the written informed consent.

Measurement of Uterine Volume:

In the present study, the uterine volume was calculated using formula

U = W x L x H x F F=0.5236 (Voluson 530D MT user's manual)

RESULTS

There were total of 40 cases of RPL registered during the period of one year. Out of them, five cases denied to participate in the study reducing the sample to 35 cases. More than 50 percent of the cases (57.2%) were in the age group of 21-25 years. Decrease in the uterine volume was observed in 3 cases of RPL patients.

Table 1: Uterine anomalies in the patients

Variable	Patients (%)
Age group	
16 – 20	10 (28.5%)
21 – 25	20 (57.2%)
26 – 30	5 (14.3%)
Number of Abortions	
Two abortions	15 (42.8%)
Three abortions	20 (57.2%)
Uterine Anomalis (by HSG)	
Normal uterus	30 (85.7%)
Unicornuate uterus	1 (2.8%)
Bicornuate uterus	2 (5.7%)
Arcuate uterus	1 (2.8%)
Uterine volume	
Normal volume	31 (91.5%)
Decrease volume	3 (8.5%)

Table 2: Comparison of uterine anomalies with age group

Variable	16 – 20	21 – 25	26 – 30
H/o of Abortions			
2 abortions	10	5	0
3 abortions	0	15	5
Shape of uterus			
Unicornuate	1	-	-
Bicornuate	-	2	1
Arcuate	-	-	-

In the table 2, comparison between age group of the participants and number of abortions and shape of uterus is shown. In the table 3, comparison of uterine malformations and uterine volume is given. In unicornuate uterus, decrease in the uterine volume is seen.

Table 3: Volume of uterus in anomalous uterus patient in RPL

Uterine anomalies	Number	Uterine volume
Unicornuate	1	Decreased
Bicornuate	2	N
Arcuate	1	N

In the table 4, comparison of various investigations has been shown. HSG and 2D TVS were able to identify all the cases of uterine anomalies while 2D TAS was not able to identify unicornuate uterus.

Table 4: Comparison of various diagnostic modalities in uterine anomalies

Uterine anomalies	HSG	2D TAS	2D TVS
Unicornuate	1	0	1
Bicornuate	2	2	2
Arcuate	1	1	1

DISCUSSION

HSG diagnosed one case of unicornuate uterus while 2D TAS has misdiagnosed it as unicornuate uterus. But 2D TVS have picked up unicornuate uterus. In 2D USG unicornuate uterus is difficult to diagnose as it is seen as slightly smaller than normal and somewhat asymmetrical uterus. Rudimentary horn of uterus can be seen but often mistaken for uterine leomyoma. HSG in all cases diagnosed unicornuate but not rudimentary form which may be communicating with true cavity. Young and Gibson[5] identified a subgroup of women with unicornuate uterus seen at HSG who proved to have a normal serosal surface on laparoscopy. Thus HSG may be misleading when there are synechia in the uterine cavity which may obliterate one horn of uterus.

2D USG out of 35 cases, 2 cases were diagnosed as bicornuate uterus. Sabbagha[6] has stated that bicornuate uterus may be difficult to distinguish from didelphysis or the septate uterus depending on the clarity with which external contour is shown. HSG has diagnosed 2 cases out of 35 cases. But HSG also can't differentiate bicornuate from septate as both showed Y shaped cavity showing cases of bicornuate uterus to arrive at correct diagnosis laparoscopy or hysteroscopy is necessary.

Many patients of uterine anomalies never had obstetric or gynecological difficulties. Incidence of uterine anatomy defects causing RPL was ranging from 10 - 27 percent (COG 94). In our study we included 35 patients of RPL with no live issue attended Obs/Gynec OPD. We found the proportion of uterine anomalies is 10.2%.

CONCLUSION

It is concluded that 10 percent of our cases of recurrent pregnancy loss are due to uterine malformations. HSG

and 2D TVS has equal sensitivity in detecting uterine malformations.

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