Clinical relevance of the height of fundal indentation of the arcuate uterus

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INTRODUCTION

The most commonly used and accepted classification for the Arcuate Uterus is that of the American Fertility Society (AFS). The AFS has defined the arcuate uterus separately from the partial and total septate uterus, on the basis that the arcuate uterus is a benign form with no or minimal influence on reproductive potential.[1] Congenital uterine malformations, particularly uterine septum is commonly reported as one of the main factors causing pregnancy loss or premature delivery with the poorest infant viability. Several studies have confirmed a direct correlation between septate uterus and an increased spontaneous miscarriage rate.

Recurrent pregnancy loss (RPL) is defined by he American Society of Reproductive Medicine (ASRM) as the occurrence of two or more failed clinical pregnancies as documented by US or histopathologic examination). Primary RPL refers to pregnancy loss in women who have never carried to viability. In our study we use early primary recurrent pregnancy loss of two or more failed clinical pregnancy less than 14 weeks GA.

According to Grimbizis GF, the prevalence of uterine anomalies in the general population of fertile women is approximately 4.3% in contrast with patients with recurrent pregnancy loss is approximately 12.6%. [3]

Categorization of the Arcuate uterus may offer a more precise diagnosis and a more accurate associated prognosis. The use of 3-Dimensional transvaginal sonography (3D TVS), and obtaining a mid-coronal uterine view, may serve to provide greater insight into the role of uterine morphology in reproductive potential. The authors performed an investigation with this imaging tool to improve the counseling provided to patients with this uterine anomaly.

METHODS

This Arcuate Measure (degree of "arcuateness") was recorded, classified as

0 and < 0.5 cm = **Minimal**;

≥ 0.5 < 1.0 cm = **Moderate**;

≥ 1.0 < 1.5 cm = **Severe**;

≥1.5 cm = **Septated**.

Information was collected from each subject, to determine past reproductive history, and going forward, the reproductive outcomes following the ultrasound scan were recorded.

3D US surface rendered images showing different types of arcuate uterus

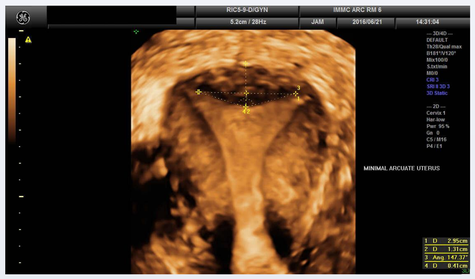


Figure 1. Minimal 1 to <5 mm

Figure 2. Moderate 5 to <10 mm

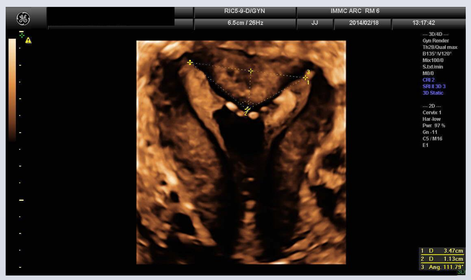


Figure 3. Severe 10 to 15 mm

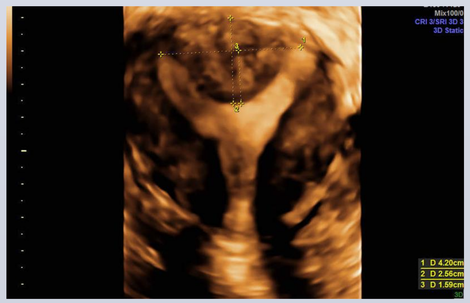


Figure 4. Septate uterus >15 mm

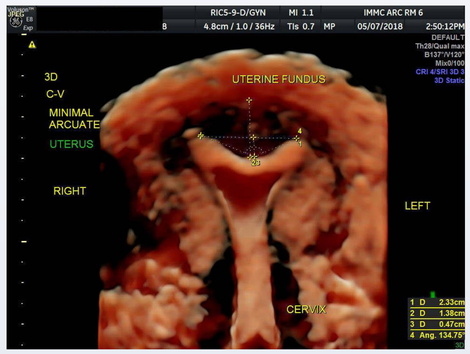


Figure 5. 3D TVS with SIS and HD live rendering C-V of uterus demonstrating the measurements use to identify the type a minimal arcuate uterus:

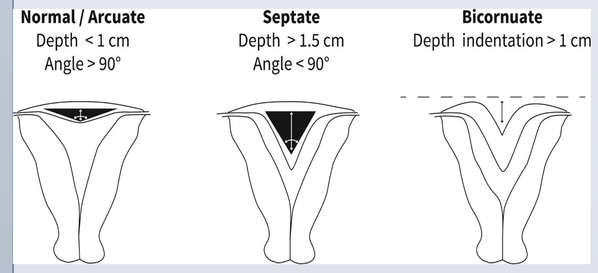
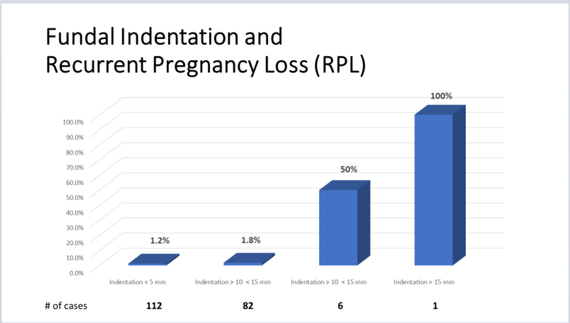


Fig6. Diagrams of the ASRM definitions of normal/arcuate, septate, and bicornuate uterus. Normal/arcuate: depth from the interostial line to the apex of the indentation <1 cm and angle of the indentation >90º. Septate: depth from the interostial line to the apex of the indentation >1.5 cm and angle of the indentation <90º, and uterus that does not fit those criteria would be left on a gray zone. Bicornuate: external fundal indentation >1 cm. Internal endometrial cavity is similar to a partial septate uterus. [4]

RESULTS



CONCLUSIONS

Even though these numbers are too small to draw any clinical conclusions yet, it appears that the increased depth of fundal indentation may have a direct correlation with the incidence of recurrent pregnancy loss. When counseling patients with an Arcuate uterus, it is important to know exactly the depth of the endometrial cavity fundal indentation in millimeters, before we can honestly tell patients "not to worry" about having an Arcuate uterus. However, not all Arcuate uteruses are the same, as was demonstrated in this study. 3D US and volume manipulation continues to play an important role in the evaluation of uterine anomalies.

REFERENCES

1. The American Fertility Society. Fertil Steril 1988; 49:944-955
2. the Practice Committee of the American Society for Reproductive Medicine. Definitions of Infertility and Recurrent Pregnancy Loss, *Fertil Steril.* 2013; 99 (1):63.
3. GF Grimbizis, M Camus, BC Tarlatzis, JN Bontis. Clinical implications of uterine malformations and hysteroscopic treatment results.. *Hum Reprod 2001;7:161-174*

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