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A proposed classification for intrauterine device position: the Tal-Reeves classification

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BACKGROUND

The lack of a common system for classification of intrauterine device (IUD) position is problematic. In one study, where IUD position was determined by expert opinion alone, increased IUD removal resulted in more pregnancies, while no pregnancies occurred among those with a 'mal-positioned' IUD with no specific criteria used.[1] In practice, physicians often see patients with IUDs located in different areas of the uterus and the position changes over time.[2] After initial placement, some IUDs are found higher in the uterus while others are found lower. Aside from the multiple locations of the IUD in the uterus, unilateral or bilateral 'embedment' or penetration of the IUD's arms into the myometrium is also common. Patients using IUDs often present symptoms relating to the device including pain, menstrual cramps and bleeding. The symptoms may be related to the position of the IUD in the uterus and the amount of arm embedment into the myometrium, but without a system for classification of position, it is not possible to conduct adequate clinical research on the relationship between position and symptoms.

Terminology for describing IUD location has not been standardised.[1 3 4] IUD position has been studied in terms of relationship to the uterine fundus.[5 6] However, in clinical practice, the distance from the uterine fundus is irrelevant. The distance from the fundus depends on the size of uterine cavity rather than migration. If the uterine cavity is large and the IUD is within the uterine cavity, the distance from the fundus has no known clinical value. In contrast, in a small nulliparous uterus, an IUD which is 2 cm from the fundus may extend into the cervix. Furthermore, symptoms do not correlate with the distance between the IUD and uterine fundus and the distance to the fundal-most portion of endometrial cavity.[7] Not surprisingly, the position of the IUD changes during the menstrual cycle.[2] Movement within the uterine cavity is normal, but, as an *intrauterine* contraceptive, the IUD should not be located below the internal cervical os, the anatomic landmark defining the start of the uterine cavity. Using distance from the fundus, the location of the IUD relative to the internal cervical os is not captured.

Similarly, extension of the arms of an IUD into the myometrium (commonly referred to as 'embedment') has been associated with pain and bleeding.[8] Thus it is important to capture intramural extension of IUD arms in a classification of IUD position. Currently, this imaging feature is not routinely used as part of the imaging description of the position of IUDs.

We developed this classification system over the course of a randomised study of two copper IUDs. In one arm of this study, we performed transvaginal ultrasonography and hysterosalpingography before and after each insertion of 99 copper T-shaped IUDs (T380S). At 3-month intervals over the first year, we performed transvaginal ultrasonography and, if ultrasonography was not clearly normal, we also performed hysterosalpingography. During the course of the study we observed a substantial number of participants with partial expulsion and intramural extension of the arms, leading to the development of this classification system. However, as this classification system developed through discussion over the course of the study, we did not classify IUD position prospectively to allow correlation with symptoms.

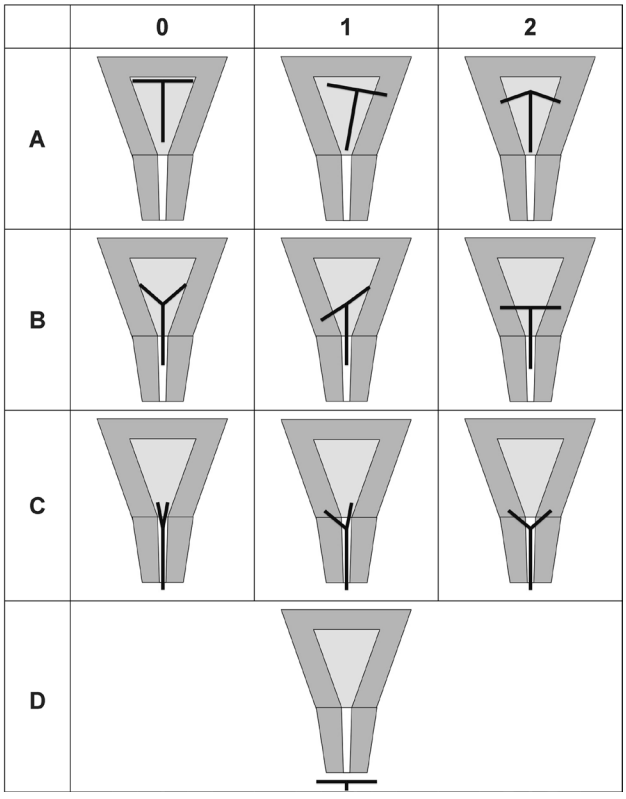

Figure 1 Conceptual diagram of the Tal-Reeves classification of intrauterine device position.

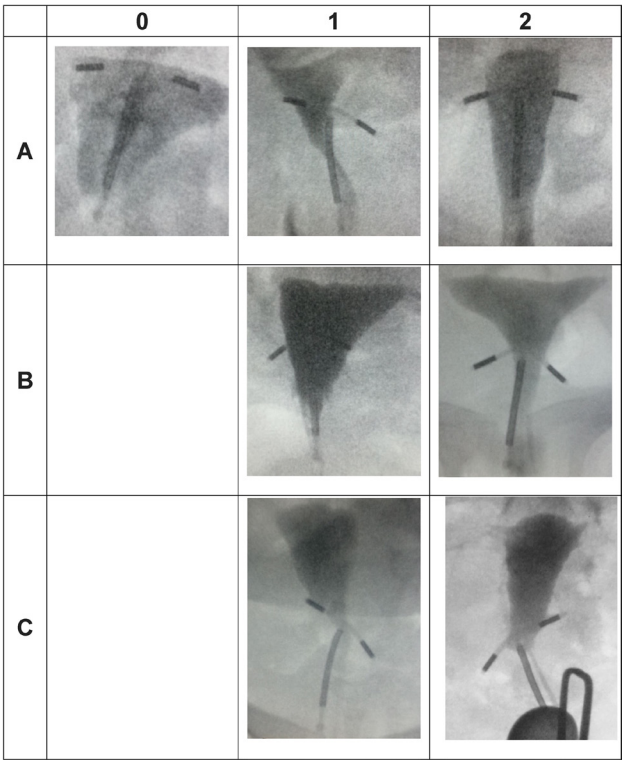

Figure 2 Hysterosalpingogram images of the Tal-Reeves classification of intrauterine device position.

PROPOSED IUD POSITION CLASSIFICATION

We propose classifying IUD position based on IUD location in relation to the cervix and intramural extension of the IUD arms, using a two-part nomenclature of one letter and one number. The letter defines the position of the inferior-most point of the IUD: (A) above the internal cervical os (ICO); (B) inferior tip of IUD is below the ICO; (C) IUD completely within the cervix, usually visible on speculum examination; and (D) IUD outside cervix (complete expulsion). We classified the IUD arms as follows: (0) no intramural extension; (1) unilateral; or (2) bilateral extension into the myometrium. Figure 1 shows conceptual diagrams of the classification system. Figures 2 and 3 show examples of hysterosalpingogram and ultrasonographic images, respectively, of this classification system.

DISCUSSION

We propose a simple, feasible and practical classification that uses the position of the IUD in relation to the internal os rather than the fundus. Modern ultrasound imaging enables visualisation of the location of the IUD in relationship to the cervical os as well as extension into the myometrium. The goal of the Tal-Reeves classification system is to allow standardisation of reporting of IUD location both for clinical use and research for evaluation of new IUD designs. The system proposed is based on the concept that defining 'normal position' is less important than defining what is abnormal.

This system does not include IUD position within the abdomen or other unusual positions which are, fortunately, much less common. Although these IUD locations are well known, over 130 person-years of observation with the T380S we did not find any cases that could not be described using this system, indicating the relative infrequency that other positions are observed. Importantly, those rare IUD positions can be accurately described based on other anatomic landmarks. Adding those positions to the proposed system is unlikely to be useful.

We believe that the proposed system parsimoniously balances precision with simplicity. Although one could contemplate measuring the distance that the IUD lies above or below the internal os, the distance is only relevant for a particular uterus. For example, an IUD 4 cm below the internal os could be in position B (inside the cervix) for a patient with a 5 cm cervix, or for a patient with a 3 cm cervix, the IUD could be in position C, extending outside the external os.

On ultrasound imaging, the relationship of the bottom of the IUD and the internal os is easily identified by anyone experienced in sonography (figure 3). The difference between classification A and B is defined simply by that relationship. If it is above the internal os it is A (**A**bove), and if it is below, it is B (**B**elow). If it is seen through the cervix (you can '**C**' it) it is C, and if it is not seen at all it is D (**D**isappeared).

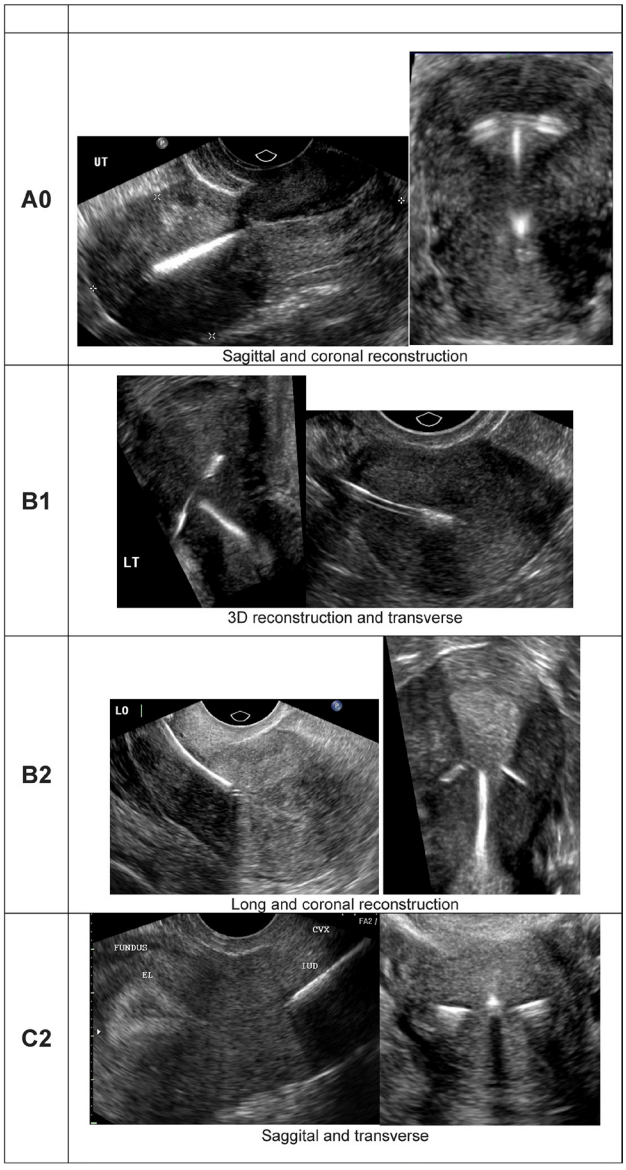

Figure 3 Ultrasonographic images of the Tal-Reeves classification of intrauterine device position.

We observed excellent correlation between hysterosalpingography and ultrasonography findings, suggesting that the classification can be made based on ultrasound imaging alone.

Imaging of IUDs is increasingly common both in clinical practice and in research. We need a common language to communicate the IUD position. In newer IUD efficacy studies, ultrasonography is used almost universally but with differing definitions of partial expulsion.[9 10] The use of a classification system would provide a common language for communicating IUD position. We believe that the Tal-Reeves classification proposed here can fulfil that need. In the future, we hope that having a common language for reporting IUD position will facilitate research into the relationship between position and clinical outcomes.

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Competing interests MFR, MJH and JMC were consultants for ContraMed and now Sebela Pharma. MGT and BK were employees of ContraMed LLC. MJH does Nexplanon training for Merck.

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