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Die Mädchensprechstunde: Expert Opinion - Intrauterine Contraception: The Biggest Challenge

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Die Mädchensprechstunde

Expert Opinion: Intrauterine Contraception: The Biggest Challenge

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In many ways IUDs are the near ideal form of long-acting reversible contraception and are strategically important for family planning in general and for preventing unintended pregnancies in particular. Their ability to reduce unintended pregnancy is governed by women *continuing* to use them, whereby the *tolerability of the device* has shown to be paramount to achieving this objective.

It is clear that contraceptive methods which are dependent on memory and motivation, such as the pill, are not the ideal solution in all women but especially younger age groups. For years, the pill has been synonymous with contraception. This has regrettably helped to maintain ignorance of contraceptive alternatives beyond condoms and sterilization. The impact is even more dramatic when one realizes that most if not all of these alternatives have demonstrated superior effectiveness over the pill.

With IUDs the inherent efficacy is so high, and proper and consistent use is almost guaranteed. A multitude of studies have demonstrated the extremely low pregnancy rates associated with copper and hormonal releasing devices. Sadly, only limited progress has been made in making conventional IUDs more acceptable to women. Unfortunately, many IUDs still have unacceptable high discontinuation rates. Recommendations by experts have been neglected, sometimes in favour of the interests of industry. Many women are, therefore, still underserved in most parts of the world as there are still no suitable intrauterine contraceptives to fulfill the needs of women.

Almost 50 years ago, a study in 60 nulliparous women found an average uterine cavity width of 23.5 ± 0.94 mm [1]. The authors stressed the importance of an optimal interrelationship between the IUD and the uterine cavity as fewer side effects and greater acceptability would thereby be promoted. They found that pain during use of the IUD is related to the disparity between the size of the uterine cavity and that of the IUD. Particularly a too wide IUD was found to be cumbersome. In later years, additional studies were conducted that examined the uterine width at the fundal level (fundal transverse diameter) in parous as well as nulliparous women using a measuring instrument. These studies found that the mean width of the uterine cavity in 795 nulliparous and parous women between 15 and 40 years of age is approximately 24 to 26 mm [2]. These findings have since been substantiated using less invasive external modern uterine imagining techniques that allow for precise and accurate uterine measurements in vivo [3]. The uterine cavity width was recently measured with 2-D ultrasound in a study in Finland conducted in 165 young nulliparous women, and found a *median* transverse fundal diameter of the uterine cavity of 24.4 mm. One hundred and one (62.7 %) women had a transverse diameter at the fundus of less than 24.4 mm (Table 1) [4].

Table 1: Transverse width in the fundus of the uterus in 165 nulliparous women [4].

	Range	50th percentile measure	No (%) under 50th percentile
Fundal width (mm)	13.8–35.0	24.4	101 (62.7)

Thus, a very large segment of the female population have substantially smaller uterine widths. The width of the normal uterine cavity was also assessed through 3-dimensional ultra-

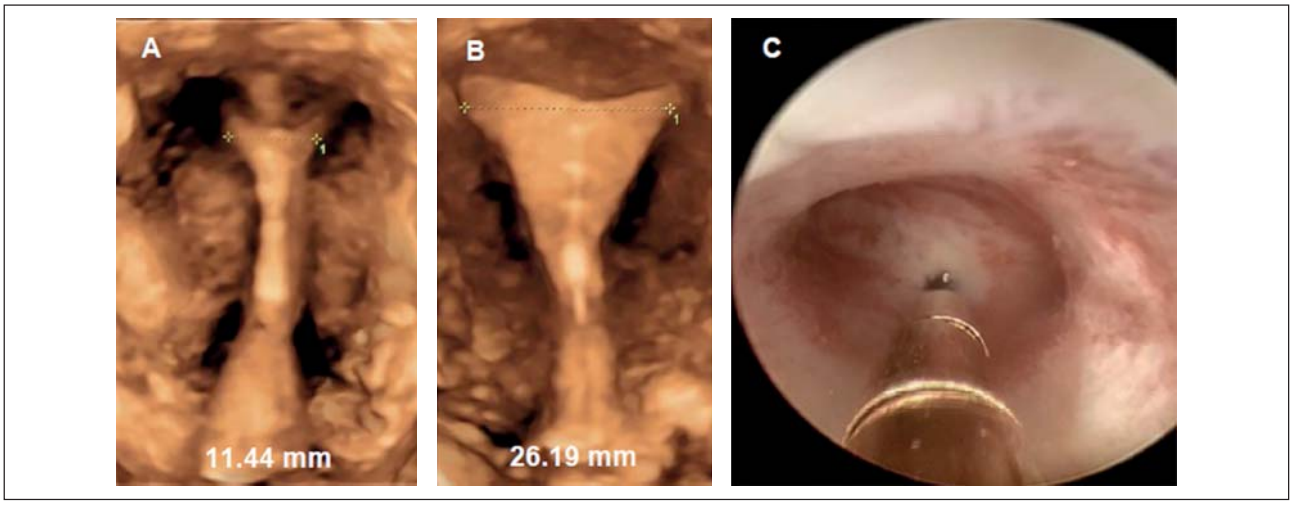

Figure 1: (A) 3-D ultrasound picture of the frameless copper IUD in a uterine cavity with width of 11.44 mm. **(B)** Same in a uterine cavity width measuring 26.19 mm in width. **(C)** Hysteroscopic view after insertion in nulliparous women demonstrating the optimal relationship of the IUD with the narrow uterine cavity.

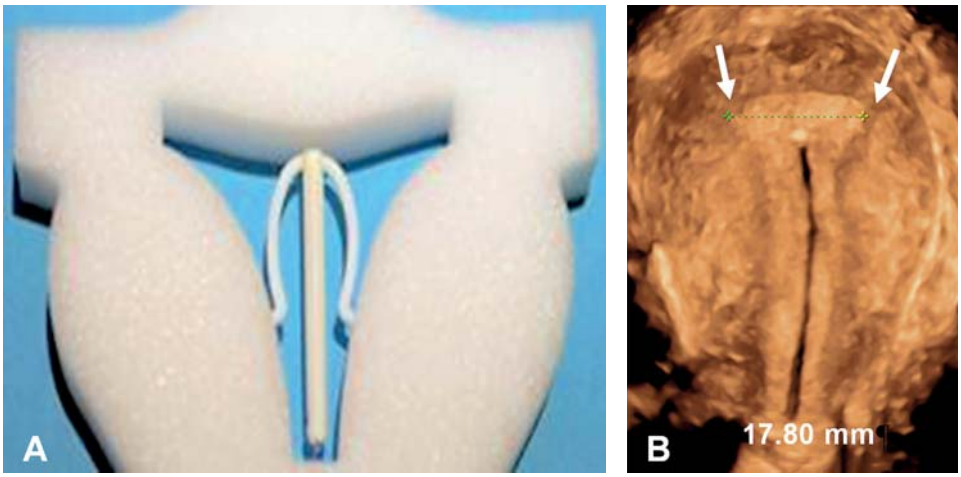

Figure 2: (A) Ω-shaped LNG-IUD with flexible transverse arm allowing adaptation to different cavity widths; **(B)** 3-D ultrasound of FibroPlant® LNG illustrating the harmony with the very small uterine cavity in a young woman which is only 17.80 mm wide.

sonography, as illustrated in this report. This technique allows for multiple images to be collected along with precise uterine dimensions of not only the width but also the length of the uterine cavity itself.

The biggest challenge

From a technical perspective, the biggest challenge is to design intrauterine contraceptive devices that fit like a shoe [5]. IUDs can be designed to fit uterine cavities of virtually every size and shape. The frameless IUD is an example as this device is suitable for insertion in all women regardless that their uterine cavity is small or large (Fig. 1). The device is frameless lacking any crossarms, is flexible and when inserted properly, the majority of women will keep the IUD for the full lifespan of the IUD.

Research is underway to make frameless devices that will last for more than 10 years which could be used from adolescence until the woman is ready to have her first child which is around the age of 30 in Europe on average. Frameless devices do not penetrate the market quickly as thorough training is required. Therefore, also other IUD options are being developed that take into account the various widths of uterine cavities and have the ability to adapt without causing trauma to the uterus. Figure 2 shows a Ω-shaped IUD which can adapt to the width of the uterine cavity without distorting the cavity; and the frameless Fibroplant LNG-IUD which is anchored to the fundus of the uterus using an identical anchor as GyneFix.

This editorial suggests, in agreement with others, that measuring of the uterine width should be considered prior to selecting an IUD for insertion [3, 6]. Frameless IUDs hold promise as no considerations of uterine width or shape is necessary. Insertion is simple and easy to learn by skilled providers. New framed IUDs that can adapt to various sizes of uterine cavities are currently under development and could be suitable for many women. The main focus of researchers should be on tolerability and at the same time optimal retention should be realized. Furthermore, new drug delivery systems should be developed, both frameless and framed that release active ingredients providing contraception and treatment of various conditions such as heavy menstrual bleeding, dysmenorrhea, adenomyosis, or fibromyoma simultaneously. Other challenges are the prevention of sexual transmission of infectious diseases (e.g., HPV, HIV) in conjunction with the provision of contraception.

Conflict of Interest

Dirk Wildemeersch has conducted research in the field of non-hormonal and hormonal, framed and frameless intrauterine devices, including in nulliparous and adolescent women, for 30 years. Norman Goldstuck conducted research in intrauterine device use, including adolescents, for over 30 years.

References:

1. Tejuja S, Malkani PK. Clinical significance of correlation between size of uterine cavity and IUCD: a study by planimeter-hysterogram technique. Am J Obstet Gynecol 1969; 105: 620–7.

2. Kurz KH. Cavimeter uterine measurements and IUD clinical correlation. In: Zatuchni GI, Goldsmith A, Sciarra JJ (eds). Intrauterine Contraception: Advances and Future Prospects. Harper and Row, Philadelphia, 1984; 142–62.

3. Benacerraf BR, Shipp TD, Lyons JG, et al. Width of the normal uterine cavity in premenopausal women and effect of parity. Obstet Gynecol 2010; 116: 305–10.

4. Kaislasuo J, Heikinheimo O, Lähteenmäki P, et al. Menstrual characteristics and ultrasonographic uterine cavity measurements predict bleeding and pain in nulligravid women using intrauterine contraception. Hum Reprod 2015; 30: 1580–8.

5. Goldstuck N, Hasskamp T, Jandi S, et al. Geometric foundations of intrauterine device complications and implications for IUD users – importance of the IUD size to maximize tolerability and prevent early discontinuation. J Reproduktionsmed Endokrinol_Online 2015; 12: 255–9.

6. Liang H, Li L, Yuan W, et al. Dimensions of the endometrial cavity and intrauterine device expulsion or removal for displacement: a nested case-control study. BJOG 2014; 121: 997–1004.

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