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### Endometrial thickness measured by ultrasound scan in women with uterine outlet obstruction due to intrauterine or upper cervical adhesions

Sir,

In the recent article by Lo *et al.* (2008) the authors used 2D transvaginal ultrasound to compare the thickness of the endometrial lining (at all stages of the menstrual cycle) between patients with and without Asherman's syndrome. The subgroups of Asherman's patients that they focused on were those with adhesions limited to the lower uterine cavity or upper cervix whereas the upper endometrium remained normal (Lo *et al.*, 2008). In addition, they also looked to identify the presence or absence of hematometra in the above patients. Their results demonstrated a significant difference in endometrial thickness ( $3.9 \pm 0.4$  mm), as well as a lack of hematometra for this subgroup of Asherman's patients. They conclude that a lack of cyclical endometrial growth and breakdown occurs even in the patient with supposedly normal upper endometrium and adhesions limited to the lower uterine cavity and upper cervix (Lo *et al.*, 2008) and that 'normal' endometrial growth can be effectively 'turned off' by the presence of a thin but dense band of adhesions limited to the uterine outflow tract.

Although the authors present theories to explain this finding, the data and resultant conclusions are perplexing. Why should normal endometrium be inhibited by the presence of outflow tract adhesions? Alternatively, we propose that the 2D ultrasound methodology used to evaluate the endometrium and grade the degree of Asherman's was instead limited in its ability to accurately identify the extent of intrauterine adhesions. In fact, it is possible that the patients whose disease was thought to be limited to the lower uterine segment without involvement of the endometrium, in fact, had disease that extended to the upper endometrium thereby explaining the above results. This is consistent with other studies that have not shown 2D ultrasound to be an accurate tool to assess the extent of intrauterine adhesions (Shalev *et al.*, 2000; Soares *et al.*, 2000). Although the authors state that all patients later went on to have a hysteroscopy, it is not clear if the grade of Asherman's assigned by transvaginal ultrasound was confirmed on hysteroscopy.

We suggest that routine usage of interactive 3D ultrasound in these patients would allow, through multiplanar reformatting, for a more accurate assessment of the uterine cavity while improving diagnostic and prognostic capabilities. The derived images produced by 3D ultrasound are more consistent with the location and extent of lesions the percent of cavity obstructed; correlating more closely with grade of disease.

In a recent study, we evaluated the ability of 3D ultrasound to not only identify the presence of adhesions but also to correctly classify the severity of disease, with respect to percentage of cavity obstructed and lower tract obstruction (Knopman and Copperman, 2007). We demonstrated that 3D ultrasound had higher sensitivity than HSG in correctly assessing the grade of cavity adhesion and differentiating lower tract obstruction from severe cavity disease. We suggest that 3D ultrasound provides a more accurate depiction of the adhesions and extent of cavity damage than other diagnostic modalities (HSG, 2D TVUS) in patients with Asherman's syndrome, particularly when differentiating severe intrauterine adhesions from lower uterine segment outflow obstruction. As prognosis in Asherman's patients is based on severity of disease, we propose that 3D ultrasound more accurately assess prognosis. In addition, as data obtained from the 3D ultrasound correlate more closely with the character and extent of disease, it could be a helpful tool in predicting fertility outcome postoperatively (Knopman and Copperman, 2007). Therefore, although the notion that a normal endometrium can be inhibited by the presence of adjacent adhesions in the uterine outflow tract is intriguing, one must wonder if the authors under-diagnosed the extent of disease as a result of their limited screening modality (2D TVUS) thereby affecting the validity of their results.

### References

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### Reply: Endometrial thickness measured by ultrasound scan in women with uterine outlet occlusion due to intrauterine or upper cervical adhesions

Sir,

We were interested to read the letter from Drs Knopman and Copperman questioning the ultrasound technique used for