

Letter to the Editor: Morphological appearances of the uterine cavity on ultrasound scan prior to the development of intrauterine adhesions

Intrauterine adhesions (IUA) usually develop following endometrial injury caused by surgical trauma or infection<sup>1</sup>. The appearances of IUA have been described extensively in the literature<sup>2</sup> and it is well known that trauma to the gravid uterus incurs the highest risk of their development<sup>3</sup>. Several studies have described the appearance of the uterine cavity on ultrasound in the immediate aftermath of intrauterine surgery, but none of them attempted to identify morphological features which could have been predictive of subsequent development of IUA<sup>4,5</sup>. As a result, there is currently no effective treatment which could be used to prevent development of IUA in high-risk women. This case series describes distinctive appearances of the uterine cavity which were observed on transvaginal ultrasound scans (TVS) in a group of symptomatic women prior to the development of IUA. They were all followed up prospectively until IUA had formed in the cavity, which was diagnosed on TVS and confirmed at hysteroscopy in each case. Women presented with either secondary amenorrhoea (cases 1-3) or abnormal bleeding (cases 4-5) following surgical evacuation of retained placental tissue either after full term pregnancies or first trimester miscarriage (table 1). Three out of five women (cases 1,2,4) were breastfeeding at the time of intrauterine surgery. There was no evidence of IUA at the initial scan. However, we recorded consistent morphological features in each woman at this scan which included: the presence of a thick, inhomogeneous substance, which was distinguishable from retained products, decidua and blood clots (figure 2). The intracavitary material was non-compressible and it did not slide on palpation by the ultrasound probe. On Doppler examination the material appeared avascular. The very thin endometrium and focal absence of the base endometrial layer were present in all cases (figure 3). Hormonal stimulation with Cyclo-Progynova™ 2mg for four weeks was given to two out five women after the initial scan (cases 2,3), however the endometrium failed to respond to this. A follow up scan was arranged to assess the uterine cavity after a minimum period of four weeks

(range, 4 – 40 weeks). The median timespan from endometrial trauma to confirmed development of IUA on TVS was 20.5 weeks (range, 11 – 47). Our findings indicate that in some women, a “pre-IUA” state exists which can be identified on TVS. The evolution of IUA may be a slow, gradual process as a result of delayed healing and regeneration of the endometrium after surgical trauma. Three out of five women developed IUA following post-partum intrauterine surgery, which is in agreement with data from the literature that surgical evacuation in the puerperium carries the highest risk of postoperative IUA<sup>3</sup>. The sonographic features described in our cases persist for several weeks which could facilitate detection of women who are at particularly high-risk of IUA. This opens the possibility for further research into the pathophysiology of this condition and targeted preventative treatment strategies. Further prospective studies are needed; however, to determine sensitivity and specificity of our findings as a predictor for the development of IUA following intrauterine surgery.

Table 1: Demographic and background history

(SVD = spontaneous vaginal delivery; LSCS = lower segment Caesarean section; RP = retained placenta, RPOC = retained products of conception following a first trimester miscarriage)

Case	Age	Parity and mode of delivery	Predisposing event	Time interval from initial TVS to IUA on TVS (weeks)	Hysteroscopy findings	Total no. of hysteroscopies to date	Subsequent pregnancy outcome
1	35	1+0 SVD	RP	47	Yes - severe IUA with extensive obliteration of cavity	4	SROM and septic second trimester miscarriage
2	33	1+1 SVD; previous first trimester miscarriage (surgical)	RP	20.5	Yes - severe IUA with extensive obliteration of cavity	11	Live birth at 31 weeks. Placenta percreta and emergency Caesarean hysterectomy
3	32	0+0	RPOC	11	Yes - dense isthmic IUA with complete obstruction. Thin IUA upper left lateral wall	1	
4	37	1+0 SVD	RP	49	Yes - lateral wall IUA	1	
5	35	1+0 LSCS	RPOC	15.5	Yes - thin isthmic, lateral wall, mid-cavity and fundal IUA. 50% of cavity affected. Thin endometrium	1	

## References:

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