

Subendometrial Contractions in Subfertile Women : A Preliminary Observation

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Abstract : *Fifty endovaginal ultrasonographic examinations were screened for the presence of subendometrial myometrial contractions in subfertile women. The contractions were evaluated during the periovulatory phase of ovulation induction programs. The results showed that the contractions can be divided into 3 types according to directions. (1) Retrograde type, was the direction from endocervix to the fundus. (2) Antegrade type, was the direction from the fundus to endocervix. (3) Turbulent type, contractions moved in alternating directions over a short segment. More than half of the contractions observed are turbulent type. The conclusion is that there are definite patterns of subendometrial contractions in subfertile women but with a significant difference in percentage compared to study in fertile women. (Thai J Obstet Gynaecol 1995;7:109-111)*

Key Words : endovaginal ultrasonography, subendometrial myometrial contraction, subfertile women.

Anovulation is one of the common factors attributed to infertility. However, pregnancy is still not achieved after an induction of ovulation in the absence of other known causes. Lyons et al demonstrated subendometrial peristaltic activity throughout the entire menstrual cycle in 18 healthy fertile volunteers by transvaginal ultrasound. It was revealed that the subendometrial myometrial contractions increased in frequency, amplitude and percentage toward the fundus throughout

follicular and periovulatory phase. The pattern of subendometrial myometrial contraction, recorded and displayed via videocinematography was divided into 4 types; antegrade, retrograde, quiescent and turbulent type. More than 80 percent of contractile pattern were retrograde type during periovulatory phase. At present time, there is lack of information regarding subendometrial contractile pattern in subfertile women. The purpose of this study was to determine the periovula-

tory contractile patterns in subfertile women compared to that previously reported in fertile women.⁽⁴⁾

Materials and Methods

50 subfertile women were enrolled into our study. Mean age was 32.6 years (25-39). All had ovulation induction and required clomiphene citrate, clomiphene citrate plus human menopausal gonadotropin (HMG) or long protocol superovulation using HMG for ovulation induction. Real-time transvaginal ultrasonography was performed during periovulatory period (Day 7-11, 12-17 and 12-18 for HMG protocol, clomiphene citrate only and clomiphene citrate-HMG protocol respectively) using a 5 MHz/120 degree transvaginal transducer (ALOKA, SSD 1200, Japan). The ultrasonograph of endometrium was identified by a midsagittal scan and recorded on a videotape for 120 seconds. A video

cassette recorder VCR (model SCV-X37 PS, SONY, Japan) was used. The tapes were reviewed at 5 times regular speed, which enhanced appreciation wave to analyse the pattern and direction of contractions.

Evaluation of the Contraction Wave.

The propagation of the contraction waves was analysed. The direction of wave propagation was described depending on the pattern observed in the midsagittal plane.

Definition of contraction waves were as follows :

1. **Retrograde** was the direction from the endocervix to the fundus.

2. **Antegrade** was the direction from the fundus to the endocervix.

3. **Turbulent** was the contractions which moved in alternating directions over a short segment.

Results : Table 1. and Table 2.

Table 1.

Protocol	Number	Antegrade	%	Retrograde	%	Turbulent	%
HMG	11	2	18	3	27	6	54
Clomiphene citrate	16	3	18	2	12	11	68
Clomiphene citrate HMG	23	2	8	6	26	15	65
Total	50	7	14	11	22	32	64

Table 2.

Protocol	Age range	Mean age	Day of u/s scan
HMG	26 - 39	34.09	7 - 11 of inj.
Clomiphene citrate	25 - 37	31.50	12 - 17 of cycle
Clomiphene citrate HMG	25 - 37	32.69	12 - 18 of cycle

Discussion

Our findings were significantly different from a previous report⁽¹⁻⁴⁾ in which there were more than 80% of retrograde pattern. Thirty two out of 50 cases (64%) of our study had turbulent type. This may be explained by the different population of women recruited. Only 22% had retrograde pattern in contrast to a previous study undertaken in fertile women which yielded more than 80% result.

Since estrogen was accepted to have a role in the occurrence of retrograde contraction during periovulatory period. Women who had medical induction of ovulation should have a higher estrogen level compare to spontaneous cycle. However, our result was in opposition and needs more physiological elaboration. Since the hypothesis of retrograde subendometrial contraction remained solid in fertile women it was believed that it may influence transportation of sperms and holding of the embryos

within the uterine cavity after fertilization was established both naturally and via in vitro fertilization embryo transfer. Results from our study in subfertile women may reveal subendometrial contraction as another subfertility contributing factor. Anyway, it is too early to state any conclusion. More clinical data is required.

References

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