SINGLE ENDOMETRIAL ASPIRATION—AN AID TO DETECT OVULATION

By

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Introduction

The use of exfoliative cytology is well established in cancer diagnosis, but the potential of endometrial aspiration cytological smear to detect ovulation has not been explored fully. Hence the present study was undertaken to evaluate 'Single endometrial Aspiration to detect ovulation'.

Material and Methods

A total of 111 patients attending gynaecological O.P.D. of Govt. Medical College Hospital, Nagpur were studied. They were married from reproductive age group and as far as possible had regular cycles. The endometrial aspiration was carried out presumably in midluteal phase i.e. after about day 21 of 28 day cycle.

A simple 10 cc glass syringe fitted with 18 No. hypodermic needle over which a 10 inches long polythene canula was fitted, to allow freedom of movement. The tip of the canula was blunted off. The aspiration was done with all the aseptic precautions. The tip of the canula was inserted up to the fundus of uterus and aspiration was done while withdrawing the canula. The aspirated material was quickly spread on a glass slide and fixed in 95 ethyl alcohol. In all patients, endometrial biopsy was taken after the aspiration. The aspiration slides were stained by Pap staining.

Observations

From Table I it can be seen that 82.88% of the patients had ovulated at the time of taking aspiration. From Table II it is evident that the diagnostic accuracy is excellent for secretory phase, i.e. 97.87%, but that for proliferative phase it is only 75%.

There were 3 cases of tuberculous endometritis which were detected in endo-

TABLE I

The Analysis of the Endometrial Aspiration Data Shows

So. No.	Diagnosis	No. of cases	Total No.	Percentage
1.	Secretory phase	92	111	82.88
2.	Proliferative phase	6	111	5.41
3.	No correlation	2	111	1.80
4.	Inadequate reports	11	111	9.91

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Accepted for publication on 29-3-88.

TABLE II
Showing Comparison of Endometrial Biopsy and Uterine Aspiration

So. No.	Diagnosis	Total cases (Endo. Biopsy)	Positive cases (Aspiration)	Percentage
1.	Secretory Phase	94	92	97.87
2.	Proliferative Phase	8	6	75

metrial history. In all the 3 cases aspiration was inconclusive for the diagnosis of tuberculosis. Only in one patient aspiration showed necrotic material with inflammatory cells suggesting the diagnosis of tuberculosis.

Discussion

The sampling method has a considerable influence on the appearence of the endometrial cells. The cells which are spontaneously desquamated from the endometrium into the cervical or vaginal secretions are quite different from those removed forcibly. These retain their columnar configuration while the desquamated cells tend to obey the laws of surface tension and assume a spherical form.

The aspiration is to be done in mid-luteal phase i.e. approximately 21st day onwards of a 28 day cycle because plasma progestrone activity is at its peak about 8-9 days after ovulation. Endometrial columnar cells will show maximum morphological changes at this time.

There were discrepancies in some cases i.e. proliferative phase in aspiration and secretory phase in endometrial biopsy. These can be explained by the fact that in case of exfoliated cells there is a time lapse between the change in the functional activity of the endometrial surface cells and desquamation of these cells in an earlier functional phase but by day 24, functionally, the secretory endometrium is well established and is shedding the same cells.

For the forcibly removed cells, the argument advanced by Ludinghausen and Anastasiadis (1984) is explanatory. It is observed that there is a time lapse between the response of deeper endometrial glands and superficial epithelium of endometrium. They have stated that the epithelium of endometrium and the deeper glands are anatomically two different structures and hence materials from those two i.e. endometrial aspiration and endometrial biopsy respectively can hardly be compared. They have observed that there is a lag in the secretory transformation of surface epithelium during the first half of luteal phase. In the meantime however the underlying glandular epithelium shows all the changes of luteal phase.

In the present study 92.45% correlation was observed between the aspiration and biopsy, while in prior studies it was 90.50% (Affend *et al*, 1983) and 86.66% for secretory phase and 86.11% for proliferative phase (Nadkarni *et al*).

Considering other methods for ovulation detection, the disadvantages are obvious. In the serial vaginal cytology KI varies from patient to patient, moreover with individual patient also it varies from 30% to 80%. A single sample is not sufficient. BBT charting depends on patients interpretation and is not very reli-

able. The other investigations and ultrasound are expensive and presently not accessible to all. Endometrial biopsy though convenient and established procedure, is painful and hence not conductive to repeated examinations.

Conclusion

The endometrial aspiration is thus found to be a simple, quick, accurate, reliable and economic procedure for ovulation detection, which if necessary can be repeated in the same or different cycles, without any complications. Its other advantage is that it does not require daily monitoring as for vaginal cytology, BBT charting and cervical mucus studies. It is a completely painless proceedure even in a nulliparous patient. There is virtually no chance of perforation because of use of the flexible polythene canula with its tip blunted off and forcible cervical dilatation is not required. Unlike D and C it does not lead to complication. Moreover the smear can be made ready for reporting within a much shorter time than histopathological sections. The results can be interpreted within a few hours if required.

Only disadvantage of the method is that it does not commit itself to the adequacy of the corpus luteum function. Moreover as tutberculosis was missed in the present as well as previous studies aspiration should not be used as an alternative to D and C in suspected patients of uterine pathology.

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