# MICROENDOSCOPY IN GYNAECOLOGY

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SUMMARY

**Role of microendoscopy in Gynaecology is being discussed. Study included 134 patients, 113 had microhysteroscopy and 21 had microcervicoscopy. microendoscopy finds were compared with histologic diagnosis. Microendoscopy proved to be of 93.5% sensitivity and 94.6% specificity in comparison to a definite histologic diagnosis. Microendoscopic procedure was found to be possible, reliable, safe and well tolerable.**

## *INTRODUCTION*

Macroendoscopic study of the genital tract has become indispensable to the practice of modern gynaecology. Till recently hstological diagnosis was possible in vitro only. But nw with the help of a microhysteroscope, it is possible to study the cells in vivo without biopsy at a magnification equivalent to a microscope.

The sensitivity and specificity of D7C is difficult to assess as in 60% of patients less than half of the uterine cavity is curetted and in 16% less than 1/4th of the cavity is curetted (Stock and kanbour) 1975. Similarly in nearly 50% of cervical carcinoma, the squamocolumnar junctionis the endocervical canal and is therefore out of the range of colposcopic observation. With microhysteroscope it is possible to study the entire cervical canal and uterine cavity.

This study was undertaken to evaluate utility of microendoscopy in gynaecology.

## *MATERIALS & METHODS*

A total of 134 patients were studied in 1987 and 1988; 113 had microhysterocopy and 21 had microcervicoscopy. Wolf Panhysteroscope with 'microview' was used. The diameter of the telescope is 4 mm and of external sheath is 5.2 mm. It has 4 magnifications - x1, x20, x60 & x150. Dye used to stain the epithelium is a mixture of cresyl violet acetate and thionine.

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After excludingany contraindication for endoscopy, the procedure was carried out in operation theatre under full aseptic precautions. First of all, a panoramic examination of cervical canal and uterine cavity was done, in which, color, thickness and surface of lining epithelium were examined and any obvious abnormality was noted.

At x20 magnification vessels were studied for their size and distribution and glandular openings in the endometrium were seen.

To study the cellular aspect the epithelial lining is stained with a dye having an affinity for DNA. 0.1-0.2 ml of dye was in stilled inside the cervical canal and endometrial cavity and applied over ectocervix with the help of a find polyethylene tube and a tuberculin syringe. Micro hysteroscope was re-introduced and epithelium was studied at higher matgnification by bringing the endoscope in touch with epithelium.

At x150 magnification, the lining epithelial cells of ectocervix, squamocolumnar junction and endocervix were seen. In the endometrium at x150 magnification, glandular openings with their lining epithelial cells and nuclei, secretions in the glandular lumina, stormal cells, presence or absence of stromal edema and leucocyt ic infiltration were noted. Criteria described by Okhawa & Okhawa 1984 La Sala et al 1987 were used for microendoscopic diagnosis of various types of epithelium.

Endometrial biopsy (hysteroscopic guided or blindly with a curette) and cervical biopsy were taken for histopathological diagnosis.

*OBSERVATIONS*

Indications for microhysteroscopy and microcervicoscopy are shown in Table I. 70.1% of the patients in this study required only sedation. They were given 5 mg. of calmpose and 10 mg. of pentazocine I/V, 10 mins. before the procedure. 15.7% had paracervical block along with sedation and 14.2% had G.A. who needed either cervical dilatation or concomitant surgery. Cervical dilatation was required in 13.4% of cases.

Case by case comparison between macrohysteroscopic and histologicl diagnosis (Table II).:

Out of 76 cases diagnosed as having normal endometrium macrohysteroscopically, 73 were proved to be so histologically (96% agreement).

In cases of hyperplasia, out of 8 cases 5 were diagnosed by macroendoscopy (62.8% agreement).

All the 6 cases of endometrial carcinoma were correctly suspected to be so by macroendoscopy and in 2 cases false-negative diagnosis of malignancy was made on the basis of suspicious endometrium.

There was 100% histological agreement with macroendoscopic diagnosis of atrophic and T.B. endometrium.

Case by case comparison between microhysteroscopic and histological diagnosis (Table III).

Out of 79 cases diagnosed as functioning endometrium histology confirmed the diagnosis in 73(92.4% agreement).

**TABLE I**

**DISTRIBUTION OF PATIENTS ACCORDING TO INDICATION**

| PROCEDURE | INDICATION | NO. OF PATIENTS | % |
|---|---|---|---|
| MICROHYSTEROSCOPY (113) | Premenopausal Abnormal Uterine bleeding | 50 | 37.3 |
| | Postmenopausal uterine bleeding | 20 | 14.9 |
| | Infertility | 27 | 20.2 |
| | Amenorrhoea | 16 | 11.9 |
| MICROCERVICOSCOPY (21) | Unhealthy cervix/ H/o Contact bleeding/ abnormal Pap's smear | 21 | 15.7 |
| TOTAL | | 134 | 100.0 |

**TABLE II**

**CASE BY CASE COMPARISON BETWEEN MACROHYSTEROSCOPIC DIAGNOSIS AND DEFINITIVE HISTOLOGICAL DIAGNOSIS**

| Macro-hyste-roscopy / Prol | Sec. | Atrophic | Hyper-plasia | End Ca. | Mixed | Tuber-culosis | Endo-metritis | H Mole | Products | Total Macro-hyste-roscopy |
|---|---|---|---|---|---|---|---|---|---|---|
| Normal 38 | 33 | - | 3 | - | 2 | - | - | - | - | 76 |
| Atrophic - | - | 9 | - | - | - | - | - | - | - | 9 |
| Hyperplasia 1 | - | - | 5 | - | - | - | - | - | - | 6 |
| Endo. Ca. (suspected) - | 1 | - | - | 6 | - | - | - | - | 1 | 8 |
| Tuberculosis - | - | - | - | - | - | 5 | - | - | - | 5 |
| Endometritis 1 | 1 | - | - | - | - | - | 1 | - | - | 3 |
| H. Mole - | - | - | - | - | - | - | - | 1 | - | 1 |
| Total Histology 40 | 35 | 9 | 8 | 6 | 2 | 5 | 1 | 1 | 1 | 108* |

* Total No. of cases is 108 instead of 113 because in 2 cases macroendoscopy was unsatisfactory and in 3 cases the histological diagnosis was inconclusive because of inadequate tissue material.

**TABLE III**

**CASE BY CASE COMPARISON BETWEEN MICROHYSTEROSCOPIC DIAGNOSIS AND DEFINITIVE HISTOLOGICAL DIAGNOSIS**

| Macro-hysteroscopy | Prol | Sec. | Atrophic | Hyper-plasia | End Ca. | Mixed | Tuber-culosis | Endo-metritis | H Mole | Products | Total Macro-hysteroscopy |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Prol. | 37 | 3 | - | 1 | - | 1 | - | - | - | 3 | 45 |
| Sec. | 1 | 30 | - | - | - | 1 | - | - | - | 2 | 34 |
| Atropic | - | - | 9 | - | - | - | - | - | - | - | 9 |
| Hyperlasia | 1 | 1 | - | 7 | - | - | - | - | - | - | 9 |
| Endo. Ca. | - | 1 | - | - | 6 | - | - | - | 1 | - | 8 |
| Endometri-tis | 1 | - | - | - | - | - | 1 | - | - | - | 2 |
| H. Mole | - | - | - | - | - | - | - | 1 | - | - | 1 |
| Total Histology | 40 | 35 | 9 | 8 | 6 | 2 | 1 | 1 | 1 | 5 | 108 |

* Total No. of cases is 108 instead of 113 because in 2 cases microendoscopy was unsatisfactory and in 3 cases the histological diagnosis was inconclusive because of inadequate tissue material.

**TABLE IV**

**CASE BY CASE CORRELATION BETWEEN MICROCERVICOSCOPIC & HISTOLOGICAL DIAGNOSIS**

| MICROCERVICOSCOPIC DIAGNOSIS | HISTOLOGICAL DIAGNOSIS | | |
|---|---|---|---|
| | NORMAL | DYSPLASIA | CARCINOMA |
| Normal (14) | 14 | - | - |
| Dysplastic cells (4) | - | 4 | - |
| Atypical cells (3) | - | 1 | 2 |
| TOTAL (21) | 14 | 5 | 2 |

In cases of hyperplasia, microendoscopic diagnosis was correct in 7 out of 8 (87.5% agreement).

All the 6 cases of endometrical carcinoma vere diagnosed microendoscopically by detecting abnormal vessels and atypical nuclei. But 2 false negative diagnosis of malignancy were made on the basis of atypical nuclei.

There was 100% histological agreement with microendoscopic diagnosis of atrophic endometrium.

T.B. Endometrium could not be diagnosed by microendoscopy in any of the 5 cases.

Case by case comparison between microcervicoscopic and histologic diagnosis (Table IV).:

In cases of microcervicoscopic diagnosis of normal cervical epithelium there was 100% histological agreement (14 cases). In diagnosing abnormal cervical epithelium,there was full agreement in 6 in one case there was difference in grading the abnormality as shown in Table IV.

*COMPLICATIONS*

14.2% of patients experienced mild to moderate pain while 2.2% had slight bleeding per vaginum. There were no perforations or infection.

*FAILURES*

In 2 cases microendoscopy was unsuccessful due to excessive dye being instilled inside the uterine cavity.

*DISCUSSION*

Though hysterocopy has been in use over 100 yrs, microendoscopy is a recent invention. The present study seeks to establish the role of microendoscopy in modern gynaecology.

Cervical dilatation and anesthesia were not required in 86.6% and 70.1% respectively in our series because of the small diameter of the endoscope. Hamou (1981, 1983, 1984) also found that prior dilatation was not necessary in 97% of his cases and no local anaesthesia was required and also specified that avoiding prior dilatation avoided bleeding subsequently.

On comparing the macro and microhysteroscopic findings with histological diagnosis, it was observed that in normal endometrium diagnosed either by macro or microendoscopy, percentage correlation with histology was almost the same.

In hyperplasia, the percentage correlation with histology was better with microhysteroscopic diagnosis (87.5%) compared to that with macrohysteroscopic diagnosis (62.8%). another big advantage of microhysteroscopy in hyperplasia is to detect any abnormal changes in the nuclei at the earliest.

In diagnosing endometrial malignancy, both macro and microendoscopic findings were correct in all the 6 cases though microendoscopy is confirmatory. In 2 cases, false negative diagnosis was made by both the procedures while histologic diagnosis in these 2 cases was secretory endometrium and products of conception. Okhawa & Okhawa 1987 did endometrial evaluation of 113 postmenopausal women microhysteroscopically. Out of 23 histologically proved adenocarcinoma, microhysteroscopic findings of adenocarcinoma endometrium and stressed the fact that in case of polypoid endometrium no atypical vessels and nuclei were seen whereas in case of carcinoma endometrium were seen.

In diagnosing atrophic endometrium, there was 100% histological agreement with macro as well as microendoscopic diagnosis.

In diagnosing TB endometrium, macroendoscopy had 100% agreement with histology while microendoscopy had none.

In microcervicoscopic findings, there was almost 100% histological agreement except in one case in which there was discrepancy in grading the abnormality. In one patient microcervicoscopy also helped in diagnosing the extension of dysplastic cells to the vaginal vault on right side which was excised during surgery.

## *CONCLUSIONS*

In our experience microendoscopy was possible in 98.5% of the patients so its success rate is high.

It has proved to be of 93.5% sensitivity (False-ve 6.5%) and 94.6% specificity (false - ve 5.4%) in comparison to a definitive histologic diagnosis as shown in Table V, so its diagnostic reliability is good.

It did not create any serious complications and hence we consider it to be a safe procedure.

The procedure was well tolerated by 85.8% of the patients.

Hence, we conclude that microendoscopy is possible, reliable on a diagnostic level, safe and well tolerated.

## *SUGGESTIONS*

Patients with abnormal uterine bleeding, infertility and amenorrhoea should have macrohysteroscopy.

If the endometrium is found to be normal looking or atrophic on macroendoscopy, there is no need for microendoscopy.

But if the patient is a highrisk, microhysteroscopy should be done even if the endometrium is normal looking. The goal of microendoscopy is to pick up abnormal nuclei at the earliest.

Microcervicoscopy should be done to evaluate all suspicious services.

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**TABLE V**
**SENSITIVITY AND SPECIFICITY TEST OF MICROENDOSCOPY IN COMPARISON TO HISTOLOGICAL DIAGNOSIS ON 129 PATIENTS**

| MICROENDOSCOPIC | HISTOLOGIC DIAGNOSIS | | |
|---|---|---|---|
| | NORMAL | PATHOLOGIC | TOTAL NO OF ENDOSCOPY |
| Normal | 87 | 6 | 93 |
| Pathologic | 5 | 31 | 36 |
| Total No. of Histologic Diagnosis | 92 | 37 | 129 |

Endoscopic Sensitivity = 93.5% (False-ve 6.5%)
Endoscopic Specificity = 94.6% (False-ve 5.4%)

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