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In our present series we studied two hundred cases of endometrial aspiration and endometrial biopsy to detect malignant and pre malignant changes of endometrium and to correlate between findings of cytology and histology. All these cases were between the age of 40 - 70 years. The maximum number of cases were ranging between age of 56 to 60 years (49% cases). Out of 3% malignancy, 2.5% of the malignancy of present study were of this group. Kistner's study (1973) has shown that this age group shows the maximum incidence of carcinoma endometrium. Thus the maximum number of cases of our study fall in the age group that is most susceptible to develop carcinoma endometrium. Ayre (1955) stated that adenocarcinoma is a disease of postmenopausal age group, the average age being 55 years. This is found in this study also as out of 3% total carcinoma, 2.5% cases were of this age group.

Sagar (1981) studied patients between the age group of 40 and 70 years. Thus our study was comparable to this study, the only difference was that in their study the maximum number of cases were in the age group of 40 to
45 years but no malignancy was detected in this group by them. Whereas in the present series 0.5% malignancy was seen in this group.

The parity in most of our cases was six and above that is 27.5% cases fall in this group and although carcinoma endometrium is found mostly in nulliparous females or those with low parity but the cases that came to our hospital with complaints of irregular bleeding had 5% nulliparous females and 5% uniparous females only. Most of the patients in our study group were multiparous.

Sagar's study was thus comparable to our study as in their study also 2.6% cases were nulliparous and 3.47% cases were uniparous while the rest that is the majority of the cases were multiparous.

In our study the cases were uniformly distributed in pre-menopausal and post-menopausal groups. One hundred and fifty cases (52.5%) cases were of pre-menopausal group, 47.5% cases were of post-menopausal group. This study was comparable to study of Hecht (1952) whose series had 58.4% cases of pre-menopausal and 41.6% cases of post-menopausal group and Sagar (1981) studied 62.6% cases of premenopausal group and 39.39% cases of post-menopausal group.
In our present study 60.5% cases were showing excessive uterine bleeding including conditions like menorrhagia, metrorrhagia, polymenorrhoea and post menopausal bleeding, which was comparable to study of Hecht (1952) in which 68.8% cases were of abnormal and excessive uterine bleeding.

Vuopala (1977) showed that 69.20% cases had uterine bleeding. His study showed similarity to our study. Sagar (1981) showed 62.6% cases of abnormal uterine bleeding. Thus bleeding is the common complaint of most of the workers (Wildhack, 1964; Nahhas, 1971; Mathews, 1973; Walter, 1975; Haack, 1979; Swinger, 1979).

In our study 28.09% and in Vuopala's (1977) study 26.25% cases were of post menopausal bleeding. The rest of the cases, 63 cases (31.5%) were of prolapse, 8 cases (4%) had excessive discharge per vaginum, 5 cases (2.5%) came with lump in abdomen and 3 cases (1.5%) came with pain in abdomen.

All the cases in this study were subjected to endometrial aspiration and the slides were studied cytologically. Liu (1963) pointed out that exfoliation of endometrial cells takes place in 21% of healthy asymptomatic women during the first 10 days of the cycle and in only 2% during the rest of the cycle. He found that in bleeding disorders and other pathological states,
the desquamation of endometrial cells is clearly increased. Thus according to him aspiration smear should also be taken during bleeding, this was done in the present study but the excessive blood and debris rendered it difficult to examine the sample for endometrial cells. In most of such examinations repetition had to be done.

All the cytological findings in our study revealed 35.5% cases in proliferative phase, 45% in secretory phase that is 80.5% were of normal endometrial aspirate. Nikitina (1979) found 48.25% in proliferative and secretory phases. This difference in the number of normal findings was because we studied asymptomatic cases and cases with complaints of prolapse, pain in abdomen and excessive discharge as described above.

An important finding was hyperplasia. 11% cases were of cystic hyperplasia. In cytology slides the simple and cystic hyperplasias could not be recognized separately so they have been included in cystic hyperplasia. Adenomatous hyperplasia was seen in 1% cases and atypical hyperplasia in 2.5% cases.

Cohen (1974) reported that endometrial aspiration is accurate in diagnosis of pre-cancerous lesions when compared to conventional dilatation and curettage.
In a series of 98 patients in which histologic confirmation was available by dilatation and curettage or hysterectomy; he reported an accuracy of greater than 95% over all with 100% correlation in cystic and adenomatous hyperplasia. The over all accuracy is 86.2%.

Our findings are different from the above findings because in our study when we compared cytology slides of hyperplasia with the histology ones, there were 8 cases showing false positive hyperplasia cytologically, thus the accuracy of cytological diagnosis of hyperplasia in our cases is 72.41%.

Nikitina (1979) found diagnostic accuracy of hyperplasia to be 89.8% in his study whereas Segadal (1980) found 75% accuracy in diagnosing pre malignant change by cytology. These findings are in comparison to our findings.

Sagar (1981) reported an accuracy of 88.88% in diagnosing hyperplasia while Ambiya (1981) reported 100% accuracy and correlation in diagnosing hyperplasias by cytology and comparing with histology findings.

In the present series 3% cases were of malignancy and all these were diagnosed cytologically so there was 100% accuracy in diagnosing malignancy by aspiration technique.
Papanicolou (1946) showed diagnostic accuracy of malignancy in 92.31% by aspiration smear and then when he improved his technique he found improvement in his accuracy figure which became 100% (1949). Hecht (1952) discovered all the 16 cases of endometrial carcinoma by endometrial aspiration thus showing an accuracy of 100%.

Reagan in 1954 could diagnose only 18 cases out of a total of 20 cases of endometrial carcinoma by endometrial aspiration, so his accuracy was 90%.

Cohen (1974) reported an accuracy of 95% by endometrial aspiration in a study of 98 cases while Vassilakos (1975) reported an accuracy of 99% by endometrial aspiration.

Anderson (1976) reported the accuracy to be 90 - 100% by endometrial aspiration for both cancerous and pre-cancerous lesions.

Morimoto (1978) reported 100% accuracy in studying 118 patients by gravlee jet washer. Nikitina (1979) performed uterine aspiration in 172 females, reported a diagnostic accuracy of 93.2% in cytological diagnosis of cancer whereas Segadal (1980) studied 15 cases by uterine aspiration, reported 100% accuracy in his series.
Ambiya (1981) studied 50 cases and Sagar (1981) studied 115 cases, both have reported 100% accuracy in diagnosing malignancy by cytology study of endometrial aspirates. Our findings are comparable to the findings of most of the workers mentioned above.

An endometrial biopsy was taken in all the cases in the present study with the help of a biopsy curette with serrated distal end and the histology slides revealed 41% cases in proliferative phase, 43% cases in secretory phase, 7% case of simple, cystic hyperplasia, 2.5% cases of atypical hyperplasia, 1% case of adenomatous hyperplasia, 2.5% cases were of malignancy and 3% cases were inadequate for diagnosis.

Various curettes were used by other workers for taking endometrial biopsy. Randall (1935) used a curette in which the edges of the aperture were smooth whereas Novak (1935) used a curette in which the edges of the aperture were serrated. In the present study curette with serrated aperture margins was used to take endometrial biopsy.

Diagnostic accuracy of endometrial biopsy in endometrial carcinoma was studied by Wall et al in 1954, his series was of 301 cases and diagnostic accuracy was 91%. McGurie (1962) studied 143 cases reported a diagnostic accuracy of 85%. Wildhack and Graham (1964)
studied 131 cases of endometrial carcinoma and was able to diagnose 107 cases by biopsy so his accuracy was 82%. Our findings are similar to findings of the above workers because the accuracy in diagnosing endometrial carcinoma by biopsy was 83.3% in the present study.

Kahler et al (1969) reported a diagnostic accuracy of 67% in a series of 160 cases in which out of 9 cases of endometrial carcinoma, he was able to diagnose only 6. This finding is different from our diagnostic accuracy which was 83.3%. The explanation for this as given by Word (1980) is that the carcinoma may have been located in an undetached polyp or up in the cornual region or the uterine cavity may have been deformed by myomas and difficult to abrade.

Hibbard (1971); Bibbo (1972); Bibbo (1974); Rodrigues (1974); Jiménez (1975); Schneider (1976) found inadequate samples for histological diagnosis in 1.3% cases to 10% cases. This finding is similar to the finding studied by us as we had 3% cases in which tissue was insufficient for diagnosis by histopathological examination.

In the present study the slides that are cytologically normal are those in which the endometrium was in proliferative or secretory phase and there was no
evidence of malignant cells or hyperplastic cells. The histology slides of these cytologically normal endometrium revealed that out of 161 cases of cytologically normal endometrium, 157 cases had normal histological findings; so the accuracy was 97.5% and the correlation between cytologically normal and histologically normal endometrium was 95.83%. In 2.5% of cases, material was inadequate for histological diagnosis but showed normal cytology on aspiration smears and there was no case of malignancy or hyperplasia on histology in these cytologically normal slides. The present study showed different result when compared to study done by Jacqueline et al (1982) in which 40.8% cases showed normal cytology and histology while in our study 78.5% showed normal cytology and histology, this difference was because we included cases of prolapse and cervicitis. Jacqueline further subdivided his patients in aspiration. 52.5% cases showed normal cytology but benign changes in histology, 0.5% cases showed normal cytology but on histology, malignancy was detected. In contrast to this, in our series there was no case which showed normal aspiration cytology and malignancy on histology. In Jacqueline's (1982) study 1% cases whereas in the present study, 2.5% cases were of normal cytology and inadequate samples for histological diagnosis.
In this study there were 29 cases showing benign changes in endometrium cytologically. Out of these, 21 cases (72.41%) showed similar benign changes on histological study, so the correlation between cytologically benign and histologically benign endometrium was 72.41%, whereas Sagar (1981) showed 85.71% cases of benign histology in comparison to the cytologically benign endometrium thus showing similarity to our findings whereas Jacqueline (1982) reported 68.4% histologically benign endometrium in the cytologically benign cases. In the remaining 8 cases, six cases showed normal endometrial pattern and 2 cases in biopsy were inadequate.

In present study 20.68% cases had normal endometrium on histology which were cytologically diagnosed as hyperplasia. Jacqueline (1982) reported similarity with the above findings by reporting 23.6% such cases in her study. In present study, 6.89% cases and in Jacqueline (1982) 6.6% cases showed endometrium to be insufficient for histology whereas cytologically benign lesions were seen in these cases.

The only difference from our study in Jacqueline's study was that there were 1.5% cases of malignancy on histology while cytology gave diagnosis of hyperplasia. No such case was detected in our study.
In our findings 6 cases were cytologically malignant and the histology study of these cases revealed adenocarcinoma in 5 cases thus giving a comparison in 83.3% cases only. This 1 case which was cytologically proved to be malignant whereas on histology found to be of normal secretory endometrium was 45 years of age and clinically presented with a lump in abdomen. On opening the abdomen it was found to be a case of ovarian tumour and its infiltration in the uterine cavity was detected on examining the hysterectomy specimen of uterus. Thus biopsy missed the malignancy whereas endometrial aspiration smear cytology proved the malignancy which was later confirmed by hysterectomy thus proving the worth of cytology in detection of malignant cases.

In our study 40 cases underwent the operation of hysterectomy and the specimen was sent for histopathological examination. In all these cases endometrial aspiration and endometrial biopsy had been done prior to operation. Twenty seven specimens in biopsy showed normal endometrium, 26 cases showed normal endometrium on hysterectomy while 23 cases of normal endometrium were seen in cytology. Thirteen cases showed hyperplasia on hysterectomy and biopsy while aspiration smear showed 16 cases of hyperplasia. One case was of endometrial malignancy in hysterectomy specimen.
and cytology sample while biopsy specimen of this case showed no malignancy. Thus in our study, correlation between biopsy and hysterectomy is 92.85% while that between cytology and hysterectomy is 82.35% in diagnosing malignant and benign changes in endometrium.

The findings of present study are comparable to study of Vuopala (1977). He states that the false negative rate could be documented only by removal of the uterus. In 81 cases diagnosed by dilatation and curettage as endometrial carcinoma, he repeated the procedure 3-6 weeks later and found no evidence of carcinoma, thus showing 8 cases to be false negative. The diagnosis was confirmed by other procedures, including 4 cases by hysterectomy, 3 cases by Vabra aspiration and 1 case by jet wash. In addition, there are many well documented cases of carcinoma not detected by dilatation and curettage as seen in our study also.

Rascoe (1963) studied 6,416 cases and reported an accuracy of 92.6% by endometrial smear. The accuracy rate of diagnosis made by curettage was 98%. When both the smear and curettage were used the accuracy of the diagnosis was 100%. In our study endometrial aspiration could diagnose hyperplasia and malignancy on cytology in 86.2% cases accurately whereas curettage diagnosed
hyperplasia and malignancy with an accuracy of 91.65%. Thus we also found 100% accuracy in using both endometrial aspiration and histology in diagnosing endometrial hyperplasia and malignancy.

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