

# Assessment of Diagnostic Efficiency of Pipelle Endometrial Sampling in Patients with Abnormal Uterine Bleeding.

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## ABSTRACT

**Background:** Abnormal uterine bleeding is among the most prevalent uterine disorders among the females of pre and perimenopausal age. Endometrial sampling pipelle method is emerging as convenient and popular method for endometrial sampling in recent scenario. Accuracy of pipelle method in comparison of dilatation & curettage is still not clear. Therefore the present study was designed to assess the efficacy of pipelle method in comparison of dilatation & curettage method for endometrial sampling in patients with abnormal uterine bleeding. **Methods:** The present study included 200 patients suffering with abnormal uterine bleeding. On the other hand, patients having abnormal uterine bleeding of 16 to 70 years age having normal haematological findings were included in the study. Pipelle method of sampling was performed before the D & C method was completed in all the patients. **Results:** Histological findings of the endometrial obtained by pipelle method showed endometrial hyperplasia (44%) was most common followed by proliferative phase (16%), secretory phase (12%) and proliferative endometrial phase (12%). While, endometrial carcinoma and choriocarcinoma were recorded in 2.5% and 1% cases. On the other hand, proliferative phase, secretory phase, endometrial phase and proliferative endometrial phase were observed in 17.5%, 13%, 39.5% and 15% correspondingly. Endometrial carcinoma and choriocarcinoma detected in 4% and 1.5% patients. **Conclusion:** Results of the present study showed that pipelle method of endometrial sampling is equally effective to its contemporary method D & C. Moreover, this technique is more convenient as it can be performed outdoor during routine examination. In addition there is no need of anaesthesia for pipelle method like D & C. We strongly recommend pipelle method instead of D & C for the diagnosis of abnormal uterine bleeding as it has a high specificity rate and accuracy rate, without post sampling bleeding and pain.

**Keywords:** Uterine Bleeding, Pipelle, Dilatation and Curettage, Endometrial hyperplasia.

## INTRODUCTION

Abnormal uterine bleeding is among the most prevalent uterine disorders among the females of pre and perimenopausal age. Assessment of abnormal uterine bleeding especially in perimenopausal women is very important as it provides crucial information about the nature of changes of uterine endometrium. Exact diagnosis of the uterine bleeding may help in the prompt management of the relative disorders with in time.<sup>[2]</sup> Endometrial sampling pipelle method is emerging as convenient and popular method for endometrial sampling in recent scenario.<sup>[3]</sup> Studies suggest that it is more useful in endometrial lesions involving large surface of endometrium compare to focal lesions.<sup>[4]</sup> Dilatation & curettage is traditional technique of endometrial sampling with a significant risk of infection and perforation. Moreover, in spite of requirement of anaesthesia less than half of the uterine cavity is

curetted.<sup>[5,6]</sup> All these lacunae support the requirement of new and simple diagnostic tool for the endometrial assessment. Pipelle method is efficient enough to resolve all these diagnostic lacunae.<sup>[7,8]</sup> The pipelle technique is an outdoor method and it does not need anaesthesia along with it pipelle method is less expansive compare to dilatation & curettage.<sup>[9]</sup> However, accuracy of pipelle method in comparison of dilatation & curettage is still not clear.<sup>8</sup> Therefore the present study was designed to assess the efficacy of pipelle method in comparison of dilatation & curettage method for endometrial sampling in patients with abnormal uterine bleeding.

## MATERIALS AND METHODS

This was a cross sectional type of study which was conducted in the Department of Pathology, F H medical College, Tundla from July 2017 to November 2018.

The present study included 200 patients suffering with abnormal uterine bleeding. Patients with abnormal uterine bleeding having malignant cervical lesions, cervicitis, PID, cervical stenosis and

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pregnancy were excluded from the study. On the other hand, patients having abnormal uterine bleeding of 16 to 70 years age having normal haematological findings were included in the study. Elaborated clinical examination was done of each and every patient before including in the study. Radiological findings and clinical investigations of all the patients were recorded before applying uterine sampling techniques. All the patients were informed in detail about the aims and objective of the study before participating in the study. Ethical approval to the study was granted from the ethical committee of the institute.

Pipelle method of sampling was performed before the D & C method was completed in all the patients. Pipelle device was introduced to uterine cavity via undilated cervix without anesthesia.

Through, undilated cervix the pipelle gadget was brought into uterine depression without anesthesia. The cylinder is completely pulled back to make suction and the gadget is pivoted to get an example which was collected in the bottle of formalin. Histopathology was done of all the endometrial samples. The endometrial samples were taken by two unique strategies which were presented in 10% formalin, handled by routine histopathological methods and paraffin squares were readied. From each square around 3-4 µm areas were cut, mounted, dewaxed and recolored with H&E. The slides were submitted to itemized microscopic examination and were assessed autonomously. The microscopic discoveries and histopathological determination for each situation by pipelle desire methods and curettage were independently recorded and relative investigation attempted.

## RESULTS

Total 200 samples of endometrial were assessed for the pathogenesis in the current study. Most of the patients of current study were belong to perimenopause age group; whereas, mean age of all the patients were  $42 \pm 8.6$  years.

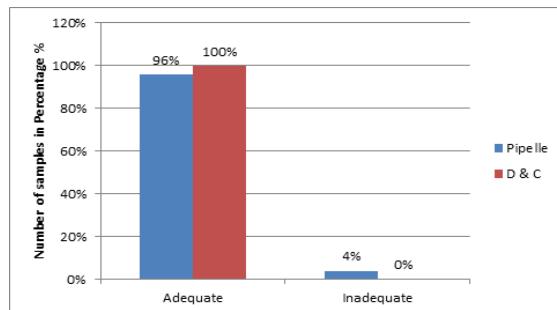
[Table 1] shows that menorrhagia was the most common complaint among all the patients followed by meorrhagia (25%), polymenorrhea (13%) and postmenopausal bleeding (25%).

**Table 1: Distribution of patients according to type of menses.**

Type of menses	Number of patients	Percentage (%)
Menorrhagia	108	54%
Polymenorrhea	26	13%
Metrorrhagia	50	25%
Postmenopausal bleeding	16	8%

It is evident from [Figure 1] that out of 200 patients, pipelle samples were adequate for 192 patients; while inadequate for 8 patients. On the other hand,

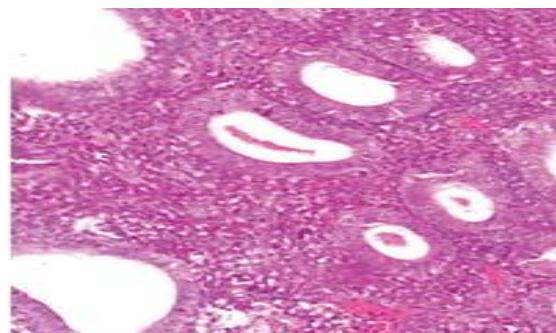
all the patients had adequate sample by D & C method (200); none of the sample of D & C method was inadequate.



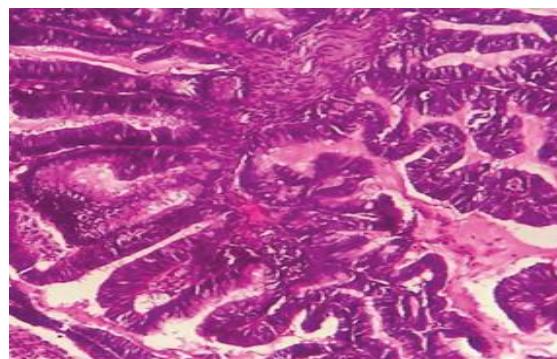
**Figure 1: Comparison of samples of both methods.**

**Table 2: Comparison of histological characteristics of endometrial samples obtained by both methods.**

Histological characteristics	Pipelle	D & C
Proliferative phase	32	35
Secretary phase	24	26
Endometrial hyperplasia	86	79
Hormones induced changes	5	7
Proliferative endometrial disorders	24	30
Atypical endometrial hyperplasia	7	3
Endometrial atrophy	7	9
Endometrial adenocarcinoma	5	8
Choriocarcinoma	2	3
Not adequate	8	0
Total	200	200



**Figure 2: Histological feature of endometrial obtained by pipelle method.**



**Figure 3: Endometrial carcinoma by pipelle method.**

Histological findings of the endometrial obtained by pipelle method showed endometrial hyperplasia (44%) was most common followed by proliferative phase (16%), secretary phase (12%) and proliferative endometrial phase (12%). While, endometrial carcinoma and choriocarcinoma were recorded in

2.5% and 1% cases. On the other hand, proliferative phase, secretary phase, endometrial phase and proliferative endometrial phase were observed in 17.5%, 13%, 39.5% and 15% correspondingly. Endometrial carcinoma and choriocarcinoma detected in 4% and 1.5% patients.

**Table 3: Various characteristics of pipelle samples.**

Variables	Proliferative phase	Secretary phase	Endometrial hyperplasia	Hormones induced changes	Proliferative endometrial disorders	Atypical endometrial hyperplasia	Endometrial atrophy	Endometrial carcinoma
Senstivity	92.1	95	100	63.8	82.8	100	64	82
Specificity	100	98.9	93.6	98.8	100	99.2	99.6	100
Positive predictive value	100	95	92.5	99	100	84.6	100	100
SNegative predictive value	98.8	98.7	100	98.2	95.8	100	97.6	98
Accuracy	98.3	99.2	95.7	97.9	97.4	98.2	98.3	97.8

## DISCUSSION

Abnormal uterine bleeding is one of the commonest disorders found in females. There are various diagnostic tools for the underlying pathology of this disorder without any significant accuracy. However, endometrial sampling is one of the efficient as well as accurate diagnostic techniques for the pathological diagnosis of abnormal uterine bleeding.<sup>[10,11]</sup> Various studies reported excellent accuracy rate of pipelle sampling for the diagnosis of aforesaid. In addition, this technique is time saving as it takes less than 5 minutes to perform this method; moreover, it does not produce any bleeding or postoperative discomfort to the patients.

Present study showed specificity and accuracy rate was significantly high. These finding are supported by earlier studies of Chandrashekhar N et al,<sup>[10]</sup> and Patil P et al,<sup>[11]</sup> as they observed specific rate of 99% and 98% respectively with accuracy rate of 98% and 99% correspondingly. Further, findings of the present study revealed that pipelle method had a high NPV and accurate rate for the atrophic endometrium and disordered proliferative endometrium; though it had a low sensitivity for the diagnosis of both of these. These findings are consistent with the earlier study of Aron T et al,<sup>[12]</sup> recorded similar NPV (98.8%) and accuracy of (95.5%) for the diagnosis of atrophic endometrium. Pipelle method has an edge over the D & C method as it does not required analgesic and anaesthesia. Apart from this pipelle method can be performed during routine pelvis examination. Being an outdoor technique, one of the important use of pipelle method is timely diagnosis of carcinoma and hyperplasia of endometrial in abnormal uterine bleeding. This method is cost effective; further, compare to D & C it is very less expansive and simple.<sup>[13]</sup>

Inadequate sample were found for 8 patients in our this must be due to less endometrial thickness as

endometrial thickness less than 5 mm in ultra sound prior to the process of sampling have failed to provide adequate amount of sample in previous studies.<sup>[14,15]</sup>

Results of our study recorded a good sensitivity, specificity and accuracy of pipelle technique. These findings are supported by the results of the previous studies conducted by Choudhry A et al 16 and Clark T J et al,<sup>[6]</sup> as they found pipelle method is all most similar to D & C method. However, studies recommended an additional support for the diagnosis to the pipelle method for the diagnosis of endometrial hyperplasia.<sup>[17,6]</sup>

The present study recorded that pipelle method was equally effective to D & C in diagnosis of abnormal uterine bleeding. These findings of our study is well supported by previous medicine of Dijkhuizen FP et al,<sup>[18]</sup> and Rachamallu L et al,<sup>[19]</sup> as they observed pipelle technique for endometrial sampling in carcinoma and atypical hyperplasia was an effective diagnostic tool.

## CONCLUSION

Results of the present study showed that pipelle method of endometrial sampling is equally effective to its contemporary method D & C. Moreover, this technique is more convenient as it can be performed outdoor during routine examination. In addition there is no need of anaesthesia for pipelle method like D & C. We strongly recommend pipelle method instead of D & C for the diagnosis of abnormal uterine bleeding as it has a high specificity rate and accuracy rate, without post sampling bleeding and pain.

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