Validity of Pipelle Endometrial Sampling in Patients with Abnormal Uterine Bleeding: an Analytical Cross-Sectional Study

SHEHLA CHANNA, NAZIA HAIDER, ABIDA PERVEEN, MEHVISH SUMBLE, SHAHNEELA, NADIA MEHREEN

INTRODUCTION

In the peri and postmenopausal years, abnormal uterine bleeding accounts for more than 70 percent of all gynecological consultations. (1) The bleeding might be a symptom of localized conditions, such as an infection, a benign disease, or a malignancy. One of the most frequent causes of gynecological consultation is abnormal uterine bleeding. It occurs when a woman's vaginal bleeding pattern or amount is different from the normal for women of the same age group in the female population as a whole. The regularity, frequency, volume, and length of menstrual flow are used to describe normal menstruation and a normal menstrual cycle. There are two possible categories of causes for abnormal uterine bleeding: structural and non-structural. (2) It is a crucial uterine cancer presenting symptom. When evaluating atypical uterine bleeding, endometrial sampling for histopathology is essential. (3) The method of endometrial sampling known as dilatation and curettage is widely regarded as the most reliable and accurate option available. However, in sixty percent of cases, less than half of the uterine cavity is truly curetted, which raises the risk of general anesthesia, infection, and perforation. (4, 5) As a result, new, efficient techniques for sampling endometrium have emerged. The Pipelle device is one of many that are available today. (6) In comparison to D&C, the Pipelle can be used as an outpatient procedure. However, there are still questions about the sample's suitability and the lack of sampling of focal intrauterine lesions. (7) The study's objectives were to evaluate the validity of the pipelle device in obtaining a suitable & representative endometrial sample by contrasting the histopathological outcomes of pipelle sampling with those from dilatation and curettage (D&C).

METHODOLOGY

An analytical cross-sectional study was conducted with 100 patients who were above the age of 40 years and had abnormal uterine bleeding after receiving approval from the institutional ethical committee. After doing a comprehensive clinical evaluation on the patients, transvaginal sonography and laboratory testing were carried out. Patients having a history of contraception, a local gynecological cause, a probability of pregnancy, or endometrial thickness less than 4 mm were excluded from the study. Besides being euthyroid, the individuals in this study also had normal levels of liver function markers, APTT, and platelets. The Pipelle device was used to sample the endometrium.

The sample marked as sample A was obtained by inserting the Pipelle without conducting cervical dilatation and rotating it inside the uterus. The patients were then brought into the operating room for D&C, and the sample that was taken following D&C was designated as sample B.

RESULTS

Comparison of pipelle and D&C histopathological results are shown in Table 1. Table 2 compares pipelle and D&C histopathological results. In pipelle samples and D&C, proliferative endometrium predominated, followed by disordered and secretory endometrium. Pipelle sampling failed to find the polyp. Pipelle sampling failed in 7% of patients, compared to 4% with D&C. Table 2 compares the validity of pipelle sampling to D&C by calculating the specificity, sensitivity, PPV, and NPV. Pipelle sampling shows a 100% sensitivity for proliferative and secretory endometrial detection and a 90% sensitivity for disordered endometrium detection, but only 16% sensitivity for polyp detection. Due to its ease of use, the pipelle sample can be used as a screening method to collect endometrial samples from patients who have atypical uterine bleeding.
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Table 1: A Comparison of Pipelle and D&C Histopathological Results

<table>
<thead>
<tr>
<th>Histopathology report</th>
<th>D&amp;C sampling</th>
<th>Pipelle sampling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proliferative</td>
<td>50</td>
<td>53</td>
</tr>
<tr>
<td>Disordered endometrium</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>Secretory endometrium</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>Polyp</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Inadequate</td>
<td>4</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 2: Specificity, Sensitivity, PPV, and NPV of the Pipelle Histopathology Report Against D&C Sampling

<table>
<thead>
<tr>
<th>Prognostic Category</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proliferative</td>
<td>100%</td>
<td>92%</td>
<td>93%</td>
<td>100%</td>
</tr>
<tr>
<td>Disordered endometrium</td>
<td>100%</td>
<td>90%</td>
<td>100%</td>
<td>99%</td>
</tr>
<tr>
<td>Secretory endometrium</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>90%</td>
</tr>
</tbody>
</table>

DISCUSSION

When comparing the Pipelle to D&C, many researchers have found that it is an acceptable and accurate outpatient sampling procedure. (8, 9) For acquiring an endometrial sample in this investigation, the Pipelle device exhibited sensitivity 97%, specificity100percentage, and predictive values 100%. It was also 100 percent accurate in detecting proliferative and secretory endometrium, as well as endometrial cancer. In order to assess the validity of the Cornier Pipelle for the identification of endometrial cancer & typical endometrial hyperplasia. A total of 1535 reports of outpatient endometrial biopsies carried out on pre- and postmenopausal women with atypical vaginal bleeding were investigated by Mechado and colleagues. Endometrial biopsy with the Cornier Pipelle is a reliable way to diagnose endometrial cancer and atypical hyperplasia, with a sensitivity of 84.2%, specificity of 99.1%, accuracy of 96.9%, PPV of 94.1%, and NPV of 93.7%. (10) The detection rates of endometrial cancer and atypical hyperplasia were compared across several endometrial sampling techniques in a meta-analysis conducted by Dijkhuijzen et al. The Pipelle endometrial biopsy method detected endometrial cancer & atypical hyperplasia in premenopausal & postmenopausal women better than conventional methods. (11) Abdelazim et al. compared the Pipelle and D&C procedures and found that both obtained higher percentages of an adequate sample in conventional D&C (100%) and the Pipelle process (97.7%), respectively, than our study. Several factors, including the pathologist's training and equipment, could be accountable. (12) The sufficiency rates by pipelle and D & C were 91.5% and 98.5%, respectively, by Naderi and colleagues in a study. (13) These adequate rates are greater than those in our study. More than the findings of this investigation, the study by Mousavifar et al. (14) found asufficiency rate 94% for pipelle samples. In comparison to our study, the other investigations likewise revealed superior rates for pipelle than D & C. (15, 16) In the current investigation, a significant percentage of the patients displayed an abnormal proliferative pattern. Disordered proliferative pattern represents one end of the range of endometrial proliferative lesions, with carcinoma representing the other end and various stages of hyperplasia. Carcinoma is at the opposite end of the spectrum. The phrase "disordered proliferative endometrium" has been utilized in a variety of contexts, making it rather challenging to explain exactly what is meant by the term. It is characterized by a hyperplastic look of the endometrium but does not involve an increase in the volume of the endometrium. (17) It also represents an endometrium in proliferative phase that does not complement any certain time in the menstrual cycle but isn't hyperplastic. A simple hyperplasia is similar to a disordered proliferative pattern, but the process is focused rather than diffuse. In contrast to Cho Nam-Hoon et al., more disordered proliferative patterns were seen in our study. (18)

CONCLUSION

A quick and safe way to obtain tissue diagnosis is through endometrial sampling utilizing a Pipelle device, which can be completed as an outpatient surgery. In comparison to D & C, Pipelle is more affordable, has higher patient compliance, and offers the added benefit of avoiding anesthesia and other treatment problems including perforation. Due to its great sensitivity and specificity, obtaining an endometrial sample for histopathology in women with abnormal uterine bleeding may be considered a first-line examination.

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REFERENCES