PHYSICIAN OFFICE-BASED (PIPELLE®) ENDOMETRIAL BIOPSIES: A One Year Review of Rex Pathology Data

Most endometrial biopsies are performed as part of the evaluation of abnormal uterine bleeding. Currently, the initial biopsies are usually performed in the physician office setting using Pipelle® suction biopsies or other similar methods. This type of biopsy does not require anesthesia and has a low complication rate, making it ideal for the outpatient setting. Since these biopsies sample only a small portion of the endometrium; it is critical that they be combined with ultrasound and/or hysteroscopic evaluation to help localize focal lesions including polyps, submucosal leiomyomas and carcinomas. Studies that compared the results of Pipelle® biopsies and subsequent dilation and curettage (D & C) have shown concurrence rates of around 90% with sensitivity and specificity for significant endometrial pathology (hyperplasia or carcinoma) of 73% and 100%, respectively. Sensitivity increased to 90% with the concordant use of ultrasonography. The diagnostic accuracy of the pathologic evaluation of any type of endometrial specimen is enhanced when a thorough clinical history is provided. At a minimum the date of the patient’s last menstrual period as well as the reason for the biopsy should be provided. Clinical suspicion for a polyp, leiomyoma, thickened endometrium or other lesion identified by ultrasound or hysteroscopy should also be included. Relevant medication use, especially hormonal therapy, should be mentioned since such therapies can dramatically alter the histologic appearance of the endometrium.

Compared to D & C specimens, Pipelle-type biopsies may be associated with relatively sparse tissue. This may limit or prevent recognition of the appropriate phase of the menstrual cycle or abnormal (albeit benign) endometrial findings. In these instances the specimen may consist solely of strips of superficial endometrial cells or cuboidal cells with little or no associated stroma. Such specimens may represent a dilemma to pathologists, particularly when no clinical information is provided. Some pathologists believe that in a patient with atrophy by either hysteroscopy or ultrasound, the presence of endometrial stroma is not necessary for an adequate evaluation of the endometrium. On the other hand, with limited or absent endometrial stroma, the pathologist cannot objectively determine if the biopsy reflects sampling limited to the lower uterine segment rather than the lining of the corpus. If only strips of cuboidal cells are present, an endocervical origin is difficult to exclude entirely.

The lack of standardization as to what constitutes an “inadequate” endometrial biopsy is emphasized by the fact that the published inadequacy rates vary widely from 4.8% to 33%. Categorizing a specimen as “inadequate” can have clinical management implications since many clinicians may feel compelled to perform a repeat biopsy in this situation. However, if the endometrium is atrophic and the clinical findings including ultrasonography and/or hysteroscopy correlate, then it is normal for a Pipelle-type biopsy to produce sparse tissue and

Figure 1: Strips of superficial inactive endometrium without endometrial stroma. This is consistent with atrophic endometrium in conjunction with supportive clinical, ultrasound and/or hysteroscopic findings.
the chances of missing significant disease are minimal.\textsuperscript{4} (The entity of \textit{serous endometrial intraepithelial carcinoma} is a pitfall for both the gynecologist and the pathologist as the clinical appearance is frequently “atrophic” and the lesional cells may be sparse, particularly if sampling of this high grade neoplasm is limited.)

I recently reviewed the findings from all 1039 endometrial biopsies received from physician offices in 2012. It is presumed that the majority of these were obtained using limited sampling devices such as Pipelle\textsuperscript{®}. Table 1 summarizes the findings.

Specimens containing no endometrium suggesting a lack of sampling of or entry into the endometrial cavity represented 5.7\% of cases. Specimens consisting of sparse endometrium with little or no stroma were 13.2\%. Followup information for each of these types of specimens was obtained from the Rex Hospital information system and is summarized in Tables 2 and 3.

Followup repeat endometrial sampling and/or hysterectomy was done in only 24.8\% of cases in which the office biopsy yielded a limited sampling of superficial endometrium. Endometrial tissue was confirmed in all of these specimens. In 50\% the endometrium was atrophic, in the other 50\% the follow-up specimen showed a histologic finding not present in the original biopsy. As might be expected, 59\% of cases that contained no endometrium in the initial sample had subsequent endometrial biopsy and/or hysterectomy. Endometrial tissue was present in 90\% of these specimens. In just over 40\% a histologic finding other than atrophy was identified.

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|}
\hline
Diagnosis & Number of Cases & Percentage of Cases \\
\hline
Proliferative Endometrium & 239 & 23.0\% \\
Weakly Proliferative Endometrium & 129 & 12.4\% \\
Disordered Proliferative Endometrium & 82 & 7.9\% \\
Secretory Endometrium & 151 & 14.5\% \\
Menstrual Endometrium & 52 & 5.0\% \\
Exogenous Progestin Effect & 38 & 3.7\% \\
Dysynchronous/Irregular Shedding/DUB & 22 & 2.1\% \\
Endometrial Polyp & 93 & 9.0\% \\
Polyp with hyperplasia & 2 & 0.2\% \\
Simple/complex hyperplasia Without atypia & 12 & 1.2\% \\
Simple/complex hyperplasia With atypia & 3 & 0.3\% \\
Adenocarcinoma & 16 & 1.6\% \\
Retained POC/placental site & 2 & 0.2\% \\
Incidental cervical dysplasia & 2 & 0.2\% \\
Scant superficial endometrium Without stroma/atrophy & 137 & 13.2\% \\
No Endometrium in sample & 59 & 5.7\% \\
\hline
\textbf{TOTALS} & \textbf{1039} & \\
\hline
\end{tabular}
\caption{2012 Summary of Physician Office Endometrial Biopsy Specimens}
\end{table}

Figure 2: Carcinosarcoma (Malignant Müllerian Mixed Tumor). This D & C specimen followed a Pipelle\textsuperscript{®} biopsy that contained only sparse strips of endometrium. The followup biopsy was performed because the clinical findings suggested a mass lesion in the endometrial cavity.
In the overwhelming majority of the subsequent specimens in both categories, a benign diagnosis resulted. In one instance a follow-up specimen yielded significant endometrial pathology. In this case the office biopsy contained only scant inactive endometrium. A subsequent D & C specimen performed for the clinical impression of “fibroids” resulted in a diagnosis of carcinosarcoma.

If clinically the endometrial cavity has been entered, and ultrasonographic and/or hysteroscopic evaluation as well as other clinical data is consistent with an atrophic endometrium, then the presence of sparse superficial strips of inactive/atrophic endometrium without stroma may be an expected finding and does not necessitate a repeat biopsy. The pathologist may describe the microscopic appearance and leave it to the gynecologist to correlate with the clinical/operative findings. However, if the specimen contains no endometrial tissue then the pathologic findings can not confirm sampling of the endometrium. In this instance the specimen should be reported as “inadequate” or “insufficient” and clinical consideration should be given to repeat endometrial biopsy dependent upon the clinical, ultrasonographic and hysteroscopic findings.

**TABLE 2: Followup of Scant/atrophic biopsies {34/137 (24.8%) with followup}**

<table>
<thead>
<tr>
<th>Followup Diagnosis</th>
<th>Number of Cases</th>
<th>Percentage of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrophy</td>
<td>17</td>
<td>50%</td>
</tr>
<tr>
<td>Endometrial polyp</td>
<td>10</td>
<td>29.4%</td>
</tr>
<tr>
<td>Other benign diagnoses</td>
<td>6</td>
<td>17.6%</td>
</tr>
<tr>
<td>Carcinosarcoma</td>
<td>1</td>
<td>2.9%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>34 Cases with follow up</strong></td>
<td></td>
</tr>
</tbody>
</table>

**TABLE 3: Followup of Cases with No Endometrium {35/59 (59%) with followup}**

<table>
<thead>
<tr>
<th>Followup Diagnosis</th>
<th>Number of Cases</th>
<th>Percentage of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrophy/weak proliferative</td>
<td>17</td>
<td>48.6%</td>
</tr>
<tr>
<td>Endometrial polyp</td>
<td>6</td>
<td>17.1%</td>
</tr>
<tr>
<td>Other benign diagnoses</td>
<td>9</td>
<td>25.7%</td>
</tr>
<tr>
<td>Atypical/malignant</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>No endometrium on followup biopsy</td>
<td>3</td>
<td>8.6%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>35 Cases with Followup</strong></td>
<td></td>
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*(Special Thanks to Katherine Barrett, MD for reviewing the manuscript)*

**REFERENCES**

MRSA Nasal Screening
The Rex Laboratory receives occasional requests for methicillin resistant Staph. aureus (MRSA) screening. There is no surveillance program for patients admitted to Rex, but we will begin offering MRSA screening in February when ordered by the patient’s physician.

The culture based MRSA screen is plated on CHROM agar MRSA II, a differential and selective media containing specific chromogenic substrates and Cefoxitin. MRSA will grow in the presence of cefoxitin and produce mauve colonies resulting from the hydrolysis of the chromogenic substrate (see Image).

The screen is intended for the qualitative direct detection of nasal colonization by MRSA. It should not be used to diagnose, guide or monitor treatment for MRSA infections.

**Test to order:**
MRSA screen

**Specimen:**
Using a BBL CultureSwab™ (or equivalent bacterial collection and transport system), swab the anterior 1 to 2 cm of the nares with sufficient rubbing of mucosal surfaces to cover the entire interior surface of the anterior nares. Both right and left nares can be collected on the same swab. Transport to the laboratory at room temperature within 24 hours of collection.

**TAT:**
24-48 hours

**Results:**
Negative for Methicillin Resistant Staphylococcus aureus (MRSA).
Positive for Methicillin Resistant Staphylococcus aureus (MRSA).
Positive results of MRSA screens will **not be called**.

**Limitations:**
A negative result does not preclude MRSA nasal colonization. Low concentrations (≤ 10⁶ CFU/mL) of organism may yield false negative results.

Some nasal sprays and throat drops demonstrate antibacterial activity and may interfere with test results.

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