Endometrial Biopsy (EMB)

Procedure

The basic steps common to all endometrial sampling procedures are as follows:

1. Patients scheduled for sampling may be advised to take an NSAID prior to arriving at the clinic
    a. Or given upon arrival to clinic.
2. UPT negative day of procedure and reassurance patient could not be pregnant
3. Place the patient in the dorsal lithotomy position.
4. Perform a bimanual examination - attention to the size, shape, and orientation of the uterus.
5. Insert a speculum and visualize the cervix.
6. Cleaning the cervix with antiseptic solution (eg, povidone-iodine) is performed by some, but not all
7. If anesthesia is to be used, it is administered prior to any other manipulation.
8. In many patients, an endometrial sampling device can be inserted without grasping the cervix with a tenaculum. Use of a tenaculum increases patient discomfort.
    a. A tenaculum should be used if the uterus is not close to axial in position.
        i. Straightening the uterine axis may reduce the risk of uterine perforation.
    b. Place a tenaculum (with teeth in a horizontal position) on the anterior cervical lip and retract outwardly to straighten the cervicouterine angle.
    c. If a tenaculum is required and a paracervical block has not been given, we may apply a local anesthetic (eg, benzocaine 2% gel or 20% benzocaine spray) to the intended site before placing the tenaculum.
    d. Directing the patient to cough while simultaneously applying the tenaculum may also decrease discomfort.
9. Using steady and moderate pressure, slowly insert the sampling device through the cervical os and on to the uterine fundus. Stop when resistance is met.
10. If the device will not pass through the cervix, attach a tenaculum (if not already in place), and use a series of small (1 to 4 mm) Hegar or similar dilators to gently dilate the canal.
11. Many devices are marked with centimeters, so the device can be used to measure the uterine depth. Average uterine length is 6 to 8 cm.
12. Stabilize the sheath with one hand and pull the piston out as far as possible to create suction.
13. Move the device tip along the endometrial surface using a corkscrew rotation combined with a repeating cephalic-caudal motion while maintaining suction.
    a. When using a suction device, do not let the sheath come outside of the external os or you will lose the negative pressure.
        i. If you do, simply expel the contents of the sheath into the formalin container/Telfa, taking care not to contaminate the device, and reinsert the sheath.
14. Remove the device when the entire cavity has been sampled.
    a. Expel the specimen into a formalin container or onto a sterile non-adhesive bandage (e.g. Telfa)
    b. If there appears to be insufficient tissue for diagnosis, perform a second pass with the device.
        i. Multiple passes are sometimes needed to assure specimen adequacy.
    c. The same device may be used if it has not been contaminated; it should not have touched the formalin.
15. Remove the tenaculum, if present.
    a. Most bleeding can be controlled with pressure via cotton swabs or a sponge stick.
    b. If bleeding persists, use Monsel's or silver nitrate to cauterize the site.

Post-procedure:

- Patients should remain in a semi-recumbent position for several minutes after the procedure to reduce the chance of a vasovagal episode. Patients may then leave the office if they are not lightheaded and there is no heavy bleeding.
- Cramping can be managed with NSAIDs, although persistent cramping is unusual.
- The patient should call to report any fever, cramping continuing for 48 hours or more, increasing pain, foul-smelling vaginal discharge, or bleeding heavier than a normal period.
- Patients may resume their usual activities, including coitus, as soon as they are ready.

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Indications

General indications for endometrial sampling are to evaluate for a precancerous or cancerous lesions
or to assess for a subclinical infection (eg, endometritis).

These recommendations are based on an average age of menopause of 51 years. Evaluation of patients who undergo menopause earlier should be individualized based on gynecologic history and risk of endometrial neoplasia.

Abnormal uterine bleeding
▪ Postmenopausal patients – Any uterine bleeding, regardless of volume (including spotting or staining). Pelvic ultrasound to evaluate endometrial thickness is an alternative to endometrial sampling in appropriately selected patients. A thickened endometrium should be further evaluated with endometrial sampling.
▪ Age 45 years to menopause – In any patient, bleeding that is frequent (interval between the onset of bleeding episodes is <21 days), heavy, or prolonged (>8 days). In patients who are ovulatory, this includes intermenstrual bleeding.
▪ Younger than 45 years – Any abnormal uterine bleeding in obese patients (BMI ≥30). In nonobese patients, abnormal uterine bleeding that is persistent and occurs in the setting of one of the following: chronic ovulatory dysfunction, other exposure to estrogen unopposed by progesterone, failed medical management of the bleeding, or patients at high risk of endometrial cancer (eg, Lynch syndrome, Cowden syndrome).
▪ In addition, endometrial neoplasia should be suspected in premenopausal patients who are anovulatory and have prolonged periods of amenorrhea (six or more months).
Cervical cytology results
▪ Presence of AGC-endometrial.
▪ Presence of AGC-all subcategories other than endometrial – If ≥35 years of age **or** at risk for endometrial cancer (risk factors or symptoms).
▪ Presence of benign-appearing endometrial cells in patients ≥40 years of age who also have abnormal uterine bleeding or risk factors for endometrial cancer.
Other indications
▪ Monitoring of patients with endometrial pathology (eg, endometrial hyperplasia).
▪ Screening in patients at high risk of endometrial cancer (eg, Lynch syndrome).

Pre-procedure Preparation

- **Anesthesia**
  - Office sampling procedures can usually be performed without significant pain.
  - Discomfort can be minimized by reassuring the patient, explaining each step before doing it, and avoiding use of mechanical cervical dilators and/or a tenaculum, if possible.
  - Some clinicians recommend an NSAID 30 to 60 minutes prior to the procedure to decrease cramping.
  - Topical 10% lidocaine spray (4 "puffs") significantly reduced pain during the procedure, but there was no difference by 15 minutes afterward.
- **Cervical preparation and dilation**
  - Cervical preparation or dilation is not required in many patients, particularly premenopausal parous patients.
  - For those in whom it may be difficult to pass the sampling device without cervical dilation misoprostol (200 to 400 mcg) orally, per vagina, or both may be given the night before the procedure.
    - The vaginal route of administration appears to be more effective than oral.
    - Patients with cervical stenosis not amenable to misoprostol may require that the procedure be performed under general or regional anesthesia, with mechanical cervical dilation or with ultrasound guidance in a surgical suite.
- **Prophylactic antibiotics** — Prophylactic antibiotics are not necessary during endometrial sampling for the prevention of surgical site infection or bacterial endocarditis

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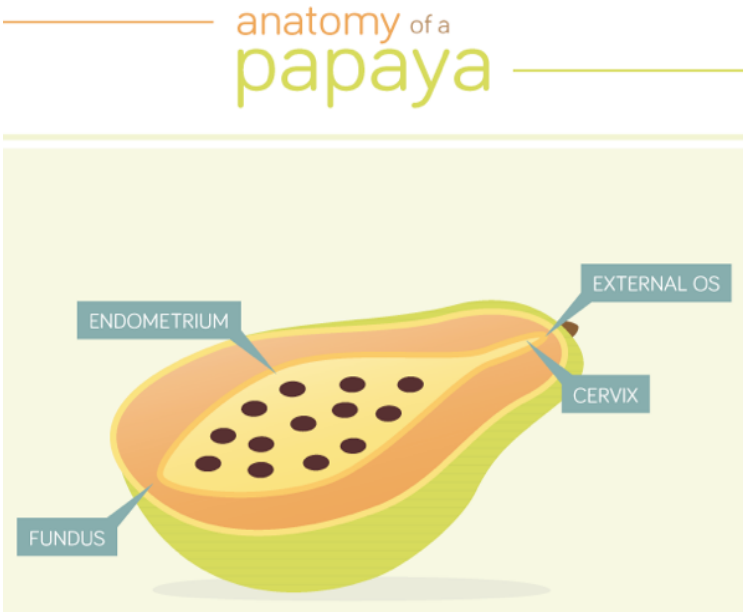
Endometrial Suction Device

Suction devices for endometrial sampling consist of a plunger within a sheath. When the sheath is inserted into the uterus, the plunger is retracted, creating negative pressure that draws tissue into the sampling device. Most suction sampling devices utilize low pressure.

- Any collected sample should be submitted for pathologic review, even if the clinician feels placement of the device or amount of gross specimen collected was not optimal.



Low-pressure devices, eg, Pipelle, Endocell

- most popular method for sampling the endometrial lining.
- They are typically constructed of flexible polypropylene with an outer sheath that is approximately <3 mm in diameter. The device has a 2.4 mm or smaller side port at the distal end, through which the endometrial sample is obtained.
- The flexibility of this type of sampler allows the cannula to conform to the contour of the uterus and minimizes cramping.

Complications

- The most common side effect of endometrial sampling is cramping, which subsides rapidly after the procedure is completed.
    - Cramping tends to be more severe with the higher pressure suction devices than low-pressure devices because the former is more rigid, the suction is greater, and larger samples are removed.
- Many patients will experience light vaginal bleeding or spotting for several days following the procedure.
- Vasovagal reactions are not uncommon during endometrial sampling.
    - Such reactions can generally be prevented by allowing the patient to eat and drink before the procedure and by minimizing pain through use of analgesics and, if necessary, local anesthesia.
- Rare complications include
    - excessive uterine bleeding (especially with undiagnosed coagulopathies),
    - pelvic infection
    - bacteremia (including sepsis and endocarditis).
    - uterine perforation (risk, 0.1 to 1.3 percent),
        - Uterine perforation during office endometrial biopsy is rare and is difficult to detect.
        - Most cases are likely to be asymptomatic, or the patient may have atypical pain during the procedure.
        - Theoretically, leakage of clear peritoneal-type fluid from the vagina may indicate a possible perforation; however, this is a nonspecific finding.
        - If perforation is suspected, additional measures should be taken for evaluation and management.
        - In our practice, if we have a small, but low suspicion of a perforation, we counsel the patient to call with worsening abdominal pain or fever.

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Advantages

- Pipelle device was more sensitive for the detection of endometrial cancer and atypical hyperplasia than all other sampling devices.
    - The sensitivity for the diagnosis of endometrial cancer in postmenopausal patients was 99.6% and in premenopausal patients was 91%. The sensitivity for the diagnosis of atypical endometrial hyperplasia was 81%.
- Office based procedure

- Endometrial sampling was most reliable when at least one-half of the endometrium was affected by disease.
    - Additional endometrial assessment should be performed if abnormal uterine bleeding persists after a "benign" endometrial biopsy.
        - Benign endometrial histology includes atrophy (absence of a hormonal effect), proliferative endometrium (estrogen effect), secretory endometrium (progestin effect), disordered or dyssynchronous endometrium (implies irregular shedding of the endometrium secondary to unopposed estrogen), and endometritis.
    - Further endometrial assessment should also be considered when the endometrial biopsy is non-diagnostic, but a high suspicion of cancer remains.
        - Non-diagnostic biopsies may be associated with polyps, fibroids, endometrial cancer, or other lesions occupying an area of the uterus that was not sampled.
        - Additional endometrial assessment may include a combination of transvaginal ultrasonography (TVUS) combined with repeat endometrial biopsy or D&C hysteroscopy.

Inadequate Sample

- If endometrial biopsy does not yield sufficient tissue for pathologic diagnosis, then the clinical setting should dictate further management.
    - We suggest TVUS if the patient is postmenopausal and the bleeding has not been persistent; a thin endometrial stripe (ie, ≤4 mm) in this setting is most consistent with atrophy and does not require further invasive studies.
    - A thick endometrial stripe, persistent bleeding, or bleeding in patients who are in the menopausal transition or are postmenopausal should be followed by additional endometrial sampling, such as D&C with hysteroscopy.

- In a typical procedure, 5 to 15% of the endometrial surface area is sampled.
- Failure to obtain tissue occurs in approximately 0 to 8% of low-pressure endometrial suction device procedures.
- One approach to improving the tissue adequacy rate is by using a technique that combines a corkscrew twisting motion and uterine curettage.
    - When using this method, the device is inserted to the fundus and then withdrawn to the lower uterine segment, alternating between a corkscrew twisting motion and the motion usually used to curette the endometrium during a dilation and curettage (D&C).

Reference: UpToDate, UCSF TEACH