MODERN EVALUATION OF THE ENDOMETRIUM

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- **IN MY OPINION ANY NORMATIVE DATA FOR ENDOMETRIAL THICKNESS WILL NOT BE MEANINGFUL FOR INDIVIDUAL PATIENTS …**

  AND

  UNDERSCORES THE PROBLEM THAT HAS ARISEN IN CLINICAL PRACTICE

HOWEVER…

- **CAVITY SIZE WILL OFTEN BE A FUNCTION OF PARITY**
- **THE UTERUS GROWS WITH CHILDBIRTH**

- **ALL WHO PRACTICE OB/GYN KNOW THAT THE AVERAGE MUTIPAROUS UTERUS IS LARGER THAN THE AVERAGE NULLIPAROUS UTERUS EVEN IN WOMAEN OF SIMILAR AGE**

- **HORMONAL STATUS OBVIOUSLY EFFECTS ENDOMETRIAL THICKNESS**
- **THE ENDOMETRIUM CONSISTS OF A BASALIS AND A FUNCTIONALIS**
- **ESTROGEN CAUSES THE FUNCTIONALIS TO PROLIFERATE**

PROLIFERATIVE EM

- **Mitoses**
- **Note AMOUNT (or HEIGHT) of tissue**

- PROGESTERONE (OR IN SEQUENTIAL HORMONE THERAPY THE USE OF A PROGESTIN) WILL CONVERT AN ESTROGEN PRIMED ENDOMETRIAL FUNCTIONALIS TO A SECRETORY PHASE

SECRETORY EM

- AFTER SHEDDING OF THE FUNCTIONALIS THE BASAL ENDOMETRIUM THAT REMAINS IS INITIALLY QUITE THIN AND HAS A PENCIL LINE APPEARANCE ON TV U/S

POST MENSTRUAL EM

- **IN MENOPAUSE THERE IS NO ESTROGENIC STIMULATION OF THE FUNCTIONALIS AND THE ENDOMETRIUM IS ATROPHIC**

ATROPHIC EM

- **Simple tubular glands**
- **Lacks mitotic activity**
- **Fibrotic stroma with increased collagen fibers**

SO…

IF THERE IS NO"NORMAL' WIDTH OF ENDOMETRIAL THICKNESS

WHAT IS THE PROPER USE OF THE ENDOMETRIAL ECHO CLINICALLY?

ANSWER

- **THE HIGH NEGATIVE PREDICTIVE VALUE OF A THIN DISTINCT ECHO IN PATIENTS WITH BLEEDING**

ENDOMETRIAL CANCER

- **American cancer society (2011): 41,520 new cases, 8,145 deaths**
- **Vaginal bleeding will be the presenting sign in almost all**
- **Most women with PM bleeding actually bleed secondary to atrophic changes of vagina or EM**
- **Incidence of EM cancer in women with PMB ranges from 1-14%**

POSTMENOPAUSAL BLEEDING NOT SO EASILY DEFINED

- Menopause "The Final Menstrual Period"
- Retrospective diagnosis
- Classic definition: "No bleeding for 12 months due to a depletion of ovarian follicles"
- Serum measurements of FSH and estradiol notoriously unreliable – snapshot of ovarian function at that time.

- Erratic function of the ovaries in late perimenopause often makes it difficult to label bleeding as definitively postmenopausal

CLINICAL REALITY

- Postmenopausal bleeding is "endometrial cancer until proven otherwise" Mandates evaluation
- ACOG Practice Bulletin #14 (2000) "endometrial assessment to exclude cancer is indicated in any woman older than 35 years who is suspected of having anovulatory uterine bleeding

ENDOMETRIAL ASSESSMENT

HISTORICAL BACKGROUND

- D&C (Dilatation & Curettage)
  - 1st described in 1843
  - Most common operation performed on women in hospital through much of the 20th Century
  - Prehysterectomy studies showed that when done blindly much of the uterine cavity goes unsampled

HISTORICAL BACKGROUND

VABRA ASPIRATOR

- Re-usable metal cannula attached to suction machine for in office EM sampling with little or no anesthesia
- High level of patient discomfort
- 86% accurate in diagnosing cancer

SUCTION PISTON BIOPSY INSTRUMENTS

- Smaller, cheaper, disposable plastic catheters with an internal piston to generate suction
- Marketing success of Pipelle brand ("Xerox, Kleenex")
- Similar efficacy but better patient acceptance when compared to Vabra

PIPELLE SUCTION PISTON BIOPSY

- 1st described by Cornier in an article in the Gray journal in 1984
- Of next 8 papers (1988-1991) 7 dealt with EM dating as part of infertility W/U (no longer utilized)
- One paper dealt with AMOUNT of tissue obtained with Pipelle compared to Vabra
- Next paper (1991) was WIDELY publicized

PIPELLE AND EM CARCINOMA

Stovall (1991)
- 40 women with known carcinoma
- Pipelle prior to TAH
- Cancer diagnosed in 39/40 patients
- "Accuracy" = 97.5%
- Widely publicized

PIPELLE

- Rodriguez (1993) did prehysterectomy sampling with both . Pipelle sampled an average of 4% of EM lining (range 0-12%) vs. 41% for Vabra
- Pipelle agreed with post hysterectomy diagnosis in only 84% of cases

PIPELLE ENDOMETRIAL SAMPLING

Guido R. et al (J Reprod Med, 1995)
65 pts with known carcinoma of EM
Pipelle under anesthesia prior to TAH

- missed 11/65 cancers of which
  - 3 were < 5% EM area
  - 4 were 6-25% EM area
  - 4 were 26-50% EM area
- 5/11 had tumor in polyps that were missed

Concluded "Pipelle is excellent for detecting <u>global</u> processes in the endometrium"

PIPELLE ENDOMETRIAL SAMPLING

- Performed in 135 premenopausal patients before curettage
- 13 patients (10%) had different histologic results compared with curettage
- 5 of these patients had polyps, of which Pipelle sampling missed 3
- 18 patients had hyperplasia, of which Pipelle sampling missed the diagnosis in 7 (39%), thus underscoring the often focal nature of that pathologic process

Goldchmit R, Ktz A, Blickstein I et al. Obstet Gynecol 1993;82:727-30.

FALSE NEGATIVE RATE OF PIPELLE IN PATIENTS WITH KNOWN CARCINOMA (OTHER STUDIES)

- 7% (missed 2/26)
- 17% (missed 14/80)
- 33% (missed 12/37)
- Not nearly as reliable as the original work by Stovall

TV U/S IN PMB: HISTORICAL PERSPECTIVE

TRANSVAGINAL ULTRASOUND

- In the early 1990's, it was utilized in women with postmenopausal bleeding to see if it could predict which patients lacked significant tissue and could avoid D&C or endometrial biopsy and its discomfort, expense, and risk.

Goldstein SR, Nachtigall M, Snyder JR, et al. Am J Obstet Gynecol 1990;163:119-123.
Granberg S, Wikland M, Karlsson B, et al. Am J Obstet Gynecol 1991;164:47-52.

TRANSVAGINAL ULTRASOUND

- **Consistently, the finding of a thin distinct endometrial echo ≤ 4 to 5mm was shown to effectively exclude significant tissue in postmenopausal women with bleeding.**

AUTHOR	YEAR	THINNEST EM IN A CASE OF CANCER	THICKEST EM ASSOCIATED WITH INACTIVE HISTOLOGY
Goldstein	90	7	6
Varner	91	5	5
Granberg	91	9	15

TRANSVAGINAL U/S VALIDATION OF EARLY STUDIES

Endometrial Thickness and Cancer Findings in Postmenopausal Women With Bleeding

Reference	Endometrial thickness*	Number of women	Number of cancers	Negative Predictive Value
Karlsson 1995	≤ 4 mm	1,168	0	100%
Ferrazzi 1996	≤ 4 mm	930	2	99.8%
	≤ 5 mm		4	99.6%
Gull 2000	≤ 4 mm	163	1	99.4%
Epstein 2001	≤ 5mm	97	0	100%
Gull 2003	≤ 4 mm	394	0	100%

TRANSVAGINAL U/S VALIDATION OF EARLY STUDIES

- For EM ≤ 4mm incidence of malignancy 1 in 917

IS ENDOMETRIAL BIOPSY STILL NECESSARY?

- False negative rate of TV U/S ≤ 4mm significantly less than a negative suction piston biopsy
- EM biopsy on patients with EM < 5mm: only 82% successfully performed, and of those only 27% gave a sample adequate for diagnosis

IS ENDOMETRIAL BIOPSY STILL NECESSARY? (Con't)

- **ACOG Committee Opinion (2/09) "When transvaginal ultrasound is performed for patients with postmenopausal bleeding and an EM thickness ≤ 4mm is found EM sampling is not required"**

TRANSVAGINAL ULTRASOUND

GENERAL PRINCIPLES

- **Use the highest frequency transducer that still yields adequate penetration**
- **Once EM echo well visualized use as much magnification as feasible**
- **Obtain multiple images in the Long Axis plane… midline as well as to the right and left of midline**
- **Measurements should be on a long axis view of the thickest point**

IMPORTANCE OF "EM NOT WELL VISUALIZED"

- Not all uteri lend themselves to a meaningful U/S examination (Axial uterus,marked obesity,coexisting fibroids,previous surgery,etc.)
- Just because you can produce something that is "linear and white" DOESN'T mean you should!!!
- When an EM echo is not TOTALLY distinct,do NOT be afraid to indicate "EM echo not well visualized"

EXAMPLES OF "GOOD" EM ECHOS SEEN ORIGINATING FROM CERVICAL OS

EM ECHO

- IF you angle the transducer long enough you can probably find something linear and white (echogenic)
- If you freeze the frame and put on calipers, the image is not necessarily THE endometrial echo

ENDOMETRIAL TEXTURE

- **Heterogeneity or irregularity may be important in addition to simply measured thickness**

ENDOMETRIAL ABNORMALITIES ARE NOT ALWAYS GLOBAL

IMPORTANCE OF 3D RECONSTRUCTION

Realize that any single frozen ultrasound image is a two dimensional "snapshot" e.g. a single long axis view of a seemingly normal endometrium does not rule out pathology. The entire structure must be observed and three dimensional anatomy reconstructed.

BUT WHAT ABOUT NON BLEEDING PATIENTS?

POSTMENOPAUSAL ENDOMETRIUM

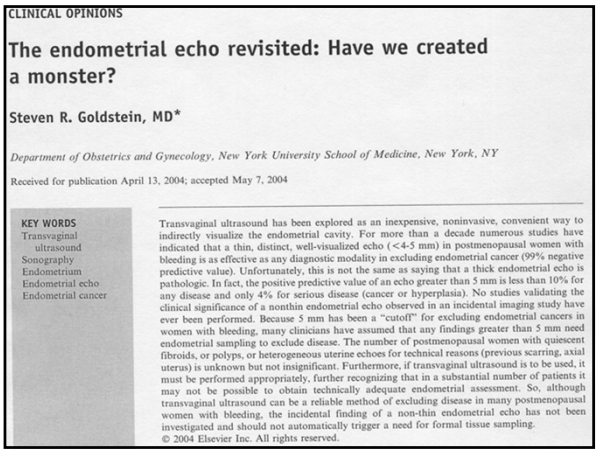
BIG DIFFERENCE BETWEEN INCIDENTAL FINDINGS AND PATIENTS WHO ARE BLEEDING !!!!

What have health care practitioners HEARD and DONE ?!?

If ≤5mm is good then >5mm must be bad.

But remember this was all done in women WITH BLEEDING

So without any validation women with EM > 5mm ABSENT BLEEDING have been and often still are routinely biopsied.



CLINICAL OPINIONS

The endometrial echo revisited: Have we created a monster?

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KEY WORDS
Transvaginal ultrasound
Sonography
Endometrium
Endometrial echo
Endometrial cancer

Transvaginal ultrasound has been explored as an inexpensive, noninvasive, convenient way to indirectly visualize the endometrial cavity. For more than a decade numerous studies have indicated that a thin, distinct, well-visualized echo (<4-5 mm) in postmenopausal women with bleeding is as effective as any diagnostic modality in excluding endometrial cancer (99% negative predictive value). Unfortunately, this is not the same as saying that a thick endometrial echo is pathologic. In fact, the positive predictive value of an echo greater than 5 mm is less than 10% for any disease and only 4% for serious disease (cancer or hyperplasia). No studies validating the clinical significance of a nonthin endometrial echo observed in an incidental imaging study have ever been performed. Because 5 mm has been a "cutoff" for excluding endometrial cancers in women with bleeding, many clinicians have assumed that any findings greater than 5 mm need endometrial sampling to exclude disease. The number of postmenopausal women with quiescent fibroids, or polyps, or heterogeneous uterine echoes for technical reasons (previous scarring, axial uterus) is unknown but not insignificant. Furthermore, if transvaginal ultrasound is to be used, it must be performed appropriately, further recognizing that in a substantial number of patients it may not be possible to obtain technically adequate endometrial assessment. So, although transvaginal ultrasound can be a reliable method of excluding disease in many postmenopausal women with bleeding, the incidental finding of a non-thin endometrial echo has not been investigated and should not automatically trigger a need for formal tissue sampling.

But the problem is not with the imaging…

It is the INTERPRETATION of the imaging

So: 1) how COMMON is a <u>thick</u> EM echo in non bleeding patients?

2) when present what is its significance?

In POSTMENOPAUSAL Women

- Inactive atrophic endometrium (single layer of basalis) would be expected to be < 4-5mm.
- but what is the incidence of old quiescent inactive polyps or myomas that will give thicker measurements but do not need clinical intervention?

Few prospective studies exist but consider this…

10% of postmenopausal women trying to enroll in the Raloxifene uterine safety studies had asymptomatic endometrial polyps on sonohysterography

A. Parsons (verbal communication)

17% of 550 newly diagnosed postmenopausal breast cancer patients in Brussels had unsuspected ASYMPTOMATIC polyps prior to initiating tamoxifen therapy

Berliere, et al. Euro J of Cancer 2000;36:S35-S36

- **A randomly selected Danish population aged 20-74 underwent TV U/S and SIS**
- **Prevalence of uterine polyps overall= 7.8%**
- **Prevalence increased with age**
- **In PM women (n=169) prevalence of Asx polyps was 13.0% (n=22)**

Dreisler et al Ultrasound Obstet Gyencol 2009:33-102

WHAT IS THE RISK OF MALIGNANCY IN SUCH POLYPS?

Fernandez-Parra et al, Int J Gynaecol Obstet,2006,95:144-148

- Removed 117 polyps in PM women without bleeding
- NONE were mailgnant
- Discussed importance of distinguishing EM carcinoma with polypoid growth from carcinoma arising in a polyp (base and surrounding EM must be benign)

Domingues et al Acta Obstetricia et Gynecologia 2009,88:618

- Retrospective review of hysteroscopic database
- 175 PM women with Asx polyps
- No cancers, 1 complex hyperplasia (0.6%), 1 simple hyperplasia (0.6%)

Ferrazzi E. et al Am J Obstet Gynecol 2009,200:235

- 1152 Asx PM women diagnosed with a polyp by SIS underwent hysteroscopic removal
- 1 EM cancer in a polyp (<0.1%),
- Mean diameter 40 mm
- 3 perforations,7 cervical tears, 3 false passages
- 3 cancers (0.3%)occurred in Asx PM wpmen that were not in polyps but were polypoid appearing on imaging and not global

Lev-Sagie A et al, BJOG 2005;112:379-382

- 82 postmenopausal women with incidental sonographic findings of EM "thickening"
- Operative hysteroscopy
- 67(82%) inactive polyps, 7 submucosal myomas, 6 atrophic EM, 1 proliferative EM,1 polyp with simple hyperplasia
- NO complex hyperplasia or carcinoma
- 3.6% total complication rate (2 perforations,1 difficult intubation)

Gerber et al. Eur J Cancer 2001, 57:64-71

- U/S detection of Asx EM cancer in screened PM women offers no prognostic advantage over symptomatic disease that had uterine bleeding for less than 8 weeks
- Thus for the neglible risk that an Asx polyp MIGHT harbor a cancer (<1 in a 1000) there is no theraputic advantage over waiting until it results in bleeding; and such an approach would spare the other 999 out of a 1000 any intervention and its risks ,discomfort and expense

IN POST MENOPAUSAL BLEEDING…

- "CANCER UNTIL PROVEN OTHERWISE"
- ROLE OF HIGH NEGATIVE PREDICTIVE VALUE OF A THIN DISTINCT EM ECHO
- PERFORM TV U/S FIRST, SONOHYSTEROGRAPHY IF NECESSARY, TO TRIAGE PTS TO 1) NO PATHOLOGY 2) GLOBAL PROCESS (BLIND BX) 3) FOCAL PROCESS (DIRECT VISION)

BUT…FOR AN INCIDENTAL FINDING OF EM THICKENING…

- There is NO validation whatsoever that these patients need AUTOMATIC EM sampling
- The incidence of thick EM echo is probably 10-17% and is much like "simple" cyst of the post menopausal ovary was 20 years ago
- Still appropriate (and always was) to use clinical JUDGEMENT if high risk (obese,diabetic,hypertensive,nulliparous)

SO …IN POST MENOPAUSAL BLEEDING…

- "CANCER UNTIL PROVEN OTHERWISE"
- ROLE OF HIGH NEGATIVE PREDICTIVE VALUE OF A THIN DISTINCT EM ECHO
- PERFORM TV U/S FIRST, SONOHYSTEROGRAPHY IF NECESSARY, TO TRIAGE PTS TO 1) NO PATHOLOGY 2) GLOBAL PROCESS (BLIND BX) 3) FOCAL PROCESS (DIRECT VISION)

SALINE INFUSION SONOHYSTEROGRAPHY

- **REMEMBER FLUID ENHANCES SOUND TRANSMISSION**

SONOHYSTEROGRAM

- FLUID INSTILLATION TO ENHANCE U/S DETAIL OF THE ENDOMETRIUM
- AMONG THE EASIEST TV U/S SCANS YOU WILL EVER PERFORM!
- TECHNICAL ASPECTS SIMPLE FOR GYNS,SLIGHTY MORE DAUNTING FOR RADIOLOGISTS

SONOHYSTEROGRAM: TECHNIQUE

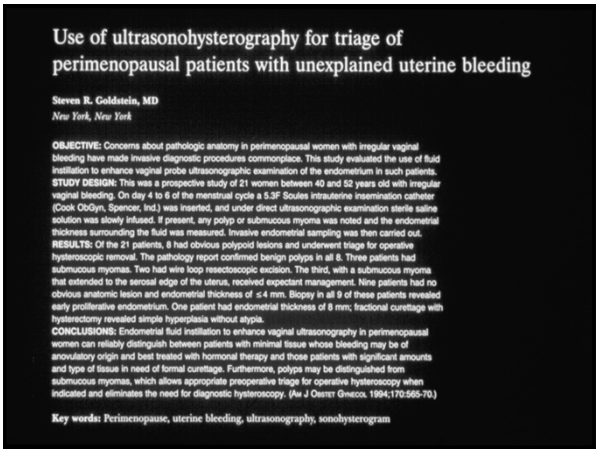
- Pelvic scan, unenhanced (baseline appearance)
- Palpatory bimanual (anteverted, retroverted)
- Insert speculum
- Cleanse cervix
- Thread catheter (flush air first)

SONOHYSTEROGRAM: TECHNIQUE

- Remove speculum (carefully)
- Insert vaginal probe
- Instill sterile saline (10cc syringe), slowly, watch the screen
- Scan from cornua to cornua
- "reload", turn 90^{o} and scan from fundus to cervix

UNSCHEDULED UTERINE BLEEDING IN PERIMENOPAUSAL WOMEN

- May be annovulatory, dysfunctional
- Heightened concerns about anatomic pathology (hyperplasia, polyps, submucous myomas, carcinoma)
- Invasive diagnostic procedures commonplace



Use of ultrasonohysterography for triage of perimenopausal patients with unexplained uterine bleeding

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OBJECTIVE: Concerns about pathologic anatomy in perimenopausal women with irregular vaginal bleeding have made invasive diagnostic procedures commonplace. This study evaluated the use of fluid instillation to enhance vaginal probe ultrasonographic examination of the endometrium in such patients. **STUDY DESIGN:** This was a prospective study of 21 women between 40 and 52 years old with irregular vaginal bleeding. On day 4 to 6 of the menstrual cycle a 5.3F Soules intrauterine insemination catheter (Cook ObGyn, Spencer, Ind.) was inserted, and under direct ultrasonographic examination sterile saline solution was slowly infused. If present, any polyp or submucous myoma was noted and the endometrial thickness surrounding the fluid was measured. Invasive endometrial sampling was then carried out. **RESULTS:** Of the 21 patients, 8 had obvious polypoid lesions and underwent triage for operative hysteroscopic removal. The pathology report confirmed benign polyps in all 8. Three patients had submucous myomas. Two had wire loop resectoscopic excision. The third, with a submucous myoma that extended to the serosal edge of the uterus, received expectant management. Nine patients had no obvious anatomic lesion and endometrial thickness of ≤4 mm. Biopsy in all 9 of these patients revealed early proliferative endometrium. One patient had endometrial thickness of 8 mm; fractional curettage with hysterectomy revealed simple hyperplasia without atypia. **CONCLUSIONS:** Endometrial fluid instillation to enhance vaginal ultrasonography in perimenopausal women can reliably distinguish between patients with minimal tissue whose bleeding may be of anovulatory origin and best treated with hormonal therapy and those patients with significant amounts and type of tissue in need of formal curettage. Furthermore, polyps may be distinguished from submucous myomas, which allows appropriate preoperative triage for operative hysteroscopy when indicated and eliminates the need for diagnostic hysteroscopy. (Am J Obstet Gynecol 1994;170:565-70.)

Key words: Perimenopause, uterine bleeding, ultrasonography, sonohysterogram

Pilot Study

- 21 perimenopausal women (age range 40-52)
- Clinical history of irregular vaginal bleeding
- Studied on day 4-6
- 5.3Fr Soules IUI catheter inserted
- Sterile saline infused under real-time vaginal ultrasound video taping

Results

- 8 patients with obvious polyps, triaged for hysteroscopic removal
- 3 patients with submucous myomas (2 offered wire loop resectoscopic surgery, 1 with extension to serosa treated expectantly
- 9 patients with no anatomic lesion and surrounding endometrium < 3.2mm, all showed proliferative endometrium on biopsy. DX: DUB. Subsequently treated with progestin
- 1 patient with 8mm endometrium, path revealed simple hyperplasia without atypia: subsequently treated with progestin

Of note 9/21 patients had clinical and sonographic evidence of myomas but only 3/21 had a submucous component on sonohysterogram. Thus 6/21 had dysfunctional uterine bleeding co-existing with intramural/subserosal myomas.

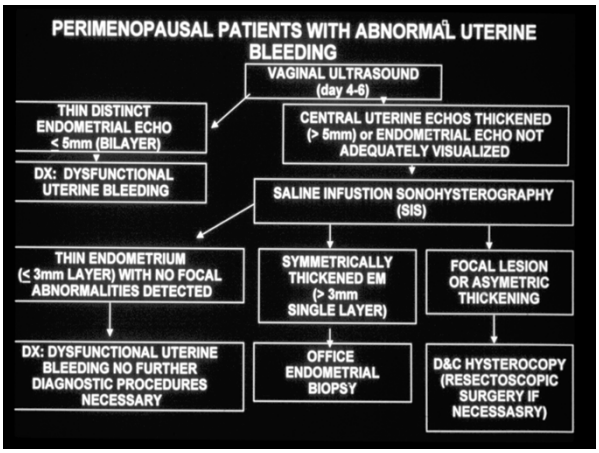
CONCLUSION

- **Broad based endometrial masses can be distinguished from those on a stalk or pedunculated**
- **Allows appropriate triage for operative hysteroscopy when needed**
- **Eliminates the need for diagnostic hysteroscopy in patients whose bleeding is dysfunctional**

Ultrasonography-based triage for perimenopausal patients with abnormal uterine bleeding

Steven R. Goldstein, MD, Ilana Zeltser, BS, Camile K. Horan, RDMS, Jon R. Snyder, MD, and Lisa B. Schwartz, MD. *Am J Obstet Gynecol* 1997;177:102-8

Ultrasound based triage uses vaginal ultrasound screening of all patients and selected SIS when the unenhanced TV U/S is not thin or reliable.



MATERIALS AND METHODS

- 433 patients
- Perimenopausal (average age 47.4, range 37-54 years)
- Abnormal uterine bleeding (menorrhagia, metrorrhagia, or both)

ABNORMAL PERIMENOPAUSAL BLEEDING:

433 PATIENTS

Unenhanced Vaginal Ultrasound

280 patients ≤ 5mm (day 4-6)

153 patients > 5mm or nonvisualization of EM

SALINE INFUSION SONOHYSTEROGRAPHY:

153 patients

44 (29%) for nonvisualization of EM

109 (71%) for EM > 5mm

THUS OF 433 PATIENTS:

- 342 (78.9%) had dysfunctional bleeding
- 23 (5.3%) had submucous myomas
- 58 (13.4%) had polyps of which 3 were endocervical
- 15 (3.5%) had hyperplasia (of which 5 were symmetrical, 4 were focal, and 6 were in polyps

OF 15 PATIENTS WITH HYPERPLASIA

- 5 were symmetrically thick (4 simple, 1 complex)
- 4 were focally thick (1 simple, 3 complex)
- 6 were in polyps (3 simple, 3 complex)

Pipelle biopsy alone could have missed up to 79 lesions (18%) in patients with polyps, submucous myomas, focal hyperplasia

THE STUDY ALGORITHM ALLOWS

- **65% to have ultrasound exam done**
- **17% to have ultrasound and SIS only**
- **2.3% to have U/S, SIS pipelle bx only**
- **15.9% to have U/S, SIS D&C hysteroscopy**

PITFALLS AND PEARLS FOR SONOHYSTEROGRAPHY

PITFALL	SOLUTION
-Inability to thread catheter	- change position of speculum, use a "cervical stabilizer" (a fine toothed tenaculum). Small dilator (#13 Pratt) as last resort.

PITFALL	SOLUTION
- anesthesia/analgesic	- not required; now 3 cases (in over 1000 performed) of vaso-vagal response similar to days of IUD insertion into nulliparas.

PITFALL	SOLUTION
- inadequate distention of cavity	- requires very little fluid to outline cavity - same problem in hysteroscopy (some cavities are more difficult to distend) - check position of catheter look for acoustic shadow all way to fundus

PITFALL	SOLUTION
- infection? GC, chlamydia cultures??, antibiotics???	- similar to traditional HSG, depends on your patient population, protocol

IMPORTANT CAVEAT

- procedure is VERY time sensitive. It must be done on the last days of staining or the first days after the bleeding cycle ends when the endometrium will be as thin and uniform as possible
- as endometrium proliferates and thickens it is not always perfectly symmetrical (BEWARE “moguls” or small irregularities)

…ANOTHER EXAMPLE

WHILE WE'RE AT IT…

AVOID SONOHYSTEROGRAPHY WITH ACTIVE BLEEDING !!!

IN FACT…

…If the patient is bleeding so much or so often and cannot really tell what is a menses…

Consider an empiric course of a progestin "medical curretage" and then time the sonographic evaluation to the withdrawal bleed

AVOID GETTING AIR INTO THE CATHETER OR THE SYRINGE (AIR IS VERY ECHOGENIC !!)

IN MY OPINION…

No longer appropriate to do a <u>blind</u> office biopsy procedure unless you first verify that whatever the endometrial process it is indeed global and not focal.

I WROTE THAT SLIDE 17 YEARS AGO!!!!!

HIGHLIGHTS OF NEWEST ACOG BULLETIN (7/12)

"DIAGNOSIS OF AUB IN REPRODUCTIVE ASGED WOMEN"

"The primary imaging test of the uterus for the evaluation of AUB is transvaginal ultrasonography."

"If transvaginal ultrasonographic images are not adequate or further evaluation of the cavity is necessary, then sonohysterography (also called saline infusion sonohysterography) or hysteroscopy (preferably in the office setting is recommended)."

“An office endometrial biopsy is the first-line procedure of tissue sampling in the evaluation of patients with AUB.”

“Endometrial biopsy has high overall accuracy in diagnosing endometrial cancer when an adequate specimen is obtained and when the endometrial process is global”

“If the cancer occupies less than 50% of the surface area of the endometrial cavity, the cancer can be missed by a blind endometrial biopsy sample.”

“A positive test result is more accurate for ruling in disease than a negative test result is for ruling it out.”

“These tests are only an endpoint when they reveal cancer or atypical complex hyperplasia.”

“Persistent bleeding with a previous benign pathology, such as proliferative endometrium, requires further testing to rule out nonfocal endometrial pathology or a structural pathology, such as polyp or leiomyoma.”

I ACKNOWLEDGE…

-Ultrasound does NOT give you a tissue diagnosis

The value of U/S and Sonohysterograph is to TRIAGE patients to…

- -NO anatomic pathology
- -GLOBAL EM process(blind biopsy)
- -FOCAL process (direct vision)

PUTTING IT ALL TOGETHER

A thin distinct homogenous EM echo <u>≤</u> 4-5mm with a hypoechoic zone surrounding it reliably predicts lack of <u>SIGNIFICANT</u> tissue.

In all other scenarios fluid instillation coupled with high resolution endovaginal probes can offer tremendous diagnostic enhancement as a simple inexpensive well tolerated office procedure.

This algorithm of U/S as the first step in the evaluation of AUB works in ALL CASES – as long as you understand the difference between patients who cycle vs. those who do not.

CYCLING VS. NON CYCLING

- **In NON CYCLING patients – everyday is the same.**
- **In patients WHO ARE CYCLING, timing is crucial.**
- **Ultrasound evaluation should be performed at a time when the EM will be as thin as it will all month long (just as the bleeding ends).**
- **This prevents misinterpretation of EM "moguls" later in the cycle as being pathologic.**

In Summary

- GOOD NORMATIVE DATA FOR ENDOMETRIAL THICKNESS DOES NOT EXIST
- THE MAIN USE OF ENDOMETRIAL THICKNESS MEASURED ON TV U/S IS THE HIGH NEGATIVE PREDICTIVE VALUE OF A THIN DISTINCT ECHO (LOSE THE WORD “STRIPE”)

In Summary

- IN WOMEN WITH POSTMENOPAUSAL BLEEDING EM< 4 MM HAS A RISK OF MALIGNANCY OF 1 IN 917 AND DOES NOT REQUIRE ENDOMETRIAL SAMPLING

In Summary

- IN POSTMENOPAUSAL WOMEN <u>WITHOUT BLEEDING</u> THE INCIDENCE OF “THICK” ENDOMETRIAL ECHO (MOSTLY POLYPS) IS 10-17% AND NO ROUTINE INTERVENTION IN SUCH NON BLEEDING IS INDICATED

In Summary

- THE RISK OF MALIGNANCY IN SUCH PATIENTS IS LOW (<4/1000) WHILE THE RISK OF SERIOUS COMPLICATIONS FROM OPERATIVE HYSTEROSCOPY APPROACHES 3.6%

In Summary

- IN PRE MENOPAUSAL PATIENTS WITH AUB AN EM ECHO <5MM EARLY IN THE CYCLE EXCLUDES SIGNIFICANT PATHOLOGY
- OTHERWISE SALINE INFUSION SONOHYSTEROGRAPHY WILL DISTINGUISH GLOBAL FROM FOCAL PROCESSES AND ALLOW APPROPRIATE TRIAGE