

2005妇产科新知识暨产科重症孕产妇救治学习班 暨广州市第二人民医院新住院大楼落成诔庆

2005年12月 广东·广州

主办单位:

广州市重症孕产妇救治中心

广州市第二人民医院

广东省重症孕产妇救治课题协作组

广州市重症孕产妇救治课题协作组

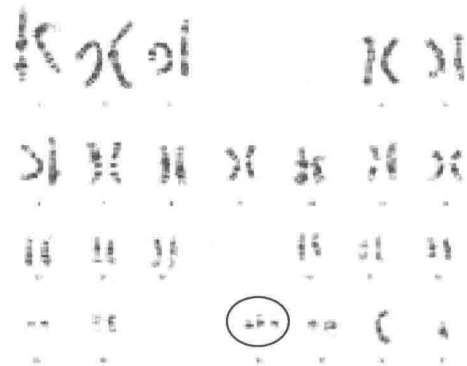
协办单位:

雀巢(中国)有限公司

Chorionic Villus Sampling (cvs)

Paul F. Gleason, M.D.
Perinatologist

Down Syndrome Trisomy 21



Role of Direct Genetic Testing

- Age related aneuploidy risk
 - Trisomy 21
 - Age >35y
 - Midtrimester maternal multi-marker serum screening
 - 60-75% detection
 - 7% false +
 - Anatomy sonogram markers
 - High false positive and false negative
- Smith, JAMA 2001

Age Related Risk for Major Chromosomal Abnormality

AGE	RISK OF DOWN SYNDROME	RISK OF ALL MAJOR CHROMOSOME ABNORMALITIES
20	1 in 1667	1 in 526
25	1 in 1250	1 in 476
30	1 in 952	1 in 385
35	1 in 385	1 in 202
36	1 in 296	1 in 162
37	1 in 227	1 in 129
38	1 in 175	1 in 102
39	1 in 137	1 in 82
40	1 in 106	1 in 65
41	1 in 82	1 in 51
42	1 in 64	1 in 40
43	1 in 50	1 in 32
44	1 in 38	1 in 25
45	1 in 30	1 in 20
46	1 in 23	1 in 16
47	1 in 18	1 in 13
48	1 in 14	1 in 10
49	1 in 11	1 in 7

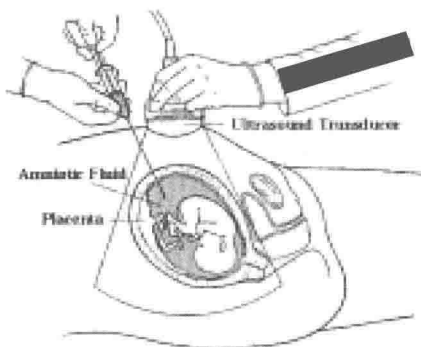
Considerations for Genetic Testing

- Women > 35yrs
- Personal or family history of a known or suspected genetic disorder, birth defect, or chromosomal abnormality
- Two or more pregnancy losses (balanced translocation)
- Ethnic predisposition to certain inheritable conditions
- Abnormal sono (nuchal translucency, cystic hygroma)
- Abnormal first trimester maternal serum marker

History of Direct Testing – Midtrimester Amniocentesis

- Introduced experimentally - late 1950's
- Clinical use - late 1970's
- Performed 15-20wk EGA
- Results in approximately 2wk (1-3wks)
- High cytogenetic accuracy (99%)
- Low loss rate (0.5%)
- Minor complications (1-2% Vaginal spotting, amniotic fluid leakage)

Amniocentesis

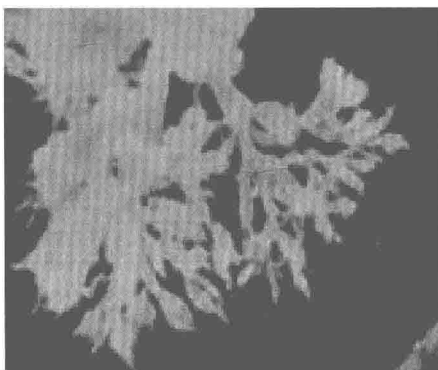


History of Direct Testing – Early Amniocentesis

- 11-14wk EGA
- Higher loss rate (~2.5-6%)
- Increased cell culture failure

Cochrane Database Syst Rev. 2000

Chorionic Villi



History of Direct Testing – Chorionic Villus Sampling (CVS)

- Introduced in 1969 by Hahnemann & Mohr
- Placental biopsy
- Performed > 10wk EGA
- High cytogenetic accuracy 99.7%
Low false negative 0.03%

-NIH NEJM 1989 (No errors for Tri 13, 18, 21, or sex determination)

-U.S. Collaborative Study Ledbetter Prenat Diagn 1992

-Hahnemann Prenat Diagn 1997 (98.5% in 62,800 CVS)

- Rapid results 5-10 in days

Genetic Testing – CVS or Amnio

- Similar indications
 - Testing include cytogenetic, biochemical, or linkage analysis
- NTD assays require amniotic fluid

Special Considerations for CVS

- Gene disorders
 - Metabolic (Cystic fibrosis, Tay-Sachs)
 - Hematologic (Sickle cell, thalassemia, Rh isoimmunization)
 - Sex linked (muscular dystrophy)
- Peace of mind Kornman, Prenat Diagn 1997
 - 76% preferred 1st trimester information because of easier termination of pregnancy and/or earlier reassurance

Special Considerations for CVS

Multifetal pregnancy

- MSAFP less reliable
- Higher aneuploidy risk
Older women utilizing ART
- Additive risk (32yr ACOG)
- Benefit from earlier selective reduction
Chromosomal abnormality
High order reduction
- Safe alternative to mid trimester amnio "test of choice"

Van den Berg, Prenat Diagn 1999

De Catta, Obstet Gynecol 2000

Antsaklis, Ultrasound Obstet Gynecol 2002

Curr Opin Obstet Gynecol 2002

Relative Contraindications

- Vaginal bleeding or cramping
- Extreme ante or retroversion of uterus
- Significant obesity
- Active cervico-vaginal infection
- Rh negative sensitization

CVS - Training

- Personal background in genetic counseling or access to genetic counselors
- Training in ultrasound guided procedures and opportunity to maintain skills Wijnberger, Prenat Diagn 2000

CVS Safety

- World Health Organization Am J Ob Gyn 1996
-139,000 CVS between 9-12wk EGA
-Loss rate similar to midtrimester amnio
- NICHD (Bianci)
-Transabdominal CVS done after 9wk GA as safe as 2nd trimester amniocentesis
-Oromandibular limb hypogenesis at < 9wk GA
- Canadian Collaborative CVS & Amnio Clinical Trial Group Lancet 1991
-Multicenter, randomized 2,787 patients to transvaginal CVS or amnio
-No difference in loss rate

CVS Safety

- Kuliev 1996
-10yr experience
-No difference in incidence of limb reduction defects (6/10,000)
- Golbus Prenat Diagn 1991
-No difference in IUGR, placental abruption, and PTD

CVS Safety

- Papp Fetal Diagn Ther 2002
-1,149 CVS between 10-32wk EGA
-No difference in PTD or stillbirths
-"Real alternative to midtrimester amnio"
- Jenkins Seminar Perinatol 1999
-CVS done >10wk has minimal to no additional risk for limb reduction defects
-"both safe and effective in the diagnosis of fetal chromosomal, biochemical, and molecular disorders, with risks comparable to second trimester amniocentesis"
-minimal to no risk of limb reduction defects

Limb Reduction Defects

- Early CVS (<7wk EGA – 1-2%)
- Hypothesized mechanisms
 - Decreased blood flow from disturbance of villi
 - Embolization of villus material into fetal circulation
 - Amniotic puncture and limb entrapment

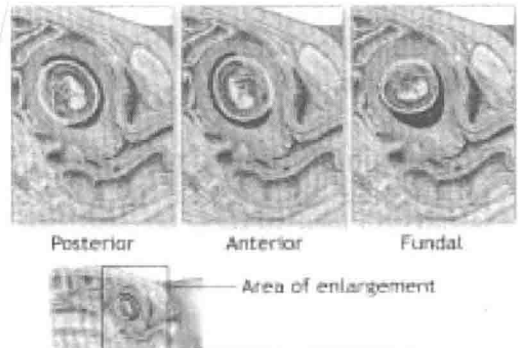
Limb Reduction Defects

- The World Health Organization 1998, 1999
 - CVS > 10 wk EGA
 - Foster Teratology 1989
 - Background incidence of LRD in general population 1.2 million live births 6/10,000 (0.0006%)
 - No difference** in limb reduction defects in **138,996** infants exposed to CVS vs 1.2 million unexposed
- Froster Lancet 1996
 - No difference from general population in the incidence or type of limb reduction defects
- Risk 0.0003-0.0006%

Pre-Test Visit

- Review of pertinent PMHx, POBHx, and FamHx
- Genetic counseling
 - Focus test indication (AMA, hemoglobinopathy)
- Testing risks, benefits, alternatives
- Procedure overview
- Handout review
- Informed consent
- Sonogram
 - Estimate of gestational age
 - Fetal heart activity
 - Placental location and procedure path

Placental Locations



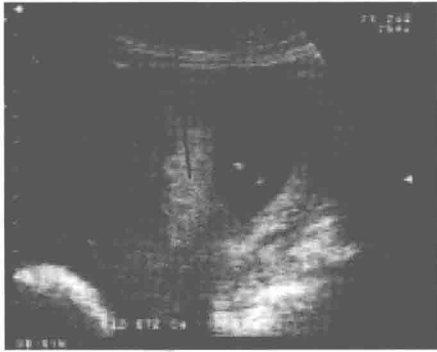
CVS - Procedure

- Transvaginal or transabdominal
 - Initially performed transvaginally
- Trend towards transabdominal
- Safety profile
 - Elias Am J ObGyn 1989
 - Wald 1998
 - Training experience

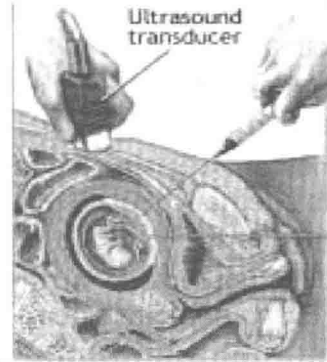
CVS - Procedure

- Sterile abdominal or pelvic prep
- Patient and uterine positioning
- Technique and equipment
 - Sonogram guidance
 - Aspirating needle and syringe

Fundal Placenta



Transabdominal CVS



Post Procedure Management

- Transient mild cramping or vaginal spotting
- Patient instructions to notify MD for heavy vaginal bleeding, fever, or unusual vaginal discharge
- MSAFP @ 16-18wk ($> 2.25-2.5$ MoM)
- Targeted anatomy survey @ 18-20wk
Normal anatomy sono excludes NTD $> \sim 95\%$

Benefits

- Early information
 - Normal results
Reassurance, decreased anxiety
 - Abnormal results
Preparation
Psychological impact
Decreased D+C morbidity
- Faster return to conception
- Enhanced autonomy and confidentiality of pregnant women
- Genetic testing when amnio is not an option
Nicolaides, Lancet 1986
 - Oligohydramnios
 - Gestational age near NYS TOP cutoff

Limitations

- Availability
- NTD
- Uninformative results
 - Midtrimester amnio 0.8%
 - Transvaginal CVS 0.8-1.5%
- Mosaicism
 - CVS 1%
 - Amnio .1-.3%

Committee on Genetics - ACOG 1995

- CVS performed at 10 to 12 weeks of gestation is a safe and accurate procedure that is an acceptable alternative to second-trimester amniocentesis.
- CVS should be performed after 10 weeks gestation.
- CVS requires appropriate counseling before the procedure, and an experienced operator and laboratory to acquire and process the specimen and interpret the results.
- The risk for limb reduction defects is small (0.0003%)

Conclusion

- Prenatal diagnosis in 1st trimester has potential benefits
- CVS is a rapid and accurate tool for cytogenetic and biochemical analysis
- 1st trimester CVS is a safe and reliable alternative to 2nd trimester amniocentesis
- CVS does not replace midtrimester MSAFP and anatomy sono

8/12 8:30 pm

Current Management of Fibroids in the US

Edward Jew, MD
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New York, New York

Fibroids

- Also called leiomyomas, myomas, or leiomyomata
- Smooth muscle cell tumors of the uterus
- Increased collagen and elastin
- Surrounded by thin areolar pseudocapsule
- Categorized into intramural, submucosal, and subserosal

Epidemiology 流行病学

- Rare in adolescents, clinically apparent in 25% of reproductive age women
- Mostly symptomatic in late 30's-40's
- Found in up to 80% of uteri at histopathology 组织病理学
- 2-3x risk in black women, earlier symptoms, more severe disease, larger fibroids

Epidemiology

- Parity decreases chances of fibroid formation 生育 → ↓
- OCP's (oral contraceptive pills) protect against clinically evident fibroids 口服避孕药 →
- Consuming red meat increases risk 红色肌肉肉类
- Consuming green vegetables and smoking decrease risk 吸烟 →
- Genetics, (familial and twin studies)

Pathophysiology 病理生理

- Steroid hormones
- Vascular abnormalities
- Growth factors FGF-2 mRNA (fibroblast growth factor)

Clinical Manifestations

- Symptoms are related to number, size, and location
- Uterine bleeding 长期持续出血
 - Prolonged, excessive bleeding
 - Anemia, decreased work productivity, adverse impact on social life 影响社会生活
 - Often due to submucosal fibroids involving changes in uterine vasculature and impaired hemostasis
 - Aborting submucous fibroids

Type I
Type II

Clinical Manifestations

- Pelvic Pressure and Pain 盆腔沉重感
 – Constipation, urinary frequency, dyspareunia 便秘
 – Acute pain of degeneration 变性
 – Rarely torsion of pedunculated fibroids 扭转

twisty 扭绞力

Clinical Manifestations

- Effects on Reproduction 对生育的影响
 - Increased risk of abruption, 1st trimester bleeding, dysfunctional labor, breech presentation, cesarean section rate 孕中晚期出血 分娩时影响
 - 1/3 of fibroids grow during 1st trimester
 - Other effects include IUGR, pain, preterm labor, retained placenta, miscarriage, premature rupture of membranes 早产 难产 流产
 - Submucous type associated with decreased fertility

Diagnosis

- History and Physical
- Hysterosalpingogram, especially useful for checking tubal patency 输卵管造影
- Magnetic Resonance Imaging, to check size, location, and detect adenomyosis
- Transvaginal Ultrasound, for smaller uteri
- Sonohysterogram to check extent of cavity invasion
- Additional studies include blood count and endometrial biopsy

Treatment

- Size
- Location
- Symptoms
- Age
- Reproductive Wishes
- Patient Autonomy 患者意愿

Medical Therapy

- Gonadotropin-Releasing Hormone (GnRH) Agonists
 - DepoLupron 3.75mg IM/month
 - 35-60% decrease in volume in 3 months
 - Good pre-op to improve blood count, decrease size, decrease operative blood loss
 - Significant side effects and cost
 - Can be given with add-back therapy

Medical Therapy

- Levonorgestrel-Releasing Intrauterine Device
- Contraceptive Hormones
- Non-steroidal anti-inflammatory drugs

Surgical Therapy

- Myomectomy
 - Desire future fertility
 - Growing move towards preserving uteri in women who do not want future pregnancy
 - Risks of adhesions, weakening of uterine wall
 - 11-26% will require further surgery, esp. if uterus is small, or if pt is obese
 - 1% will require unplanned hysterectomy

手术风险

Abdominal Myomectomy

- Pre-op: Depo-lupron, autologous blood donation, type of incision
- Intra-op: pitressin, tourniquet, electrocautery/laser
- Uterine incision
 - Minimize # of incisions
 - Avoid endometrial cavity, tubal ostia
 - Close in layers with delayed absorbable suture, finishing serosa with a baseball stitch

自我输血

手术时间、止血

卵巢可

Abdominal Myomectomy

- 80% will have resolution of symptoms
- 20% require blood transfusion
- 3% post-op fever/infection
- 2% ileus
- 1% wound infection
- 0.7% bladder injury

术后并发症
infection. 术后并发症

Abdominal Myomectomy

- Recurrence risk is significant; 5 years after surgery 50% will have new fibroids by sono
- Adhesions may lead to infertility
- Risk of uterine rupture prior to labor is low but risk during labor is unknown due to recommended cesarean section

复发风险

术后并发症

Vaginal Myomectomy

- Used for aborting submucous fibroids
- Prophylactic antibiotics recommended
- Pedicle or stalk is clamped and ligated; may also be morcellated
- Usually successful

Laparoscopic Myomectomy

- Size of uterus must small enough to allow laparoscopic visualization
- Requires more laparoscopy skills
- Conversion to open laparotomy 2-8%
- Possible weaker uterine wall, avoid in pts desiring future pregnancy

腹腔镜手术

生育能力的保留

Laparoscopic Myolysis

- Laparoscopic technique using tissue destruction by coagulation, freezing, laser or bipolar needles
- May cause more adhesions; avoid in fertility patients
- Reported results 50-90% decrease in fibroid volume
- Can be combined with endometrial ablation

腹腔镜肌瘤剔除术

Hysteroscopic Resection

- Used for small submucous fibroids
- Less costly, less invasive and less morbidity
- Requires 8mm resectoscope and good hysteroscopy skills
- Need to carefully monitor blood loss and fluid used

Hysteroscopic Resection

- Fluid overload – if fluid deficit > 1000ml procedure should be halted
- Electrosurgical injury
 - Bowel, bladder, larger pelvic vessels
 - Thermal injury can lead to delayed sepsis/fistulae
 - Concurrent laparoscopy may decrease complication rate

电灼损伤

Hysterectomy

- Most common major gynecologic procedure on non-pregnant women
- 5.6/1000 women per year; up to one third of all women during lifetime
- Ratio of abdominal to vaginal procedures ranges from 6:1 to 2:1 depending on area

Hysterectomy

- Fibroids account for 30% of hysterectomies in Caucasian women, and over 50% of hysterectomies in black women
- For women not desiring fertility, more than 90% had significant improvements in symptoms and quality of life

腹腔镜

Hysterectomy

- Relief of Symptoms
 - 99% resolved initial symptoms
- Psychosexual Issues
 - Data more mixed, overall increased sexual frequency and decreased sexual problems
- Patient Satisfaction
 - 85% completely satisfied

Hysterectomy

- 1994 Maine Women's Health Study
 - 418 women
 - Hysterectomy effective for relief of pelvic pain, fatigue depression, sexual dysfunction
 - New problems were hot flashes, weight gain, anxiety, decreased libido 性欲下降
 - Estrogen replacement was helpful in treating these problems

Hysterectomy

- Factors that increase emotional distress after surgery
 - Prior psychiatric illness and personality and psychosocial problems
 - Desire to maintain fertility 母系腺
 - Emotionally invested in motherhood
 - Has not dealt with previous pregnancy loss

Hysterectomy

- Sexual Function and Response 生殖研究
 - % of women who engaged in sexual activity increased from 71% to 77% 1-2 years after the hysterectomy
 - Dyspareunia dropped from 19% to 4%
 - Orgasms increased from 92% to 95%

Hysterectomy

- Routes of hysterectomy include:
 - Abdominal
 - Vaginal
 - Laparoscopic Assisted Vaginal Hyst.(LAVH)
 - Laparoscopic Supracervical Hyst. (LSH)

Hysterectomy

- Surgery Rates are declining nationally particularly in the Northeast US 手术率下降
 - Alternate therapies for treatment of fibroids 替代疗法
 - Alternate treatments for Dysfunctional Bleeding, Endometriosis, Endometrial Hyperplasia, etc
 - National patient demand for surgical alternatives

Hysterectomy

- Pre-op considerations 术前考虑
 - Prophylactic oophorectomy 预防性卵巢切除术
 - Removal of cervix
 - Antibiotic prophylaxis 预防性抗生素
 - Compression boots

Hysterectomy

• Post-op Considerations

- Patient Controlled Analgesia followed oral analgesia the next day
- Early feeding and ambulation
- Incentive spirometry

术后考虑
早期进食活动
鼓励深呼吸

Abdominal Hysterectomy

• Complications:

- Hemorrhage is 400ml average loss
 - Excess bleeding of > 1000ml in up to 3%
- Infection
 - Combined rate of wound infection, pelvic cellulitis, vaginal cuff abscess is 9% if pt receives antibiotic prophylaxis

Abdominal Hysterectomy

• Complications:

- Ureteral injuries
 - Rate for all hysterectomies is 1 per 1000
 - 14 per 1000 for laparoscopic hysterectomy
 - 0.4 per 1000 for abdominal hysterectomy
 - 0.2 per 1000 for vaginal hysterectomy
- Bladder injury
- Bowel Injury

1.4
0.4
0.2

Abdominal Hysterectomy

• Complications:

- Thromboembolic disease
- Earlier menopause, on average by 1-2 years
- Mortality
 - 5 per 10,000 40-year-old women for benign hysterectomy
 - 75 per 10,000 50-year-old women
 - 5x Increased mortality if associated with pregnancy or cancer

Vaginal Hysterectomy

- Recommended for benign disease if uterus is <12 weeks size or <300gm
- Relative contraindications:
 - No uterine mobility
 - Contracted bony pelvis
 - Narrow vaginal apex
 - Lack of surgical expertise
 - Need to perform abdominal procedures

Vaginal Hysterectomy

- Comparison to Abdominal Hysterectomy:
 - Fewer complications
 - Shorter hospitalization
 - Lower hospital charges
 - Some difference may be due to different indications

Vaginal Hysterectomy

- Conversion to laparotomy
 - 1-3% due to bleeding or adhesions
 - Some perform pre-op laparoscopy to evaluate pelvis first, but not cost or time justified
- Techniques:
 - Intramyometrial coring
 - Wedge morcellation
 - Uterine bivalving

Laparoscopic Assisted Vaginal Hysterectomy

- Considerable variation on how much is performed laparoscopically
- Benefits shorter hospital stay, faster recovery, less pain
- Increase of cases driven by patient demand
- 2% require conversion to laparotomy

LAVH

- Cons:
 - Longer operating time
 - More bladder injuries
 - Higher hospital costs
 - Longer learning curve for surgeons

LAVH

- 1998 study of costs:
 - Abdominal hysterectomy - \$12,000
 - Vaginal hysterectomy - \$10,380
 - LAVH - \$14,500
- Operating time of LAVH is 120 minutes average compared to vaginal hysterectomy time of 65 minutes

LAVH

- Techniques include endoscopic staples, electrosurgery, suture ligatures, harmonic scalpels
- Increased costs due to cost of disposable laparoscopy equipment and increased operating time

Laparoscopic Supracervical Hysterectomy

- New device allows removal of larger specimens, laparoscopic morcellator
- 1st reported in 1990
- Advantages are faster surgery, less blood loss, better cosmetic result
- Disadvantages are cost of equipment, skill level required, potential of cervical disease

Uterine Artery Embolization

- 1st Used in 1970's to control postpartum hemorrhage and excessive uterine bleeding
- 1st use for treatment of fibroids published in 1995 in Lancet
- In 2002, US FDA cleared UAE for treatment of fibroids
- 14,000 cases in US last year; total 50,000 globally

Uterine Artery Embolization

- Pelvic MRI usually performed prior to UAE
- Contraindications:
 - Pregnant
 - Active pelvic infection
 - Malignancy or undiagnosed pelvic mass
 - Intrauterine device
 - Prior pelvic radiation treatment

Uterine Artery Embolization

- Relative contraindications:
 - Renal insufficiency
 - Allergy to contrast medium
 - Coagulopathy
 - Desire for future fertility
 - Pedunculated fibroid
 - Infarcted/non-viable fibroid
 - Size > 12 cm

Uterine Artery Embolization

- Pre-op: Pap smear, endometrial biopsy, MRI
- Conscious sedation, local anesthetic
- 4-5 French catheter placed in femoral artery under flouroscopy, total radiation similar to 2 CT scans
- 500-900 micron particles (polyvinyl alcohol or trisacryl gelatin microspheres) into both uterine arteries
- Takes 1-2 hours

Uterine Artery Embolization

- Post-Procedure
 - Uterine cramping, managed with patient-controlled analgesia for 6-9 hours or overnight
 - Oral pain meds for a further 1-2 weeks
 - Transient low grade fever 3-5 days, accompanied by leukocytosis (post embolization syndrome)
 - Follow up MRI in 4-6 months, full shrinkage may require 12 months

Uterine Artery Embolization

- Results:
 - 80-95% improvement in 1 year (decreased bleeding and decreased size)
 - Compared to hysterectomy, only 1 day in hospital, return to work in 10 days, and return to normal activity in 10 days

Uterine Artery Embolization

- Complications:
 - Amenorrhea in up to 4 %
 - Infection necessitating hysterectomy 患者 → 孕8月
 - Chronic vaginal discharge
 - Unsuspected leiomyosarcoma 不可预测的肿瘤
 - 1% technical failure rate
 - Up to 15% may require further surgery or UAE

Uterine Artery Embolization

- Pregnancy after UAE
 - At least 50 pregnancies reported
 - 60% by cesarean section, 28% preterm, 13% had post partum hemorrhage
 - Currently myomectomy recommended over UAE for patients desiring fertility

MR Guided Focused Ultrasound Surgery

- Approved by the FDA in October 2004
- Noninvasive thermoablative technique converges multiple waves of ultrasound energy on a small volume of tissue
- Performed as outpatient
- Short term results show a 71% decrease in fibroid related symptoms

MR Guided Ultrasound Surgery

- Contraindicated in heavily calcified fibroids, areas near bladder or bowel, or patients desiring future pregnancy
- Not yet widely available, cost high

Summary

- Options for treatment are more numerous
- Fertility treatments lead to greater desire to preserve uterus
- Patients are demanding less invasive methods, faster recovery periods
- Costs for these options are growing

EPISIOTOMY

To cut or not to cut: what the evidence tells us

Janet Singer, MSN, CNM

Historical Trends in the U.S.

- 1742 Perineal incision first used to prevent severe perineal tears.
- 1920-40's Shift from home to hospital births-episiotomy encouraged to avoid lacerations.
- 1940's-1980's Routine episiotomy justified without supporting scientific evidence of its benefits.
- 1980's-1990's Questioning use of routine episiotomy.
- 1984 First well-conducted study is done by midwife, Sleep.

Episiotomy -- Definition

- Surgical enlargement of vagina by an incision of the perineum during the last part of the 2nd stage of labor/delivery

Definitions

- First degree---perineal skin only
 - Second degree---perineal muscle and skin, but not involving the sphincter
 - Third degree---partial or complete disruption of the anal sphincter
 - Fourth degree---complete disruption of the external and internal anal sphincter
- } severe

Suggested Benefits of Episiotomy

- Prevent 3rd and 4th degree lacerations
- Create a straight incision/easier to repair than a laceration
- Facilitate healing
- Prevent postpartum infection
- Decrease postpartum pain
- Facilitate operative deliveries

Suggested Benefits of Episiotomy

- Prevent pelvic relaxation and its sequelae – incontinence, cystoceles, rectoceles
- Improve postpartum sexual functioning
- Shorten second stage to prevent fetal injury
- Prevent perinatal asphyxia