Colposcopy in Pregnancy

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Faculty Disclosure

- In the past 12 months...
  - Hologic: Research supplies for anal cytology
  - Roche: Honorarium and travel expenses
Objectives: HPV and Pregnancy

- Natural history: HPV, SIL, cancer in pregnancy
- The pregnant cervix: In health and disease
  - Goals of colposcopy during pregnancy
  - How to maximize visualization
  - Appearance during pregnancy
- Management in pregnancy:
  - Abnormal Pap
  - SIL on biopsy
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Why screen for cervical cancer in pregnancy?

- 3%-6% of pregnant women have abnormal Pap
- Cervical cancer incidence in pregnancy
  - ~1 in 2000-2200 pregnancies
  - 1-3% of women with invasive cervical cancer are pregnant at time of diagnosis
  - Usually early stage (IB or II)
- Pregnancy does not accelerate progression of disease [i.e. HSIL (CIN 3) → cancer]
  - 9 months is ‘short’ time span
- Colposcopy is safe in pregnancy
- Opportunity for screening (if needed)!
HPV Infection in Pregnancy

- Prevalence of HPV infection in pregnancy: 10-42%
- Prevalence and course of HPV infection same as in non-pregnant state
- Pregnancy-induced, temporarily impaired cell-mediated immunity
  - ↓ CD4+ T lymphocytes
  - Facilitates clinical expression of HPV
  - Accelerates rapid growth of HPV
  - But not progression to precancer or cancer...
  - Postpartum regression
HPV infection in Pregnancy Complications

- Potential complications of HPV infection
  - Outlet obstruction → C-section
  - Wound healing
  - Episiotomy problems
  - Bleeding
  - Recurrent laryngeal papillomatosis

Courtesy of Gary Newkirk, MD
HPV infection in pregnancy

Images courtesy of Dr. Daron Ferris
External Condyloma in Pregnancy

Treatment:
- Reduce symptoms
- Decrease obstetrical complications

- Small lesions:
  - TCA, cryo

- Large lesions:
  - TCA + laser, cryo

- Podophyllin, Imiquimod and 5FU → Contraindicated

- Outlet obstruction
  - C-section

Image: T. Darragh
Juvenile Laryngeal Papillomatosis

- Rare occurrence in infants and children
- Incidence < 1 per 100K
- Caused by HPV 6, 11
- Risk factor = maternal genital warts
- Disease course
  - Unpredictable
  - Pulmonary spread and malignant transformation possible

*Image courtesy of Dr. Daron Ferris*
SIL in Pregnancy

- Incidence: 3 $\rightarrow$ 10%
- $\text{LSIL}_b > \text{HSIL}_b$
- Does *not* progress to HSIL or cancer faster during pregnancy
- Postpartum regression common
- Complications:
  - Similar to non-pregnant

Image courtesy of Dr. Daron Ferris
Cancer in Pregnancy

- Incidence: <0.1%
- Mean age: 33.8 years
- Approximately 1 in every 34 - 55 women with cervical cancer is pregnant at time of dx
- Natural history: No rapid acceleration
- Complications:
  - Bleeding
  - Spontaneous abortion
  - Preterm labor, etc.

Image courtesy of Dr. Daron Ferris
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- Effects of treatment on future pregnancy
Colposcopy in Pregnancy

- **Primary Goal:** Exclude invasive disease
- **Indications:** Similar to non-pregnant♀
  - Abnormal Pap, esp. HSIL+
  - Clinically suspicious cervix
  - Unexplained bleeding
- More difficult, especially in 3rd trimester.
- After the first trimester, best performed by skilled, experienced colposcopist.
Colposcopy in Pregnancy

- Cervical enlargement
  - Stromal hypertrophy
  - Contact bleeding
- Thick mucus plug
- Gaping of os (multiparous)

Images courtesy of Dr. Daron Ferris
Colposcopy in Pregnancy
Eversion of endocervical canal

- Estrogen mediated
  - Most common in primigravidas
  - Eversion exaggerated as pregnancy progresses
    - Maximal ~20-22 weeks
    - If entire T-zone not seen in early pregnancy, repeat colposcopy later
  - Associated squamous metaplasia
Colposcopy in Pregnancy
Squamous metaplasia

- Increased surface for squamous metaplasia
  - Early metaplasia at tips of villous projections
  - Nabothian Cysts
- Production of thick tenacious mucus
Colposcopy in Pregnancy Stromal Decidual Reaction

- **Progesterone related**
  - Tissues of para-mesonephric origin respond to progesterone with decidual changes.
    - Endometrium
    - Cervix
    - Peritoneum
  - Nodules, masses and polyps
Decidual Change in Pregnancy

Decidualized stroma
Plump polygonal cytoplasm

Normal stroma
Cell borders indistinct, fibroblasts with scattered nuclei
Colposcopy in Pregnancy

- Cyanosis and softening
  - Increased vascularity
  - Edema

- Vaginal wall prolapse
  - May make it difficult to see the cervix

Image courtesy of Dr. Daron Ferris
Colposcopy in Pregnancy Challenges → Visualization

- Prolapse of the vaginal walls
- Tenacious cervical mucus
- Contact bleeding

Images courtesy: Dr. Daron Ferris
Colposcopy in Pregnancy: Adequate Visualization

- Use largest speculum that can be comfortably inserted
  - Introduce gently to avoid bleeding
- Examine cervix by each quadrant
- 5% acetic acid helpful with tenacious mucus
- Vaginal sidewall retractors may be useful
Additional Instruments

- A condom or latex ‘finger’ placed over the speculum may help hold back vaginal sidewalls
- A tongue depressor may help also
Additional Instruments:
Ring forceps

- May be used carefully as an endocervical speculum
- May also be used to remove tenacious mucus
Pregnancy: Colposcopic findings

- Colposcopic criteria – the same
- Color
- Margins
- Vessels
- Contours
- Iodine (+/-)

BUT...
Pregnancy: Colposcopic findings

- Tendency to over / under-estimate grade
- Lesions may appear higher grade
  - Vasodilation in pregnancy
    - Mosaic and/or punctuation more prominent
  - Widespread squamous metaplasia produces acetowhite changes.
    - May be over-diagnosed as SIL
Pregnancy: Colposcopic findings

- Prominent vascular changes
- Low-grade SIL
- Lesion regressed post-partum
Pregnancy: Colposcopic findings

- Lesions may appear lower grade
  - Edema and cyanosis may dampen acetowhite effect
  - May appear less in contrast with normal squamous epithelium
  - Lesions may be under-called

- Eversion exposes upper extent of lesions
  - Less likely to be unsatisfactory
Cervical Biopsy during Pregnancy

- Biopsy: Safe
  - Biopsy if in doubt
  - Use sharp instruments!
- Biopsy of lesions suspicious for high-grade disease or cancer is preferred; biopsy of other lesions is acceptable.
- ECC: Contraindicated
- (Brush okay)
Biopsy in Pregnancy

- Safe → But anticipate brisk bleeding
  - Monsell’s paste safe, effective
  - Have it immediately available
- No increase in pregnancy loss
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The Abnormal Pap in Pregnancy

The Bethesda System Atlas, 2004
Pregnancy: Lesser abnormality on Pap LSIL or ASC-US+HPV

- Colposcopy preferred, if 25 or older
- It is acceptable to defer initial colposcopy until \( \geq 6 \) weeks postpartum

- If no HSIL on bx (and no cancer is suspected on initial colposcopy), postpartum follow-up is recommended: Cotesting in 12 months
- Additional colposcopies or Pap tests in pregnancy, unacceptable in this situation

Massad. *JLGT*, 2013:17(5), S1-S27
Pregnancy: Higher-risk Pap

ASC-H, HSIL, AGC or Cancer

COLPOSCOPY (or refer)

- Only **diagnosis** that may alter management is **invasive cancer**.
- May need treatment before or at time of delivery.

(The Bethesda System Atlas, 2004)
HSIL in Pregnancy: 2006 ASCCP Guidelines

- Colposcopy recommended
  - Should be performed by colposcopist experienced in examining pregnant cervix
  - Biopsy lesions suspicious for HSIL or cancer
    - Biopsy of other lesions is acceptable
  - Endocervical curettage: unacceptable
  - Treatment with excision procedure unacceptable except if invasive cancer suspected.

- If no HSIL or cancer on biopsy, re-evaluate ≥6 weeks postpartum with Pap and colpo.
Management of **HSIL on Pap During Pregnancy**

- **HSIL**
  - No HSIL (CIN2/3) on biopsy
    - Cotest in 12 and 24 months or...
      - Re-evaluate during pregnancy, but no more often than every 12 weeks
      - *Repeat Bx only if worse colpo impression, Pap suggests invasion*
      - *Near term, defer PP*
      - Post-partum, re-evaluation with Pap and colposcopy -- no sooner than 6 weeks

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*Massad JLGTD, 2013:17(5), S1-S27*
Management of HSIL on biopsy During Pregnancy

- **Defer treatment until postpartum**
  - Low rate of progression to cancer
  - High rate of regression (in some studies, up to 70%)
  - Treatment less effective in pregnancy
  - Excision associated with significant morbidity in pregnancy despite modality used

Postpartum evaluation should occur no sooner than six weeks after delivery
Management of **SIL on Biopsy During Pregnancy**

- Low-grade SIL on biopsy
  - Follow up post-partum without treatment
  - Treatment unacceptable

- High-grade SIL on biopsy
  - Follow at intervals ≥ 12 weeks
  - Re-biopsy if appearance worsens (or Pap suggests cancer)
  - Re-evaluate with colpo + Pap post-partum
    - At least 6 weeks post-partum

- Biopsy safe
- ECC *unacceptable*

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Massad et al. Journal of Lower Genital Tract Disease, 2013:17(5), S1-S27
Cervical Cancer in Pregnancy

- Most are asymptomatic at time of diagnosis
- Most are early stage – SISCCA to Stage IB
  - Stage II or higher less likely to get pregnant
  - Pregnant women more likely to be diagnosed in early stages than non-pregnant controls
Management of **Cervical Cancer During Pregnancy**

Cervical cancer is one of the most common cancers diagnosed during pregnancy.

- **Management** depends on patient’s desires for pregnancy completion and future fertility.

- **Treatment delays** of up to 32 weeks do not appear to change early stage disease prognosis.

- **Delivery**: Evidence points to C/S (decreased recurrences). Do high vertical incision.
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