Cervical Cancer in Pregnancy

Annabel Mancillas MD
PGY3

Darren Farley, MD
Clinical Assistant Professor
Division of Maternal-Fetal Medicine
Dept. of Obstetrics and Gynecology
University of Kansas School of Medicine – Wichita

Grand Rounds
May 14th, 2014
Overview

- Incidence (US & world-wide)
- Cervical Cancer Basics (pathology/histology, diagnosis, staging)
- Non-pregnant state recommendations
- Pregnant state recommendations/treatment effects
  - Chemotherapy/Radiation side-effects in pregnant state
  - Surgery
- Case Presentations
  - B.W.
  - A.R.

Additional Sub-Specialist points of view
Incidence

- Incidence of Cervical CA in the US has decreased more than 50% in the past 30 years (ACOG 2012)
- 1975 14.8/100,000
- 2008 6.6/100,000

World Wide: estimated 530,000 new cases, with 275,000 resultant deaths

- Most common gynecologic malignancy in pregnancy
  - 1 per 1,200-10,000
Who Cares?! 

- Incidence/Mortality has decreased in the US…

- BUT: Increasing amongst immigrant women in the US 
  - Lack of health insurance (for anyone) was the strongest predictor of NO recent mammogram, clinical breast exam or PAP test.
Risk Factors

- HPV infection
- Smoking
- HIV
- Multiple sexual partners
- OCP (5+years)
- Low socioeconomic status
Basics Overview
Histology

- Squamous Cell CA approx. 90%
  - Large cell, small cell, verrucous

- Adenocarcinoma approx. 10%

- Mixed Carcinoma
  - Adenosquamous, glassy cell
**Pathophysiology**

### Correlation of Pap test with cross-section of cervix

<table>
<thead>
<tr>
<th>Stage</th>
<th>Dysplasia</th>
<th>Pre-Invasive Cancer</th>
<th>Invasive Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Cells</td>
<td>Mild</td>
<td>Tumor is still confined to the cervix</td>
<td></td>
</tr>
<tr>
<td>Inflammatory Cells</td>
<td>Moderate</td>
<td>Tumor has spread to vagina and neighboring tissue</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Severe</td>
<td>Tumor extends to the pelvic wall</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tumor extends beyond the pelvis</td>
<td></td>
</tr>
</tbody>
</table>

- **Pap Test**: Normal, ASCUS, Low Grade SIL, High Grade SIL, ASC-H
Basic Pathophysiology

- Metaplasia = columnar → squamous
  - Nearly all cervical neoplasia occur at the SCJ
  - Metaplastic cells more vulnerable

- Metaplasia periods:
  - Fetal life
  - Early adolescence
  - First Pregnancy
Basic Pathophysiology

- Progression from dysplasia to cancer is low

<table>
<thead>
<tr>
<th>PAP Diagnosis</th>
<th>Progression to Invasive Cancer in 24mos (95% confidence interval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCUS</td>
<td>0.25% (0, 2.25)</td>
</tr>
<tr>
<td>LSIL</td>
<td>0.35% (0, 0.71)</td>
</tr>
<tr>
<td>HSIL</td>
<td>1.44% (0, 3.95)</td>
</tr>
</tbody>
</table>
Symptoms

- Vaginal Discharge
- Abnormal bleeding
- Post-coital bleeding
- Pelvic Pain
- Pelvic Mass

- Commonly asymptomatic until advanced stages
Diagnosis

- False negative rates for PAP in presence of invasive CA up to 50%
- Biopsy
- Colposcopy
- Cone Biopsy
Diagnosis in Pregnancy

- 2.7-3.5% of cases of cervical CA occur in pregnant women

- Symptoms are usually disregarded and attributed to changes caused by pregnancy
Abnormal pap smear
- No macroscopic abnormality

Colposcopy
- No endocervical curettage

Satisfactory colposcopy

Biopsy

- CIN
  - Vaginal delivery
  - Treat 6 wks postpartum

- Microinvasion
  - Possible adenocarcinoma

Unsatisfactory colposcopy

- Second trimester
  - Cone biopsy if high-grade abnormality

- Third trimester
  - Vaginal delivery and postpartum cone biopsy

- CIN
  - Stage IA1
  - Vaginal delivery
  - Treat 6 wks postpartum

- Stage IA2
  - Invasive cancer
  - Appropriate management
NEW ASCCP GUIDELINES

Management of Pregnant Women with Low-grade Squamous Intraepithelial Lesion (LSIL)

Pregnant Women with LSIL

Colposcopy
Preferred

- No CIN2,3^
- CIN2,3

- Postpartum follow-up

Manage per ASCCP Guideline

Defer Colposcopy
(Until at least 6 weeks postpartum)
Acceptable

^In women with no cytological, histological, or colposcopically suspected CIN2,3 or cancer

© Copyright, 2013, American Society for Colposcopy and Cervical Pathology. All rights reserved. ASCP
Colposcopy in pregnancy

- Cervical changes in pregnancy
  - Glandular epithelium is visible on ectocervix making visualization more easy
  - Softening, cyanosis
  - Hypertrophy of fibromuscular stroma leads to increase in cervical volume
  - Endocervical gland hyperplasia increases the number of glands and the transformation zone everts
  - Physiologic metaplasia of pregnancy may mimic changes, punctuation, mosaicism
  - Decidual reaction coupled with increased vascularity may result in polypoid projections that may suggest cancer
Pregnant Cervix
Cone Biopsy in Pregnancy

- ONLY to be done if indicated due to the risk of hemorrhage, abortion, PTL.
  - Extensive excision of epithelium and underlying stroma within the endocervical can result to PPROM
  - Blood loss common, 10% of 180 pregnant women required transfusion after cone (Hacker, et al. 1970)

- Indications:
  - Microinvasive disease on colposcopy, unsatisfactory colposcopy, cytology & colposcopy conflict
Cone Bx in Pregnancy

- Ideally done between 14-20wga
- Placing 6 hemostatic sutures around the perimeter of the cervix close to the vaginal reflection
  - Reduce blood flow
  - Evert the SCJ
  - Allow a shallow “coin” biopsy

- Goldberg & colleagues performed 17 cone cerclages
  - McDonald suture placement/performing the cone
  - All had uneventful pregnancies reaching 34+wga

- Clinical Gynecologic Oncology
Staging

• CLINICAL STAGE**
  • Once a stage is given, it is kept
  • Example
    • 53 yo G5P5 presents with vaginal bleeding/discharge
    • Exam shows a 4cm mass c/w with SCC, exam revealed nodular parametria
    • Stage IIB
    • 2 years after treatment a tracheal/lung mass was noted biopsied and was c/w SCC
    • New stage IIIB?

NO she is a 53 yo with Stage IIB SCC s/p.....with recurrent disease mets to lungs.
## Stage 1

<table>
<thead>
<tr>
<th>STAGE 1</th>
<th>CONFINED TO THE CERVIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>Diagnosed only by microscopy</td>
</tr>
<tr>
<td>IA1</td>
<td>Stromal invasion $\leq 3$mm DEPTH $\leq 7$mm horizontal spread</td>
</tr>
<tr>
<td>IA2</td>
<td>Stromal invasion $&gt;3$mm BUT not more than $5$mm in depth and $\leq 7$mm in horizontal spread</td>
</tr>
<tr>
<td>IB</td>
<td>Clinically visible lesion confined to cervix OR microscopic lesion greater than IA2</td>
</tr>
<tr>
<td>IB1</td>
<td>Clinically visible lesion $\leq 4$cm</td>
</tr>
<tr>
<td>IB2</td>
<td>Clinically visible lesion $&gt;4$cm (“bulky disease”)</td>
</tr>
</tbody>
</table>
## Stage 2

<table>
<thead>
<tr>
<th>STAGE 2</th>
<th>Invades beyond uterus but NOT to the pelvic wall or to the lower third of vagina</th>
</tr>
</thead>
<tbody>
<tr>
<td>II A</td>
<td>Tumor without parametrial invasion</td>
</tr>
<tr>
<td>IIB</td>
<td>Tumor with parametrial invasion</td>
</tr>
</tbody>
</table>
## Stage 3

<table>
<thead>
<tr>
<th>STAGE 3</th>
<th>Extends to pelvic wall and/or lower third of vagina and/or causes hydronephrosis or non-functioning kidney</th>
</tr>
</thead>
<tbody>
<tr>
<td>III A</td>
<td>Tumor involves lower third of vagina, no extensions to pelvic wall</td>
</tr>
<tr>
<td>III B</td>
<td>Extends to pelvic wall &amp;/or causes hydronephrosis or non-functioning kidney</td>
</tr>
</tbody>
</table>
## Stage 4

<table>
<thead>
<tr>
<th>IV A</th>
<th>Tumor invades mucosa of bladder or rectum &amp;/or extends beyond the true pelvis</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV B</td>
<td>Distant Mets</td>
</tr>
</tbody>
</table>
Clinical Diagnosis

- Palpation, inspection
- Colposcopy
- ECC
- Hysteroscopy
- Cystoscopy
- Proctoscopy
- IV urography
- Conization/cervical amputation

All are permitted and considered clinical, can alter the FIGO stage.
Treatment Non-Pregnant

- Surgical
- Chemotherapy
- Radiation
- Chemoradiation
Surgical Treatment

- Fertility Desired
  - Cone
  - Radical Trachelectomy with lymphadenectomy with placement of an abdominal cerclage

- Fertility NOT desired
  - Simple Hysterectomy, Radical Hysterectomy
Surgical Treatment

- Stage IA
  - Cone (CKC or LEEP)
  - Simple Hysterectomy

- Stage IA2
  - Radical hysterectomy with lymphadenectomy
  - Primary chemoradiation
  - Radical Trachelectomy
Surgical Treatement

- If fertility is desired
  - Radical Trachelectomy with lymphadenectomy
    - MRI prior to surgery
    - Lymphadenectomy done 1st to evaluate for mets

- “Radical abdominal trachelectomy with pelvic lymphadenectomy is a feasible operation for selected women with stage I cervical cancer who desire to preserve reproductive function. Menstruation and reproduction may be preserved after bilateral uterine vessel ligation”

  Nadeem, R. et al
• Side effects
  • Chronic vaginal discharge
  • Irregular bleeding
  • Dysmenorrhea

• 2/3 of pregnancies have ended in live births
• 40% of pregnancies had term deliveries
  • Increased rates of 2\textsuperscript{nd} Tri SAB
• Delivery recommendation 37-38wga via c-section
Stages IB-IIA

- **Stage IB**
  - Early Stage IIA (except anterior vaginal extension)

- Radical hysterectomy
- Pelvic lymphadenectomy
- Resect any bulky paraaortic nodes

- **Node-negative**
  - Low-risk

  - **Observation**

- **Node-negative**
  - High-risk (GOG Score > 120)

  - **Small field pelvic RT**

- **Multiple positive nodes or bulky positive nodes**

  - **Extended field RT**
  - **Weekly cisplatin**
Stages IIB-IV

Carcinoma of the cervix Stages IIB - IV

- CT scan of pelvis and abdomen
- PET scan

- Pelvic or paraaortic nodes > 2 cm
- Adnexal mass

- Pelvic or paraaortic nodes
- PET positive paraaortic nodes
- PET negative paraaortic nodes

CT chest

- CT chest negative
  - Resect adnexal mass
  - Extraperitoneal resection of bulky nodes
  - Extended field chemoradiation if PA nodes positive

- CT chest positive
  - Palliative pelvic RT

Extended field chemoradiation

Pelvic chemoradiation
Chemoradiation Treatment

- External beam and brachytherapy, gold standard for advanced disease (bulky disease).
  - Works by direct damage to DNA (ionization) or creating free radicals (indirect-ionization) within cells that damage DNA
  - 6-7wks of daily (5 days/week) treatment

- Cisplatin (Platinol)- induced cytotoxic properties through binding/crosslinking to DNA (mainly Guanine), resulting in interference with transcription/replication
Side Effects

- Radiation - N/V, fatigue, diarrhea, cystitis, skin changes (erythema, peeling, infection) vaginal stenosis, menopause

- Cisplatin - N/V, nephrotoxicity, neurotoxicity, ototoxicity (deafness/tinnitus), myelosuppression (leukopenia, thrombocytopenia, neutropenia)
Cervical Cancer Treatment in Pregnancy
Pregnant State

To treat…or not to treat…
Algorithm (uptodate)
Pregnancy

- Deliberate delay of therapy to achieve fetal maturity is considered a *reasonable* options for patients with microinvasive and early stage IB.
Chemotherapy in Pregnancy

Use of chemotherapy during human pregnancy

Elyce Cardonick and Audrey Iacobucci

When cancer is diagnosed in a pregnant woman, life-saving chemotherapy for the mother poses life-threatening concerns for the developing fetus. Depending on the type of cancer and the stage at diagnosis, chemotherapy cannot necessarily be delayed until after delivery. Women diagnosed with acute lymphoblastic leukaemia who decline both termination and chemotherapy often die with the previable fetus in utero. Safe use of chemotherapy, especially during the second and third trimester, have been reported, and pregnant women with cancer can accept therapy without definite neonatal harm. Here, we review the use of chemotherapy in pregnancy by trimester of exposure and summarise neonatal outcomes, including malformations, perinatal complications, and oldest age of neonatal follow-up. We will also discuss the modes of action of the drugs used and look at the multiagent regimens recommended for use during pregnancy.

*Lancet Oncol* 2004; 5: 283–91
Physiologic changes

- Increased blood volume – 50%
- Increased renal clearance
- Faster hepatic mixed-function oxidase system
- Slowed GI function/slower absorption
- Plasma albumin decreases, which increases unbound amount of active drug
  - Estrogen increases other plasma proteins, may decrease active drug concentration
  - May promote placental transfer (increased active drug)
Figure 2. Crucial periods in prenatal development. Dots on the developing fetus show common sites of action of teratogens. Horizontal bars indicate fetal development during a highly sensitive period (purple) and a less sensitive period (green). TA, truncus arteriosus; ASD, atrial septal defect; VSD, ventricular septal defect. Reproduced with permission from Moore P, ed. The developing human, 6th edition, 1998.
Chemotherapy

- 1st trimester – increased risks of SAB, fetal death/IUFD, anomalies

- Organogenesis – weeks 2-8 post conception – heart, neural tube and limbs are affected earlier than palate and ear

- Period post organogenesis – after week 8 post conception – eyes and genitalia, CNS and hematopoietic system are affected

- Exposure in second and third trimester increases risks of IUGR, IUFD, LBW, unclear risk of carcinogenesis
<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Antimetabolites</strong></td>
<td>Methotrexate, 5-fluorouracil, aminopterin, cytarabine, tioguanine, mercaptopurine</td>
</tr>
<tr>
<td><strong>Alkylating agents</strong></td>
<td>Cyclophosphamide, busulfan, ifosfamide, chlorambucil, carmustine, dacarbazine</td>
</tr>
<tr>
<td><strong>Anthracycline antibiotics</strong></td>
<td>Doxorubicin, daunorubicin, Adriamycin, idarubicin, epirubicin, dactinomycin, bleomycin, mitoxantrone</td>
</tr>
<tr>
<td><strong>Plant alkaloids</strong></td>
<td>Vincristine, vinblastine, vinorelbine</td>
</tr>
<tr>
<td><strong>Taxanes</strong></td>
<td>Paclitaxel, docetaxel</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>Cisplatin, carboplatin, prednisone, triamcinolone, tamoxifen, rituximab, asparaginase, etoposide, teniposide, allopurinol, mitoguazone, tretinoin</td>
</tr>
</tbody>
</table>
Antimetabolites

- Methotrexate, 5FU, aminopterine, cytarabine, tioguanine
- Cancers – Leukemia, lymphoma, breast
- MOA – Inhibit cell metabolism, false substrate during DNA, RNA synthesis
- Aminopterine syndrome – craniodystosis, hypertelorism, wide nasal bridge, micrognathia, ear anomalies
- IUGR, IUFD, LBW
- Pancytopenia, sepsis
Alkylating agents

- Cyclophosphamide, busulfan, ifosfamide, chlorambucil, carmustine, dacarbazine
- Cancers – breast, ovarian, non-Hodgkin lymphoma
- Cyclophosphamide- 1st trimester exposure – absent toes, eye defects, low-set ears, cleft palate
- 2nd/3rd trimester – IUGR, IUFD, LBW risk
Anthracycline antibiotics

- Doxorubicin, daunorubicin, adriamycin, idarubicin, epirubicin, dactinomycin, bleomycin, mitoxantrone
- Cancers – Acute leukemia (AML, ALL), non-Hodgkin lymphoma, sarcoma, breast
- MOA – Interposes DNA
- *Doxorubicin – limb defects, IUGR, IUFD, pancytopenia, sepsis
- Daunorubicin – eye defects, pancytopenia, IUGR, IUFD
- Cardiotoxicity in children/adults – free radical damage leads to myocardial apoptosis, then hypertrophy, cases of right sided cardiomyopathy in neonates exposed in-utero
- Idarubicin and epirubicin – more lipophilic – more placental transfer, most exposures had adverse outcomes – IUFD, IUGR, cardiomyopathy
Plant alkaloids

- Vincristine, vinblastine, vinorelbine
- Cancers – Hodgkin lymphoma, non-Hodgkin lymphoma, breast, lung
- MOA – Microtubule depolymerization, blocks cell division
- Limb, heart defects, IUFD, IUGR, pancytopenia
• Paclitaxel, docetaxel – from Pacific yew
• Cancers – Ovarian, breast
• MOA – inhibits microtubule disassembly, because microtubules have vital roles in cell division and in intracellular and intercellular functions, cytotoxicity may not be restricted to the mitotic phase of cell cycle
• Limited number of cases in pregnancy, not recommended

http://article.wn.com/view/2013/08/21/Pacific_yew_A_potent_cancer_fighting_agent/
Other

- Cisplatin, Carboplatin
  - MOA – cross-links DNA
  - Cancers – ovarian, cervix, lung (small cell), sarcomas, lymphomas, germ cell tumors
  - CNS thrombotic event in fetus exposed, isolated report, 4 cases with normal outcomes, 5/24 cases reported had IUGR, IUFD, hearing loss, ventriculomegaly that was reported outcome
Other

- Tamoxifen - SERM
  - Estrogen receptor antagonist in breast
  - Agonist/antagonist in uterus
  - Cancers - breast

- No tamoxifen in pregnancy
  - Abnormal genitalia, uterine defects
Maternal risks during pregnancy

- Bleomycin – association with pulmonary toxicity
  - Avoid oxygen during labor if possible

- Chemotherapy induced neutropenia and anemia
  - GCSF and epoetin has been used in pregnancy in case reports without adverse outcomes

- Maternal PFTs, echocardiogram baseline in women that have been on chemotherapy that have pulmonary or cardiac toxicity risks (bleomycin and other anthracycline antibiotics)
Specific Cancer Pearls

- Breast – Avoid epirubicin, idarubicin

- No tamoxifen in pregnancy
  - Abnormal genitalia, uterine defects,

- Acute leukemia requires treatment without delay (high risk of maternal death with delay)
  - Avoid cytarabine, tioguanine - anomalies
  - No idarubicin due to cardiomyopathy risk
  - Vincristine, doxorubicin/daunorubicin, cyclophosphamide
Specific Cancer Pearls

- Lymphoma – ABVD – OK in pregnancy, if possible defer to second/third trimesters
  - Suboptimal treatment puts patient at risk of recurrence

- Ovarian cancer – Cisplatin is preferred over carboplatin for use in pregnancy – carboplatin is more likely to cause thrombocytopenia, less protein bound, favoring placental transfer
  - Avoid etoposide if possible
Timing of Delivery

- Avoid delivery 2-3 weeks after chemotherapy
- No chemotherapy after 35 weeks to allow for bone marrow recovery
- Cesarean for obstetrical indications
Breastfeeding

- Contraindicated while undergoing chemotherapy
Radiation
<table>
<thead>
<tr>
<th>Prenatal death</th>
<th>Major morphological abnormalities</th>
<th>Physiological defects &amp; minor morphological abnormalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Period of dividing zygote, implantation &amp; bilaminar embryo</td>
<td>C.N.S.</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>eye</td>
<td>heart</td>
</tr>
<tr>
<td></td>
<td>heart</td>
<td>eye</td>
</tr>
<tr>
<td></td>
<td>arm</td>
<td>ear</td>
</tr>
<tr>
<td></td>
<td>leg</td>
<td>palate</td>
</tr>
<tr>
<td></td>
<td>eye</td>
<td>ear</td>
</tr>
<tr>
<td></td>
<td>heart</td>
<td>ear</td>
</tr>
<tr>
<td></td>
<td>arms</td>
<td>external genitalia</td>
</tr>
<tr>
<td></td>
<td>20-36</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>brain</td>
<td></td>
</tr>
</tbody>
</table>

- * indicates common site of action of teratogen

Central nervous system:
- heart
- arms
- eyes
- legs
- teeth
- palate
- external genitalia
- ear

Usually not susceptible to teratogens.
Radiation exposure

- Diagnostic radiographic procedures have very low exposure and should not be delayed if they would directly affect therapy

- Therapeutic – significant fetal exposure – depends on tissue being treated, dose and field size
  - A/e – cell death, carcinogenesis, genetic affects on future generations
  - Exposure of < 5 cGy (5 rad) – negligible risk of major malformations
  - Likely that 15-20 cGy is the threshold for radiation effects
Therapeutic radiation exposure

- Most susceptible period – organogenesis
- Characteristic fetal effects – microcephaly and mental retardation
  - Late exposure can cause growth restriction and brain damage
  - Possible that termination from radiation is part of treatment plan
- Abdominal shielding
- Radiation from breast cancer – significant shatter doses can accrue to the fetus
<table>
<thead>
<tr>
<th>Measure</th>
<th>Definition</th>
<th>Unit</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure</td>
<td>Number of ions produced by X-rays per kilogram of air</td>
<td>Roentgen (R)</td>
<td>Roentgen (R)</td>
</tr>
<tr>
<td>Dose</td>
<td>Amount of energy deposited per kilogram of tissue</td>
<td>Rad (rad)*</td>
<td>Gray (Gy)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$1 \text{ Gy} = 100 \text{ rad}$</td>
</tr>
<tr>
<td>Relative effective</td>
<td>Amount of energy deposited per kilogram of tissue normalized for biological</td>
<td>Roentgen equivalents</td>
<td>Sievert (Sv)</td>
</tr>
<tr>
<td>dose</td>
<td>effectiveness</td>
<td>man (rem)*</td>
<td>$1 \text{ Sv} = 100 \text{ rem}$</td>
</tr>
</tbody>
</table>

*For diagnostic X-rays, 1 rad = 1 rem

Table 2. Estimated Fetal Exposure From Some Common Radiologic Procedures

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Fetal Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chest X-ray (2 views)</td>
<td>0.02–0.07 mrad</td>
</tr>
<tr>
<td>Abdominal film (single view)</td>
<td>100 mrad</td>
</tr>
<tr>
<td>Intravenous pyelography</td>
<td>≥1 rad*</td>
</tr>
<tr>
<td>Hip film (single view)</td>
<td>200 mrad</td>
</tr>
<tr>
<td>Mammography</td>
<td>7–20 mrad</td>
</tr>
<tr>
<td>Barium enema or small bowel series</td>
<td>2–4 rad</td>
</tr>
<tr>
<td>CT† scan of head or chest</td>
<td>&lt;1 rad</td>
</tr>
<tr>
<td>CT scan of abdomen and lumbar spine</td>
<td>3.5 rad</td>
</tr>
<tr>
<td>CT pelvimetry</td>
<td>250 mrad</td>
</tr>
</tbody>
</table>

*Exposure depends on the number of films
†Abbreviation: CT, computed tomography

CASE PRESENTATIONS
Case #1

- B.W 22 yo G0
- Referred to WWC from her PCP for CIN3, VAIN1
- PAP 1/2013
  - HGSIL
- Colposcopy on 2/12/13
  - CIN 3- glandular mucosa with focal cellular atypia, not Dx of AIS; ECC focal immature squamous metaplasia, focal reactive glandular atypia, no Dx features of squamous dysplasia or glandular neoplasm
- LEEP 4/11/13
  - CIN 3 with focal endocervical margin involvement
  - Microinvasive SCC 0.2mm depth of stromal invasion and 0.5mm horizontal extent, negative margins
- F/U
  - Colp/ECC/PAP q 3 months
- Anything else to do?
- Should I offer her fertility sparing surgery?
Case #2

- A.R. 33 yo G3P2002 @ 17.1wga
- Admitted to WMC from an outlying facility for a biopsy proven SCC of the cervix. After Bx was performed vaginal packing needed due to heavy VB requiring 1 unit PRBC’s.
- Prior to arrival packing removed by the patient, VB stable.
- PMH: Denies
- Past OB/Gyn HX:
  - SVD x2 term
  - PAP 2 years ago, normal
- Past Surg HX: Denies
- SH: Denies tobacco/ illicit drug use/ EtOH
- Consults: MFM & WWC for primary OB/Gyn
Cases

- Pt - 17 weeks pregnant – Cervix cancer, squamous cell, stage IIA

**OPTIONS:**
- Expectant management
- Chemotherapy
- Radiation/Chemotherapy
- Surgery
What if the IUP was 23wga?
Current Commentary

Periviable Birth

Executive Summary of a Joint Workshop by the Eunice Kennedy Shriver National Institute of Child Health and Human Development, Society for Maternal-Fetal Medicine, American Academy of Pediatrics, and American College of Obstetricians and Gynecologists

Tonse N.K. Raju, MD, Brian M. Mercer, MD, David J. Burchfield, MD, and Gerald F. Joseph, Jr, MD

(Obstet Gynecol 2014;123:1083–96)
Table 3. General Guidance Regarding Obstetric Interventions for Threatened and Imminent Perivable Birth, According to Whether the Fetus Is Considered Potentially Viable, and the Parents’ Wishes for Aggressive Intervention*  

<table>
<thead>
<tr>
<th></th>
<th>Less Than 22 0/7 Weeks</th>
<th>22 0/7 Weeks to 22 6/7 Weeks</th>
<th>23 0/7 Weeks or More</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antenatal corticosteroids</td>
<td>Not recommended</td>
<td>Consider if delivery at or later than 23 0/7 weeks is anticipated</td>
<td>Recommended</td>
</tr>
<tr>
<td>Tocolytics to enhance latency for potential steroid benefit</td>
<td>Not recommended</td>
<td>Not recommended unless concurrent with antenatal steroids</td>
<td>Consider</td>
</tr>
<tr>
<td>Magnesium sulfate for neuroprotection</td>
<td>Not recommended</td>
<td>Not recommended</td>
<td>Recommended</td>
</tr>
<tr>
<td>Antibiotics for PROM to enhance latency</td>
<td>Consider if delivery not imminent</td>
<td>Consider if delivery not imminent</td>
<td>Recommended if delivery not imminent</td>
</tr>
<tr>
<td>Intrapartum antibiotics for GBS prophylaxis†</td>
<td>Not recommended</td>
<td>Not recommended</td>
<td>Recommended</td>
</tr>
<tr>
<td>Continuous intrapartum electronic fetal monitoring</td>
<td>Not recommended</td>
<td>Not recommended</td>
<td>Recommended</td>
</tr>
<tr>
<td>Cesarean delivery for fetal indication§</td>
<td>Not recommended</td>
<td>Not recommended</td>
<td>Recommended</td>
</tr>
<tr>
<td>Aggressive newborn resuscitation</td>
<td>Not recommended, comfort care only</td>
<td>Not recommended unless considered potentially viable based on individual circumstances</td>
<td>Recommended unless considered nonviable based on individual circumstances</td>
</tr>
</tbody>
</table>
Conclusions

• Multidisciplinary approach
• Patient autonomy
• Specific cancer risks dependent on site
• Chemotherapy Review article – good reference
• Periviable Birth changes
End

- Questions, discussion
References


