Cervical Cancer

MSU SCS Board Review Course

Symptoms

- Abnormal vaginal bleeding
  - Postcoital, intermenstrual or postmenopausal
- Vaginal discharge
- Pelvic pain or pressure
- Asymptomatic
  - In most patients who are not sexually active due to symptoms not showing up until the disease is advanced

Physical

- Pelvic
  - Cervical tumor will be polypoid, ulcerative, endophytic or exophytic
- Exam vagina thoroughly to rule out extension of the tumor
- Rectal exam
  - To look for parametrial disease and also help to determine cervical size
- Palpate liver, supraclavicular and groin nodes to rule out mets
Colposcopy / biopsy

- Any obvious tumor / mass / ulceration should be biopsied
- Firm or enlarged cervix should undergo an ECC
- Colposcopy with biopsy of any atypical vessels, erosions or areas of keratosis

Staging

- Clinically staged disease
- Exam under anesthesia
- Cystoscopy / (IVP)
- Proctosigmoidoscopy
- Colposcopy
- Chest X-ray
- Skeletal X-ray
- Tumor biopsy / ECC / Cold Knife Cone

Other imaging

- MRI
- CT
- PET

- This imaging can be used to determine extent of disease but is not used in the staging of this cancer
CT
- Help to evaluate lymph nodes, urinary tract, liver, bony structures
- Lymph nodes
  - Consider nodes >1 cm positive
  - Can get false positive results in other nodes that are enlarged <1 cm

MRI
- Determine tumor size
- Degree of stromal penetration
- Vaginal extension
- Uterine extension
- Parametrial extension
- Lymph node status
- Good modality to use to determine accurate tumor size, parametrial extension and depth of disease

PET
- Uses a glucose analogue to determine distant sites of disease.
  - Cancer cells more readily take up glucose
- Can detect more accurately disease in lymph nodes which may not be enlarged
- Many studies show a sensitivity of 84% and a specificity of 94% in detecting para-aortic lymph nodes
FIGO staging

- IA1 – stromal invasion ≤ 3 mm in depth and extension ≤ 7 mm
- IA2 – stromal invasion of > 3 mm in depth but ≤ 5 mm and extension ≤ 7 mm
- IB1 – Clinically visible lesion ≤ 4 cm
- IB2 – Clinically visible lesion > 4 cm
- IIA1 – IB1 with upper vaginal involvement
- IIA2 – IB2 with upper vaginal involvement

FIGO

- IIB – Parametrial invasion
- IIA – tumor involves the lower third of the vagina, with no extension to the pelvic wall
- IIIB – extension to the pelvic wall and / or hydronephrosis or nonfunctioning kidney
- IVA – spread to adjacent organs (mucosa of bladder or rectum)
- IVB – spread to distant organs

Pattern of Tumor Spread

- Direct
  - Malignant cells penetrate basement membrane then infiltrate stroma
  - Progress lateral to cardinal and uterosacral ligaments, superior to the uterus, inferior to the vagina, anteriorly to the bladder, posterior to the peritoneum and rectum
- Lymphatic
  - Pelvic nodes (external iliac / obturator)
    - Obturator are most frequently involved
    - Usually follow a progression from pelvic nodes to common iliac nodes to para-aortic nodes
  - Can spread from PA nodes through thoracic duct to the left scalene nodes (supraclavicular)
- Hematogenous
  - Lung, liver, bone
Hysterectomy Types

Stage IA1
- Usually diagnosed after CKC or LEEP
- If negative ECC and margins after CKC/LEEP and patient still childbearing age and wants to retain uterus then the CKC/LEEP is sufficient treatment
- If patient done childbearing then simple hysterectomy should be done
- If ECC or margins of CKC/LEEP is positive then a repeat CKC/LEEP should be done before proceeding with a simple hysterectomy due to more extensive disease may be present
  - May need a radical hysterectomy if noted to have deeper disease present

Stage IA2
- Treatment of choice is modified radical hysterectomy with pelvic lymphadenectomy
- Radical trachelectomy with pelvic lymphadenectomy has been done in some centers
  - This is for patients who want to try and retain uterus for child bearing
Stage IB₁ and IIA₁

- Radical hysterectomy with pelvic lymphadenectomy is commonly done
- Equal rates of survival if primary radiation therapy is used

Stage IB₂ - IVB

- IB₂, IIA₂ - IVA
  - Primary pelvic external beam radiation therapy with weekly cisplatin chemotherapy followed by internal brachytherapy
- IVB
  - Systemic chemotherapy (24 hour paclitaxel, cisplatin, bevacizumab) +/- Radiation therapy

Hysterectomy Types

- Extrafascial hysterectomy
  - this is a simple hysterectomy
- Modified Radical hysterectomy
  - Uterine artery ligated where it crosses the ureter, medial halves of cardinal and proximal uterosacral ligaments are resected, upper 1/3 of vagina removed
Hysterectomy types

- Radical Hysterectomy
  - Uterine artery ligated at superior vesicle or internal iliac artery, remove entire cardinal ligament, uterosacral ligament removed at its sacral attachment, upper ½ of vagina removed
  - Extended Radical
    - Ureter is completely dissected from vesicouterine ligament, superior vesicle artery is sacrificed, ¾ of vagina excised

Radical hysterectomy complications

- Intraop
  - Blood loss 500 -1500 mL, less with minimally invasive techniques
  - Injuries to bladder, rectum, pelvic vessels, obturator nerve, ureter
- Postop
  - Voiding difficulties
    - Short term leave Foley in, long term then self catheterization
  - UTI, UreteroVaginal or VesicoVaginal fistula, ureteral obstruction
  - PE or DVT
  - Ileus
  - Lymphedema
  - Sexual dysfunction due to shortened vagina

Treatment Basics

- Stage IA1
  - Simple hysterectomy
- Stage IA2, IB1, IIA1
  - Radical hysterectomy with lymph nodes
- Stage IB2, IIA2, IIB, IIIA, IIIB, IVA
  - Radiation therapy with weekly cisplatin chemotherapy
- Stage IVB
  - Chemotherapy +/- Radiation therapy
**Prognostic factors after surgery**

- Lymph node status
- Size of primary tumor
- Depth of stromal invasion
- Presence or absence of LVSI
- Presence or absence of parametrial extension
- Histologic cell type
- Status of vaginal margin

**Who gets treatment after surgery?**

- Patients with positive lymph nodes, positive vaginal margins, positive parametria
  - These are termed high risk patients
- Patients who are early stage with high risk features
  - Based on tumor size, LVSI, depth of stromal invasion
  - These are termed intermediate risk
- Patients who don’t fit these two groups are low-risk and do not receive any adjuvant therapy
Post-treatment follow up

- Exam every 3 months for 2 years, every 6 months up to 5 years and then yearly after that
- Pelvic exam and PAP smear
- Imaging with PET to determine recurrence if clinical features suspect recurrence

Cervical cancer after simple hysterectomy

- Treatment options
  - Full pelvic radiation therapy
  - Radical parametrectomy, upper vaginectomy, pelvic lymphadenectomy
- Main surgical problems are locating the bladder and increased risk of uretero-vaginal fistula

Recurrent cervical cancer

- Central / local recurrence
  - This is a vaginal cuff / cervical or upper vaginal recurrence
  - Pelvic exenteration or radical hysterectomy
- Distant disease
  - Systemic chemotherapy
    - Paclitaxel, cisplatin, bevacizumab
### 5 year survival
- IA1 – 97%
- IA2 – 94.8%
- IB1 – 89.1%
- IB2 – 75.7%
- IIA – 73.4%
- IIB – 65.8%
- IIIA – 39.7%
- IIIB – 41.5%
- IVA – 22%
- IVB – 9.3%

### Pearls of Cervical cancer
- Related to high risk HPV (HPV 16 and 18 mostly)
- Clinically staged disease
  - Colposcopy, Cone / LEEP, IVP, Chest x ray, Cystoscopy, Proctosigmoidoscopy, EUA
- Most common pathology
  - Adenocarcinoma, Squamous cell
- Spread
  - Direct, lymphatic, hematogenous

### Cervical cancer treatment
- Stage IA1 – Cone or simple hysterectomy
- Stage IA2, IB1, IIA1 – Radical hysterectomy + lymphadenectomy
- Stage IB2 – Radical hysterectomy + lymphadenectomy or chemotherapy (weekly cisplatin) / radiation therapy
- Stage IIA2, IVA – Chemo (weekly cisplatin) / radiation therapy
- Stage IVB – Chemotherapy ± radiation therapy
## Cervical cancer

- Stage IA2-IIA1 who received Radical hysterectomy may receive postop radiation therapy if there are high-risk features in the final pathology report (size of tumor, depth of stromal invasion, LVSIn)
- Anyone with positive lymph nodes or positive margin or positive parametria after surgery need Radiation therapy
- Recurrent disease treated with systemic chemotherapy consisting of 24 hour paclitaxel, cisplatin ± bevacizumab