Grossing of gynecologic pathology specimens

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Approach to specimens from following organs
- Uterus and cervix
- Ovary and fallopian tube
- Vulva
- Multiple organs (pelvic exenteration)

Total hysterectomy
- Indications:
  - Benign conditions e.g. prolapse, fibroids, adenomyosis
  - Malignant conditions e.g. uterine or cervical carcinoma, sarcoma
  - Knowledge of clinical history is important as will guide the handling of specimen (indication, previous biopsy results, operative note and radiology, previous treatment)

Uterus and Cervix
- Supracervical hysterectomy
- Simple hysterectomy
- Radical hysterectomy (include vaginal cuff, parametrium and regional lymph nodes)
- Bilateral salpingectomy, bilateral salpingo-oophorectomy
- Cone biopsy, LEEP

Orientation of hysterectomies
- Peritoneal reflection
- Round ligaments
- Ovaries sit behind fallopian tubes
- If specimen cannot be oriented, designate two sides as "A" and "B" and submit sections
Handling of specimen:
- Weigh
- Open uterine corpus along lateral sides (score with knife, open with scissors; probe may help, clean cut), make transverse incisions keeping serosa intact
- Fix overnight in formalin
- Measure uterus (AP X ML X SI), endometrial and myometrial thickness, exocervix and endocervical canal, ovaries and fallopian tubes if present
- Describe, photograph (if unusual)

Gross findings – likely benign
- Uterine serosa – adhesions, hemorrhage (endometriosis, inflammed), cysts etc
- Myometrium – white whorled nodules - characteristics, lacy/trabeculated appearance
- Endometrium – contour, polyp, color
- Cervix – polyp, hemorrhage, color

Standard sections benign
- Document all abnormal findings including indication for surgery
- 1 section each from anterior cervix and posterior cervix
- 1 section each from anterior endomyometrium and posterior endomyometrium
- If ovary and fallopian tube – representative section of each ovary and fallopian tube
Gross findings – likely malignant

- Endometrial carcinoma, sarcoma
- Endometrial tumor – characteristics especially myometrial invasion (important cut-off 50% of myometrial invasion), endometrium and myometrium thickness, distance from cervix, distance from excocervical and paracervical margins
- Uterine serosa – tumor implants or direct invasion
- Cervix – grossly involved or not
- Ovary and fallopian tube – grossly involved or not

Standard sections malignant

- Anterior cervix and posterior cervix - 2 sections each including excocervical and paracervical resection margin
- Anterior and posterior lower uterine segment
- 3 full thickness sections each from anterior endomyometrium and posterior endomyometrium including the area with deepest invasion
- If ovary and fallopian tube – representative sections or entirely depending on the institution, SEE-FIM protocol for each fallopian tube

SEE-FIM protocol

Situations where will go beyond standard sections

- Patient with hyperplasia history, SIL History, uncertain about cervical status or myometrial invasion
- Patient had endometrial biopsy interpreted as high grade endometrial ca but cannot detect it on hysterectomy specimen
- Discrepancy between biopsy and final hysterectomy specimen

Other points worth mentioning

- Avoid sampling from cornu of uterus
- If sarcoma diagnosis, sample border of tumor, hemorrhagic and necrotic areas especially transition
Endometrial tumor staging

Primary Tumor (pT)
- pT1: Primary tumor cannot be assessed
- pT2a (a): No evidence of primary tumor
- pT2b (b): Tumor invades the endometrium or invades less than one-half of the myometrium
- pT3a (a): Tumor invades greater than or equal to one-half of the myometrium
- pT3b (b): Tumor invades the myometrium, but does not extend beyond the uterus
- pT4a (a): Tumor invades peritoneal (direct extension or metastasis)
- pT4b (b): Tumor invades abdominaloperineal resection specimen or extends to paraaortic lymph nodes

Regional Lymph Nodes (pN)
- pN0: No regional lymph node metastasis
- pN1 (a): Regional lymph node metastasis to pelvic lymph nodes
- pN1 (b): Regional lymph node metastasis to paraaortic lymph nodes, with or without positive pelvic lymph nodes

Sarcoma staging

Lymphosarcoma, Endometrial Stromal Sarcoma, and Undifferentiated Endometrial Sarcoma/Uterine Sarcoma

Primary Tumor (pT)
- pT1: Primary tumor cannot be assessed
- pT2a (a): Tumor is limited to the uterus
- pT2a (b): Tumor is greater than 5 cm (ø) or 5 cm in greatest dimension
- pT2b (a): Tumor invades the cervix, but is within the pelvic cavity (tumor extends to extrauterine pelvic tissue)
- pT2b (b): Tumor invades the adenexa
- pT2b (c): Tumor involves other pelvic organs (not just protruding into the abdomen)
- pT3 (a): Tumor invades pelvic peritoneum or involves bladder, rectum, or urethra
- pT3 (b): Tumor invades abdominal lymph nodes of one or more sites
- pT3 (c): Tumor invades abdominal lymph nodes of more than one site
- pT4 (a): Tumor invades bladder mucosa and/or rectum
- pT4 (b): Tumor invades bladder mucosa and/or rectum

Regional Lymph Nodes (pN)
- pN0: No regional lymph node metastasis
- pN1 (a): Regional lymph node metastasis to pelvic lymph nodes

Cervix

- Radical hysterectomy
- Cone biopsy
- LEEP/LLETZ

Radical hysterectomy for cervical carcinoma

- Handling of specimen:
- Weigh, ink margins
- Amputate cervix with vaginal cuff from uterus and open cervix at 12 o’clock, pin it
- Open uterine corpus along lateral sides (score with knife, open with scissors, probe may help, clean cuts), make transverse incisions keeping serosa intact
- Fix in formalin overnight
Large loop excision of transformation zone (LLETZ)

LEEP

Cone biopsy

Cervical cancer staging

Standard sections malignant

- Entire cervix coned including paracervical and vaginal cuff resection margins (helpful to state the section that shows maximum horizontal and vertical extent of tumor), parametrical resection margin
- Anterior and posterior lower uterine segment
- 1-2 full thickness sections each from anterior endomyometrium and posterior endomyometrium including any abnormal findings
- If ovary and fallopian tube – representative sections or entirely depending on the institution, SEE-FIM protocol for each fallopian tube
Other points worth mentioning

- Preferably one section per cassette (e.g., cone biopsy – 12 sections, 12 cassettes)
- If lymph node bisected, only one/cassette
- If sentinel lymph node – section at 5 mm intervals

Indications:

- Ovarian cyst/mass
- Prophylactic reasons or part of a larger resection
- Usually frozen section performed as management defined by it
- Knowledge of clinical history is important

Salpingo-oophorectomy specimen

- Indications:
  - Ovarian cyst/mass
  - Prophylactic reasons or part of a larger resection
  - Usually frozen section performed as management defined by it
  - Knowledge of clinical history is important

Handling of specimen:

- Weigh, review frozen consultation if done
- Slice it further and fix overnight in formalin

Salpingo-oophorectomy specimen

- Ovarian mass: unilateral/bilateral/fragmented
- Measurements for each ovary and corresponding fallopian tube (start with the main mass/finding first)
- External surface/capsule: intact/not intact/solid deposits/papillary excrescences
- Cut surface: cystic (unilocular/multilocular), solid (uniform/variegated), hair and cheesy material, hard areas such as bone and cartilage, color, fleshy
- Contents: serous/mucoid/cheesy/chocolate or dark brown

- Residual ovarian tissue - identified/not identified
- Fallopian tube - identified/not identified/probably identified, measurements/limbria seen or not, if tube interrupted or complete
- If uterus and cervix unremarkable, handle like benign
Standard sections benign

- Simple small cyst or grossly unremarkable or part of a large specimen for benign reasons – a couple of cross-sections of ovary sufficient, fallopian tube representative sections
- Such as prophylactic procedure – All tissue submitted (ovary and fallopian tube)

Standard sections malignant/big mass

- One section per cm focusing on grossly different and viable looking areas
- If nodule or papillary excrescences on surface – selective inking
- Clear designation of the section on gross description extremely helpful as surface epithelium very delicate and can be abraded
- Fallopian tube embedded entirely or at least as per SEE-FIM protocol
- Usually accompanied with omentum – If grossly positive (couple of sections good), if unremarkable generous sampling, primary peritoneal also is possibility
- Usually accompanied with peritoneal biopsies, lymph node dissection

Salpingo-oophorectomy specimen for mass

- Partial or complete vulvectomy
- Superficial (skinning) or deep vulvectomy
- Indications – VIN2-3, invasive squamous cell carcinoma, Paget’s disease, melanoma

Vulva

- Partial or complete vulvectomy
- Superficial (skinning) or deep vulvectomy
- Indications – VIN2-3, invasive squamous cell carcinoma, Paget’s disease, melanoma

Ovarian ca staging

- Salpingo-oophorectomy for an Ovarian Mass
- Vulva
- Partial or complete vulvectomy
- Superficial (skinning) or deep vulvectomy
- Indications – VIN2-3, invasive squamous cell carcinoma, Paget’s disease, melanoma

Wide local excision and partial vulvectomy
Vulvectomy

- Handling of specimen:
- Usually pin it like skin
- Fix in formalin overnight

Vulvectomy specimen

- Measure, orient, pay attention to structures like vagina, urethra, closest margin etc
- Area of abnormality – discolored pale or erythematous areas, mass, measure it and its distance from different margins including vaginal and urethral margin
- If in doubt, ask for help and clarification
- Picture of specimen with mapping of sections taken very helpful
- Surgeon’s diagram also very helpful

Standard sections

- If specimen of reasonable size and for VIN3, Paget’s etc, ca usually in toto
- If specimen big – thoughtful sampling (at least 1 section/cm of the tumor paying attention to accurate measurement of size, maximum depth of invasion, close margins (perpendicular sections)
- If specimen has a sentinel lymph node, section them at 5 mm interval
- If specimen has a node dissection – note no. of suspicious LNs, size, extranodal extension etc
Vulvar ca staging

Pelvic exenteration

- Identify organs present
- Identify margins present especially ureters
- Inflate bladder
- Insert gauze in vagina and rectum
- Fix in formalin overnight

Take home points

- Check identification of case, cassettes
- Check OR note, clinic note and previous pathology
- If in doubt or case is complex, take photographs (map sections) and clarify with clinical colleagues if required
- Pay attention to key points that upstage the patient
  - Uterus – avoid cornu
  - Cervic cone biopsy preferably one section per cassette
  - If lymph node bisected, only one/cassette
  - If sentinel lymph node – section at 5 mm interval
  - Ovary - If nodule or papillary excrescences on surface – selective inking
  - Clear designation of the section on gross description extremely helpful as surface epithelium very delicate and can be abraded

Thank you for your attention!