

ANAL NEOPLASMS

- I. Introduction
 - A. 1.5% of GI neoplasms in US
 - B. 3900 cases in 2002
 - C. varied histology of anal canal results in a wide variety of malignant and premalignant disease
 - D. goal is for cure with sphincter preservation

- II. Anatomy and Histology
 - A. WHO has defined the anal canal as extending from the upper to the lower border of the internal anal sphincter
 - B. anal canal histology
 - 1. colorectal zone (>1 cm above the dentate line) - columnar mucosa identical to distal rectum
 - 2. anal transition zone (approximately 1 cm above the dentate line) - includes squamous, columnar mucosa in addition to "ATZ epithelium"- 4-9 cell layers including basal, columnar, and cuboidal cells; melanocytes and endocrine cells found
 - 3. squamous zone (from dentate line to the anal verge) – unkeratinized squamous mucosa without skin appendages; occasional melanocytes
 - C. anal verge – modified squamous epithelium meets hair-bearing skin
 - D. perianal skin has apocrine, sebaceous, and sweat glands and is keratinized
 - E. anal margin is zone extending 5-6 cm from the anal verge
 - F. lymphatic drainage from the colorectal zone and anal transition zone is via the superior rectal lymphatics to the inferior mesenteric nodes and to a lesser degree by the inferior and middle rectal lymphatics to the internal iliac nodes
 - G. lymphatic drainage from the dentate line to the anal verge is primarily to inguinal lymph nodes and secondarily by the inferior rectal lymphatics to the ischioanal nodes and internal iliac nodes
 - H. perineal skin drains completely to the inguinal nodes

- III. Anal Margin Neoplasms
 - A. Bowen's disease
 - 1. intradermal squamous cell carcinoma (SCC)
 - 2. extreme spectrum of epithelial dysplastic changes under the name anal intraepithelial neoplasia (AIN)
 - 3. BD involves perineal skin
 - 4. HPV: HPV 16 found in 60-80% of patients
 - 5. 2-5% progress to invasive SCC
 - 6. no significant association between BD and other internal cancers
 - 7. scaly, erythematous rash or asymptomatic
 - 8. diagnosis by biopsy
 - 9. atypical epithelium involving full thickness of epidermis with normal appearing dermis
 - 10. wide local excision (> 1 cm margin) with frozen section of all margins

- a. 23% recurrence after 8.5 years vs 60% with margin of 0.5 cm
- b. multiple recurrences lower in wide local excision
- c. can also treat with cryosurgery, topical 5-FU, argon laser, CO2 laser ablation, photodynamic therapy

B. Squamous Cell Cancer (SCC)

- 1. < 15% of anal cancers
- 2. resembles SCC found in other locations on the body
- 3. WLE for small superficial lesions with 1 cm margin
- 4. larger, deeper lesions with node positive disease treated with radiation with or without chemotherapy (if cannot do WLE)
- 5. salvage procedures include APR
- 6. 5-year survival for locally advanced disease is 70-89% and for node positive disease is 69-87%
- 7. sphincter preservation in 67-84% of patients

C. Paget's disease

- 1. extramammary Paget's is rare; axilla or anorectal
- 2. intraepithelial adenocarcinoma
- 3. primary or secondary
- 4. synchronous visceral carcinomas seen 50% of time
- 5. slowly enlarging eczematous, erythematous scaly rash with sharp border
- 6. biopsy for diagnosis
- 7. cytokeratin 7 immunohistochemical stain
- 8. WLE with frozen section margins if not invasive
- 9. mixed results in small studies for chemotherapy and radiation
- 10. 61% local recurrence but may be 20% with WLE
- 11. if invasive, may require APR

D. Basal Cell Carcinoma

- 1. < 1 % of anorectal cancer
- 2. 1-2 cm
- 3. often misdiagnosed as hemorrhoids or fissures
- 4. must distinguish from basaloid variant of SCC which needs more aggressive treatment
- 5. 0-29% recurrence with negative margins

E. Verrucous Carcinoma

- 1. giant condyloma acuminatum, Buschke-Lowenstein tumor
- 2. locally invasive warty growth; 1.5-30 cm
- 3. resemble condyloma accuminata
- 4. may contain invasive SCC
- 5. HPV 6 and 11 associated
- 6. do not metastasize
- 7. WLE; if advanced may require APR
- 8. anecdotal success of radiation

IV. Anal Canal Neoplasms

A. Squamous Cell Cancer of the anal canal

- 1. 75-80% of malignant anal cancers

2. end stage of AIN
3. HPV-16; other risk factors include STDs, anoreceptive intercourse, multiple sexual partners, immunosuppression, history of cervical, vaginal or vulva cancer, HIV; secondary to high prevalence of HPV in patients with the above risk factors
4. can present with minor perineal bleeding, pain or mass, discharge, change in bowel habits
5. work up should include rectal exam, rigid proctoscopy, biopsy, inguinal lymph node exam, CT to rule out metastases, colonoscopy, and possible endoscopic ultrasound to assess depth of-tumor invasion
6. until the mid 1970's, treatment with APR, with or without chemotherapy - local recurrence of up to 40% with 5-year survival of 40-70%
7. Nigro at Wayne State University (1974) - Combined Modality Therapy (CMT)
 - a. radiation (XRT) with 5-FU and mitomycin C (MMC)
 - b. originally planned to use as neoadjuvant before surgery
 - c. high radiation doses (30-60Gy) led to 80-97% 5-year local control and 58-90% 5 year survival; initial complete response seen in 74-93%; 73% 5-year colostomy-free survival in one study
 - d. CMT treatment of choice despite no prospective randomized trials comparing to surgery
 - e. cisplatin and 5-FU with XRT showed 68-94% response rate and 86% colostomy free 5 year survival and only 6% local recurrence (versus 24% for MMC with 5-FU)
 - f. split dose radiation of 60Gy as opposed to 40-50Gy not given as split dose - similar 5 year survival with higher rate of-permanent colostomy in split dose patients (now many give 50 Gy in split dose with 6 Gy brachytherapy in between)
 - g. may not need chemotherapy (just radiation) for T1 lesions; 88-100% 5-year disease free survival
8. APR for salvage residual disease or local recurrence
 - a. 44-100% 5-year survival
 - b. better survival following APR done for residual disease than for local recurrence
 - c. some believe salvage chemotherapy and radiation following primary CMT can help up to 50% of patients with residual disease
9. Local excision for small lesions has high recurrence rate and poor survival (23% recurrence and 60% 5-year survival)
10. 9-month survival for metastatic disease; primary site of- metastases is to liver, lung, and bone

B. Anorectal Melanoma

1. <1 % of colorectal cancer
2. 2% of all melanomas (3rd most common site behind cutaneous and ocular)
3. HIV potential risk factor
4. 30-70% are amelanotic
5. 5-year survival 17-22%; metastases seen in 16-57% at diagnosis

6. common sites for metastases include inguinal lymph nodes, liver, lung, and bone
7. if incidentally found at hemorrhoidectomy has poor prognosis
8. WLE vs APR no significant difference in survival in most studies; Memorial found early stage melanomas may benefit from APR (disease free survival 27 vs 13%); chemo/radiation unsuccessful
9. thickness of lesion more than surgical technique impacts survival (<2 mm vs >2 mm thickness)

C. Anal Adenocarcinoma

1. 3-19% of anal canal tumors
2. rectal type, anal gland and duct type, and those found in chronic anorectal fistulas
 - a. rectal type are treated like distal rectal cancers
 - b. anal glands, which are lined by mucin secreting columnar epithelium and open into the anal canal via ducts at the level of the dentate line
 - c. in chronic fistulas
3. 5-year survival varies by study 4.8%-93%
4. APR treatment of choice for locally advanced disease; more data needed on WLE
5. role of CMT still to be elucidated

D. Small Cell CA and undifferentiated cancer

1. rare; small cell acts in anus similar to lung
2. often metastasized at time of-diagnosis
3. both treated as adenocarcinoma
4. poor prognosis

References

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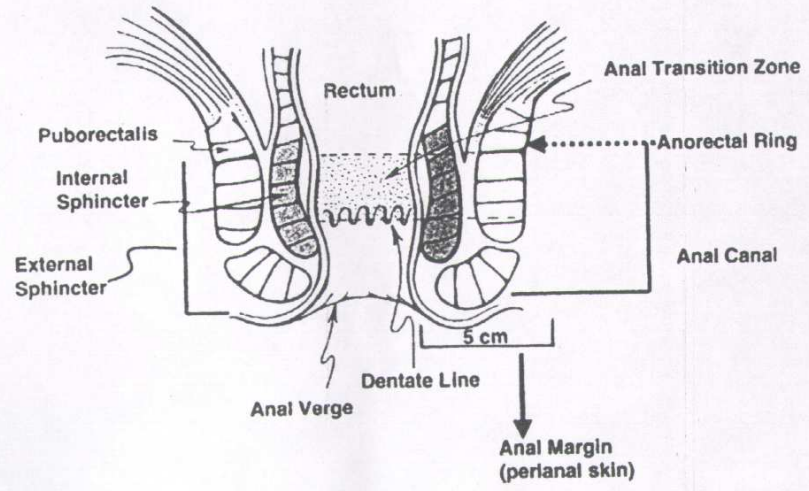


Figure 1
Anatomy of the anorectal region.