



AJCC TNM STAGING: CHAPTER I AND BLANK'S VS X'S

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WHAT ARE WE DISCUSSING?

- What is AJCC Staging
- Purpose of staging
- General rules for clinical and pathological TNM staging
- Anatomic stage/prognostic grouping rules
- Using Blanks and X's when information is unknown

AJCC STAGING

- AJCC stands for American Joint Committee on Cancer
- Established in 1959 to formulate and publish systems of classification of cancer
- Comprised of nineteen member organizations

AJCC STAGING

- Classifies the extent of disease at diagnosis based on extent of the primary tumor, involvement of regional LNs, and presence or absence of distant mets
- Currently on 8th edition (for cases diagnosed January 1, 2018 forward)
- Required by ACoS approved facilities; optional for others
- For specified histologies

PURPOSE OF STAGING

- Stage of disease
 - Helps establish prognosis
 - Is used to determine appropriate treatment, based on the experience and outcomes of previous patients
- Stage of disease
 - Is used in evaluating the results of treatments and clinical trials
 - Provides a common framework for comparison of patients across treatment centers
 - Serves as a basis for clinical and translational research

GENERAL RULES

- All cases **should** have microscopic confirmation, even for clinical classification. In situ cases **MUST** have microscopic confirmation
- Cases without microscopic confirmation can be staged, but survival should be analyzed separately

GENERAL RULES + SITE SPECIFIC RULES

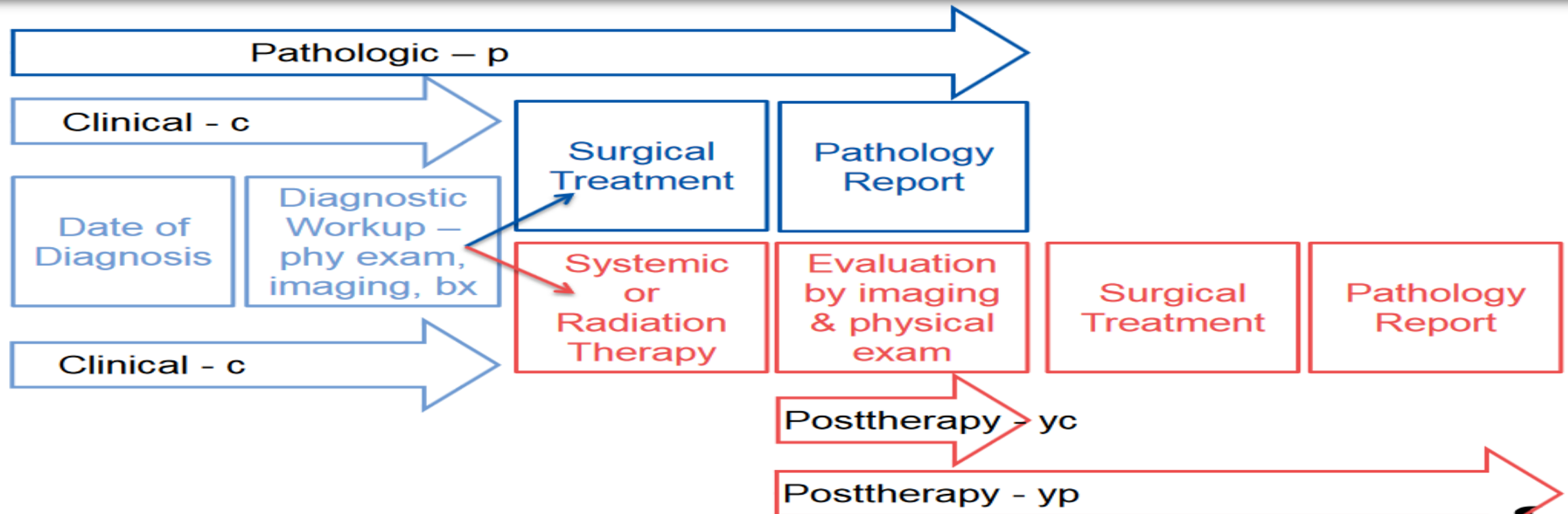
- Assigning T, N, and M categories generally follows general rules. If there are exceptions to the general rules they are outlined in the disease site specific chapter.
- The role of the T tumor size and/or contiguous spread are specifically defined for each chapter.
- Use of TX category should be minimized as much as possible.
- Any T defined
 - Includes all T categories except Tis
 - Includes TX and T0

T N M CLASSIFICATION

- T describes the primary tumor, and is defined by size or contiguous extension
 - T0, Tis, T1 – T4, TX
- N denotes the presence or absence of cancer in regional draining lymph nodes
 - N0, N1 – N3, NX
- M denotes the presence or absence of distant spread or metastases
 - M0, M1

TIMING RULES

Stage Classifications



DISEASE PROGRESSION AND STAGING

- Both clinical and pathological staging say to use only the information before progression to assign the stage
- If there is evidence of progression before the start of any treatment, do not use that information for staging

STAGING AND NEOADJUVANT THERAPY

- Neoadjuvant therapy is systemic therapy or radiation therapy given before surgical resection.
- Staging assigned after neoadjuvant therapy is indicated by a 'y' descriptor
 - yc - clinical stage after systemic or radiation therapy but prior to surgical resection; **this is not currently captured by cancer registries**
 - yp – pathologic stage after systemic or radiation therapy AND surgical resection; **this is currently reported in the pathologic stage elements**, with the 'y' descriptor

REQUIRED NON-ANATOMIC PROGNOSTIC FACTORS

- Some AJCC chapters require non-anatomic factors for assigning stage
 - Clearly defined in each chapter – Also check the SSDIs required to stage list in the [SSDI manual](#)
 - These are collected separately from T, N, and M and are used to assign stage groups
 - There are more of these prognostic factors for staging in the 8th Edition

REQUIRED PROGNOSTIC FACTORS

- Cancer registry data collection
 - Registry must record X or unknown if factor not available
 - Registry must NOT use lowest category
 - Registry may NOT assign stage group if factor needed

IS IT STAGEABLE?

ICD-O-3 Topography Codes

Code	Description
C18.0	Cecum
C18.2	Ascending colon
C18.3	Hepatic flexure of colon
C18.4	Transverse colon
C18.5	Splenic flexure of colon
C18.6	Descending colon
C18.7	Sigmoid colon
C18.8	Overlapping lesion of colon
C18.9	Colon, NOS
C19.9	Rectosigmoid junction
C20.9	Rectum, NOS



Code	Description
8010	Carcinoma, NOS
8013	Large cell neuroendocrine carcinoma (NEC)
8020	Undifferentiated carcinoma
8041	Small cell neuroendocrine carcinoma (NEC)
8070	Squamous cell carcinoma
8140	Adenocarcinoma <i>in situ</i>
8140	Adenocarcinoma
8213	Serrated adenocarcinoma
8246	Neuroendocrine carcinoma (NEC)
8265	Micropapillary carcinoma
8480	Mucinous adenocarcinoma
8490	Signet ring cell carcinoma
8510	Medullary carcinoma
8560	Adenosquamous carcinoma
8000*	Neoplasm, malignant
8010*	Carcinoma <i>in situ</i> , NOS
8481*	Mucin-producing adenocarcinoma

STAGING FOR COLON

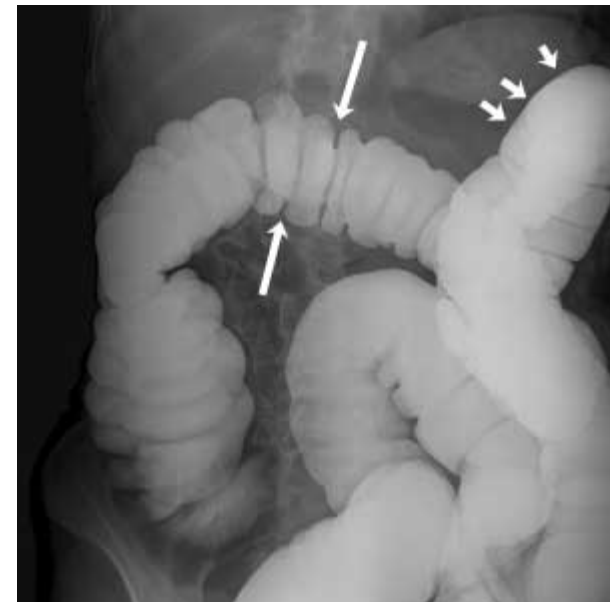
- For clinical staging to apply, there must be a suspicion of cancer.
- For pathologic staging to apply you must meet one of the following criteria:
 - Surgical resection per AJCC Colon chapter including polypectomy, segmental resection (ex: sigmoidectomy), partial colectomy, hemicolectomy, total colectomy)
 - Biopsy of highest T category PLUS biopsy of highest N category. (T4/N2 proven).
 - Positive histologic confirmation of a metastatic site. (M1 proven).
- For post therapy staging to apply you must have systemic and/or radiation therapy followed by surgery

CLINICAL STAGE

- Clinical classification composed of;
- cT
- cN
- cM or pM

CLINICAL STAGING

- Incorporates info from physical exam, endoscopy, imaging, biopsies, and surgical exploration *without* resection
- Clinical staging is required by ACoS
- Expressed as cT, cN, cM



CLINICAL T, N, AND M

- How can we determine a clinical TNM stage?
 - Use all information from any of the following obtained BEFORE treatment:
 - Physical examination
 - Imaging
 - Endoscopy and Biopsy
 - Surgical exploration without resection
 - Resection of a single node/sentinel node(s) with a clinical T
 - Lab test or biological markers
 - Any other relevant examinations
 - Any other relevant information before neoadjuvant treatment or surgical resection

CLINICAL M

- cM0
 - No symptoms or signs of mets
 - There is no MX category, so it must be M0 or M1 or left blank
 - Only H&P needed to assign cM0
- cM1
 - Seen on physical exam or imaging
 - Seen during scopes or operations, but not bx
- pM1
 - Diagnosed by bx

PATHOLOGICAL T, N, AND M

- How can we determine a pathological TNM stage?
 - **Use all of the clinical staging information in addition to information obtained in:**
 - Operative findings (surgeon's statement of findings)
 - Pathology report (Only 1/3 of the information)

PATHOLOGICAL CLARIFICATIONS

- Pathological classification composed of;
 - pT
 - pN
 - cM or pM
- pT – in general, resection of primary tumor is required
 - Based on tumor size of extent of contiguous spread
 - Record size to the nearest whole millimeter
 - Ex: 4.5cm = 45, 3.43cm = 34, 6.8mm = 7
- Biopsy which allows evaluation of highest T category is adequate to stage, pT can be assigned without resection

PATHOLOGICAL CLARIFICATIONS

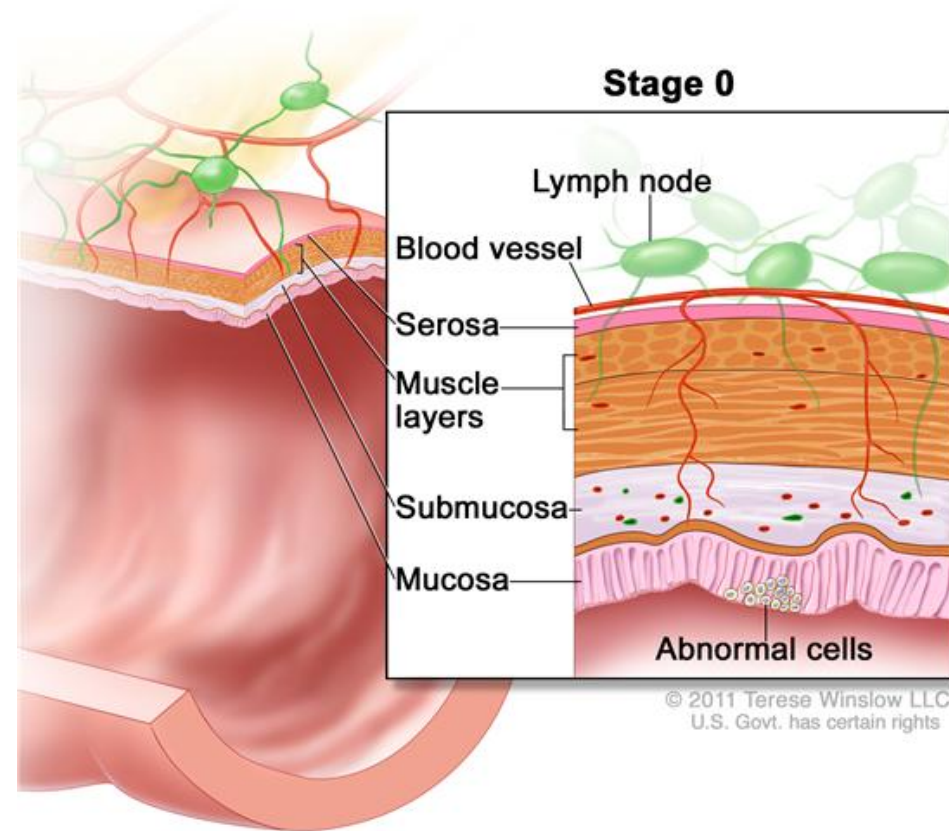
- pN Regional node assessment for path classification
- Number of nodes resected
 - Requires pathologic assessment of at least ONE node
 - Minimum number for sufficient sampling is explained in each chapter; however, if fewer than minimum number sampled, you can still assign pN
 - Usually need pT to code pN
 - Microscopic eval of highest N category can be used to assign pN, even if T is cT

PATHOLOGICAL CLARIFICATIONS CONTINUED

- pM can only be M1 (or Ia, Ib, Ic) or blank
- pM0 does NOT exist
- pM1 special considerations
 - Requires positive biopsy of metastatic site
 - May be used WITH cT and cN to assign pStage Group
 - Staged as both
 - Clinical stage IV – cT cN pM1
 - Pathologic stage IV – cT cN pM1

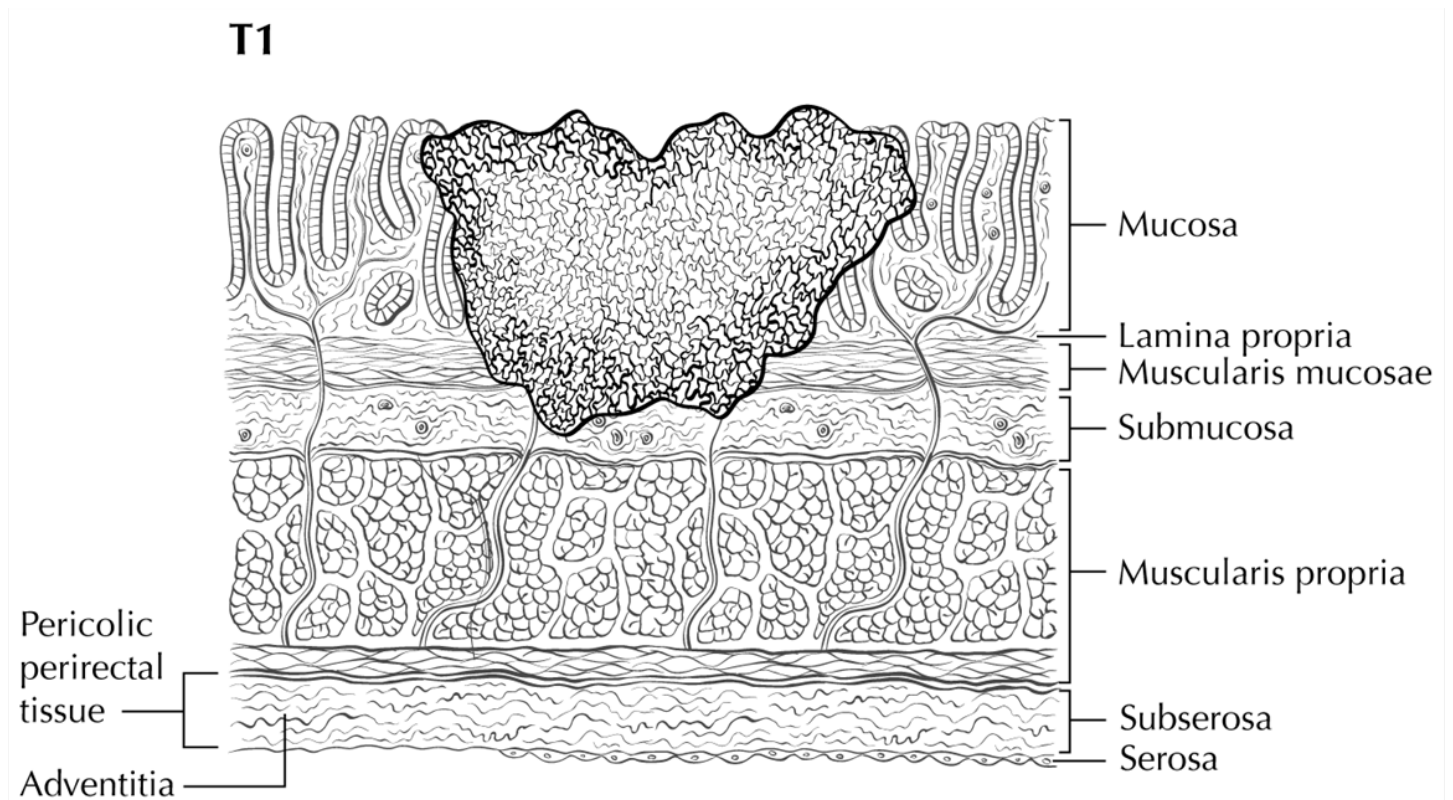
DEFINITIONS OF PRIMARY TUMOR

- TX - Primary tumor cannot be assessed
- T0 - No evidence of primary tumor
- Tis - carcinoma in situ; intraepithelial or invasion of lamina propria
- *Note: Tis includes cancer cells confined within the glandular basement membrane (intraepithelial) or mucosal lamina propria (intramucosal) with no extension through the muscularis mucosae into the submucosa.



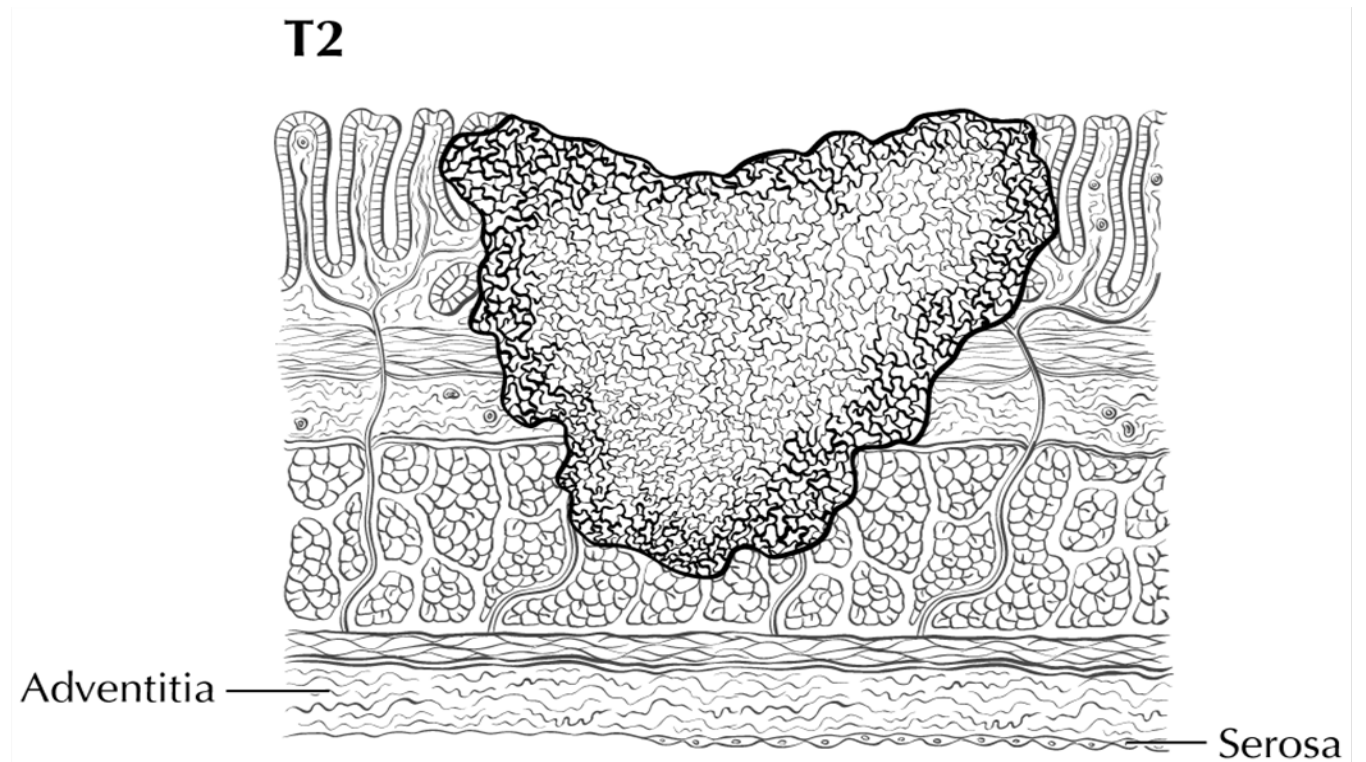
DEFINITIONS OF PRIMARY TUMOR

- T1 – tumor invades submucosa
- Through the muscularis mucosa but not into the muscularis propria



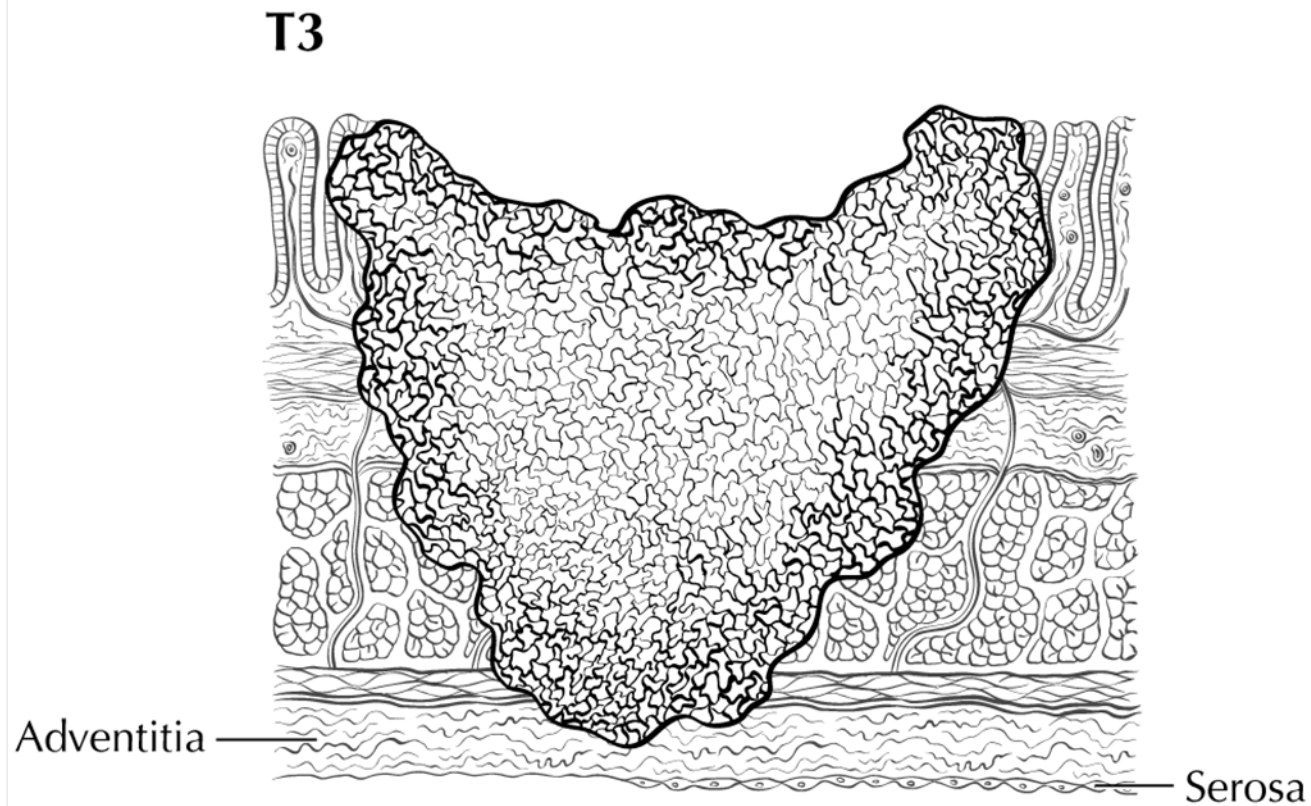
DEFINITIONS OF PRIMARY TUMOR

- T2 – tumor invades muscularis propria



DEFINITIONS OF PRIMARY TUMOR

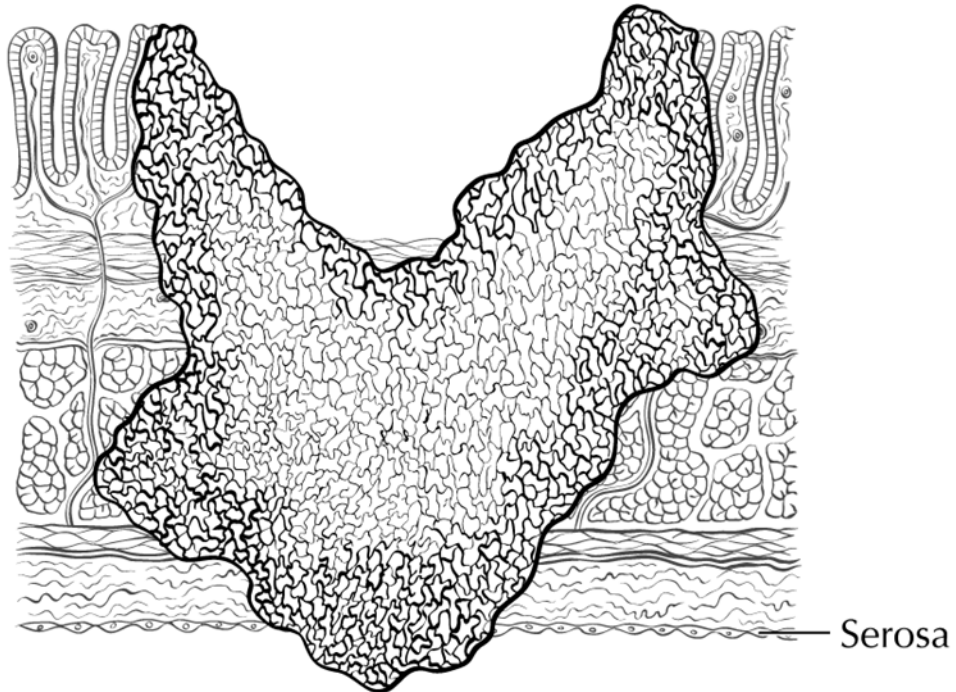
- T3 – tumor invades through the muscularis propria into pericolorectal tissues



DEFINITIONS OF PRIMARY TUMOR

- T4a – tumor invades through the visceral peritoneum

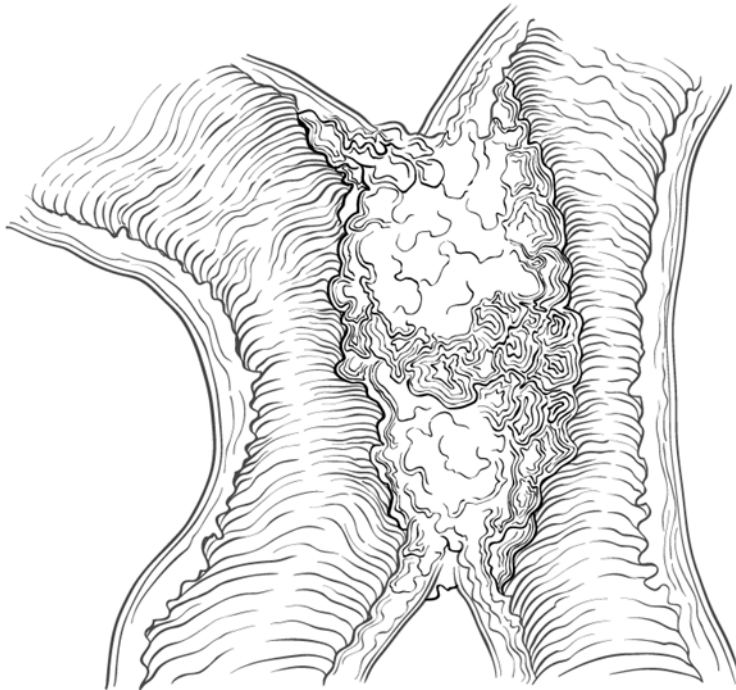
T4a



DEFINITIONS OF PRIMARY TUMOR

- T4b – tumor directly invades or is adherent to other organs or structures

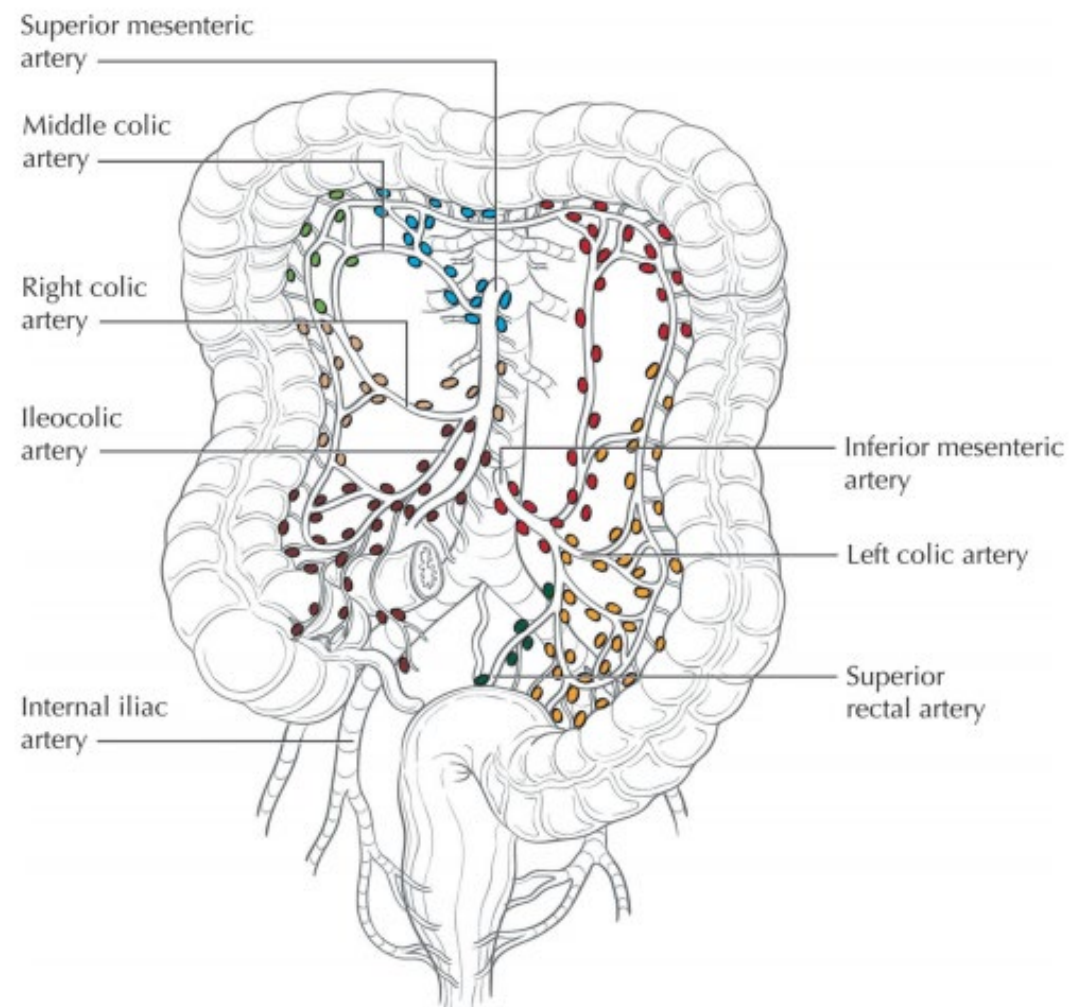
T4b



REGIONAL NODES

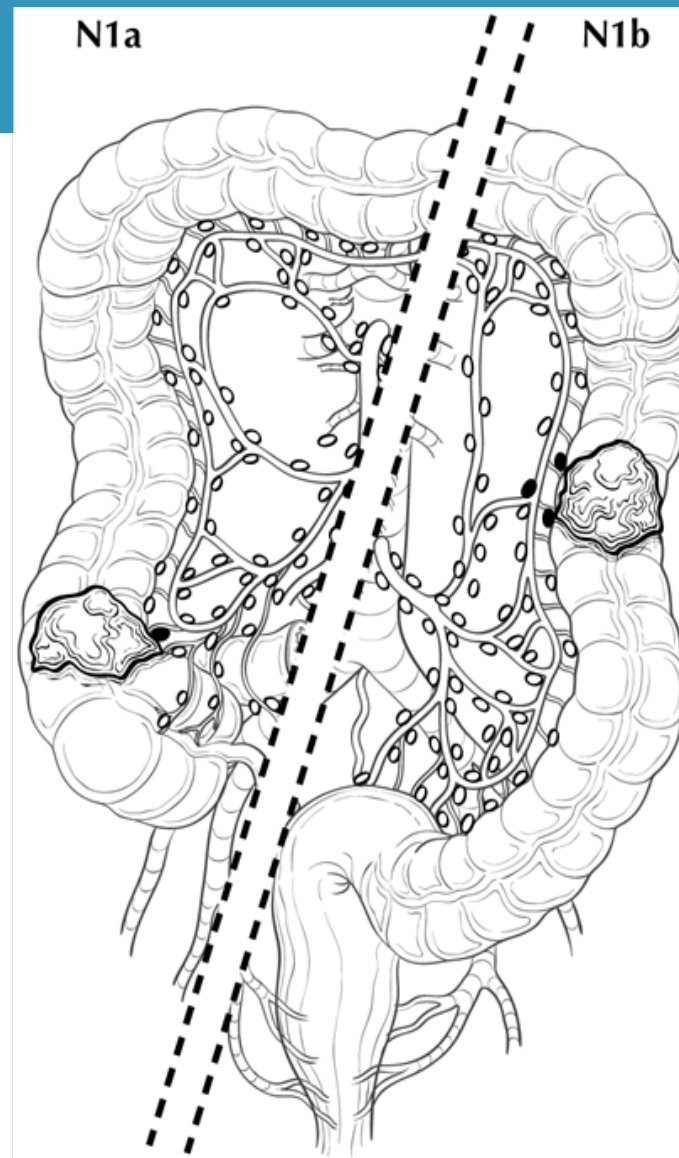
The 'N' category designates the presence or absence of tumor in the regional LNs; increasing numerical involvement based on size, fixation, or invasion of the capsule that surrounds the LN, OR on number/location of involved LNs

Segment	Regional lymph nodes
Cecum	Pericolic, ileocolic, right colic
Ascending colon	Pericolic, ileocolic, right colic, right branch of the middle colic
Hepatic flexure	Pericolic, ileocolic, right colic, middle colic
Transverse colon	Pericolic, middle colic
Splenic flexure	Pericolic, middle colic, left colic
Descending colon	Pericolic, left colic, sigmoid, inferior mesenteric
Sigmoid colon	Pericolic, sigmoid, superior rectal (hemorrhoidal), inferior mesenteric
Rectosigmoid	Pericolic, sigmoid, superior rectal (hemorrhoidal), inferior mesenteric
Rectum	Mesorectal, superior rectal (hemorrhoidal), inferior mesenteric, internal iliac, inferior rectal (hemorrhoidal)



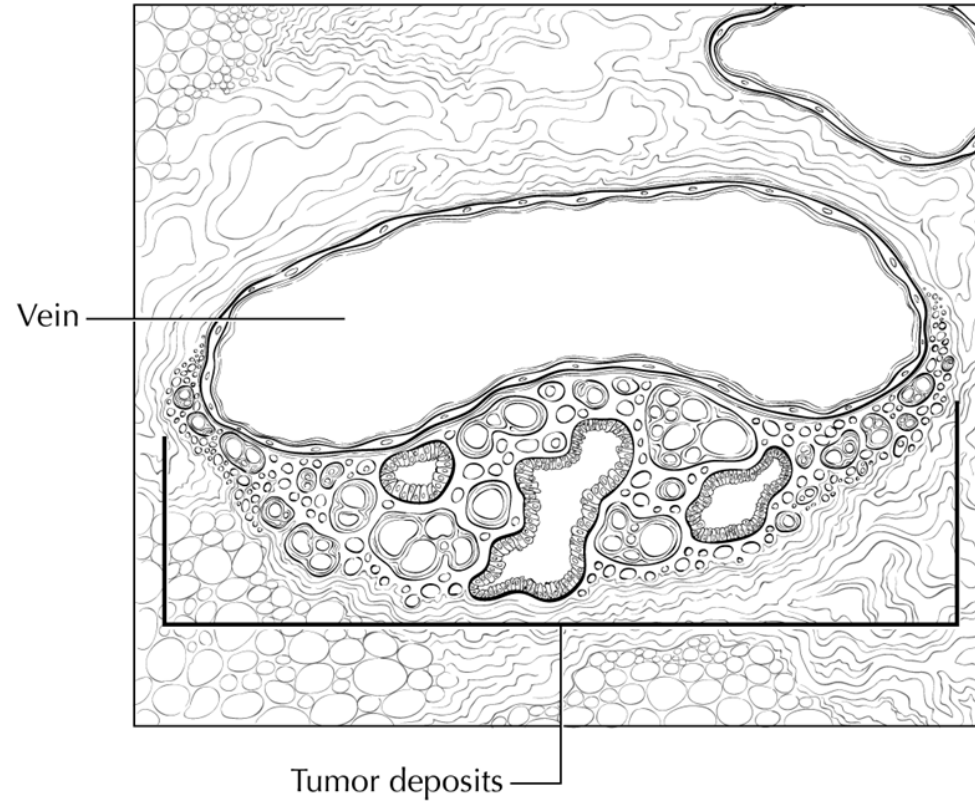
DEFINITIONS OF REGIONAL NODES

- NX – regional LNs cannot be assessed
- N0 – no regional LN metastasis
- N1 – mets in 1-3 regional LNs
- N1a – mets in one regional LN
- N1b – mets in 2-3 regional LNs



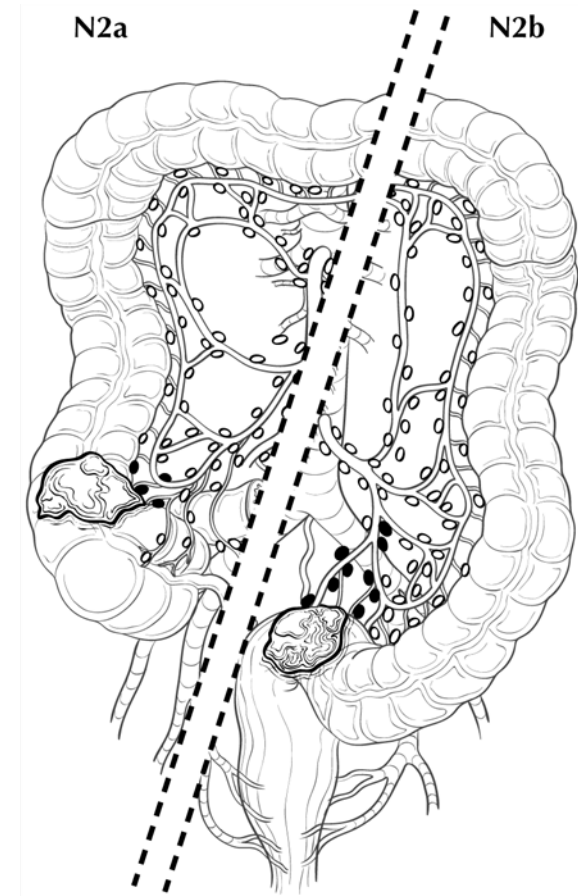
DEFINITIONS OF TNM

- N1c – tumor deposits in the subserosa, mesentery, or nonperitonealized pericolic tissues *without* regional nodal metastasis



DEFINITIONS OF TNM

- N2 – mets in four or more regional LNs
- N2a – mets in 4-6 regional LNs
- N2b – mets in seven or more regional LNs



DEFINITIONS OF TNM

- M component identifies the presence or absence of distant mets
- M0 – no distant metastasis
- M1 – distant metastasis NOS
- M1a – mets confined to one organ or site
- M1b – mets to more than one organ/site or the peritoneum
- M1c – mets to the peritoneal surface is identified alone or with other site or organ mets (NEW for AJCC 8th Edition)

STAGE GROUPINGS

- Allows grouping of patients with similar prognosis into fewer categories
- Useful for data analysis and treatment guideline development
- Stage groups summarize the stage information in a manner that is easily communicated and reproducible

- Clinical Stage Group

- cT
- cN
- cM or pM

- Pathologic Stage Group

- pT
- pN
- cM or pM

- Post Tx Stage Group

- PostTxT
- PostTxN
- PostTXcM or pM

RULES FOR STAGE GROUPINGS WITH AJCC 8TH EDITION

- Subcategory info not available to registrar
 - Assign main category (available in all AJCC tables)
 - Do **NOT** assign lower subcategory
- Stage group info not available to registrar
 - e.g., missing subcategory or prognostic factor category
 - Do **NOT** assign stage group
 - Document stage group as unknown

TNM STAGE GROUP

AJCC PROGNOSTIC STAGE GROUPS

When T is...	And N is...	And M is...	Then the stage group is...
Tis	N0	M0	0
T1, T2	N0	M0	I
T3	N0	M0	IIA
T4a	N0	M0	IIB
T4b	N0	M0	IIC
T1-T2	N1/N1c	M0	IIIA
T1	N2a	M0	IIIA
T3-T4a	N1/N1c	M0	IIIB
T2-T3	N2a	M0	IIIB
T1-T2	N2b	M0	IIIB
T4a	N2a	M0	IIIC
T3-T4a	N2b	M0	IIIC
T4b	N1-N2	M0	IIIC
Any T	Any N	M1a	IVA
Any T	Any N	M1b	IVB
Any T	Any N	M1c	IVC

WHEN TO USE BLANKS AND X'S

- “X” indicates something was done for T or N Category Code but result was not clear in the test report to assess the primary tumor size/extent or nodal status. “X” does not equal “Unknown”
- <blank> indicates no test was performed, patient not eligible to stage, no info available in medical record on staging to determine T or N Category Code
- M Category always has to be coded when the patient meets eligibility criteria for staging. There can never be a mX or a blank M category when T and N are coded.
- cM0 can be used for clinical no evidence of mets AND for pathological when mets not proven histologically
- pM1 is histologically proven mets (bx or resection) and can be used for clinical and pathological

BLANKS AND X CONTINUED

Blank

Blank = info not available OR doesn't meet staging criteria

- Valid only for TNM categories
- Use when you know staging was done, but info is not in chart
- don't default to X

X

X = cannot be assessed

- Valid only with T and N categories
- Not a default
- Not equivalent to unknown

Clinical

- cTX – patient not examined, no imaging or workup
- cT blank – no access to information when abstracting case
- cT blank – incidental finding at surgery

Pathologic

- pTX – resection performed, but the specimen was lost or destroyed
- pT blank – no surgical resection
- pT blank – no access to information when abstracting case

Have the rules for classification for T been met?



Data Item	Value
Clinical T	cT2
Clinical N	cN0
Clinical M	cM0
Clinical Stage	2
Pathologic T	pT2
Pathologic N	<u>pNX</u>
Pathologic M	cM0
Pathologic Stage	99

Data Item	Value
Clinical T	
Clinical N	
Clinical M	
Clinical Stage	99
Pathologic T	
Pathologic N	
Pathologic M	
Pathologic Stage	99

QUESTIONS?

???