

Grossing plays a crucial role and is a critical step in oncopathology. It significantly influences diagnostic accuracy, treatment planning, prognosis, and overall patient outcomes.

Fixation:

Adequate fixation must be ensured before grossing any specimen. Under-fixed samples can result in various artefacts and degenerative changes that may mislead diagnosis. Hence, using the proper concentration of formalin and immediate transfer of fresh specimens into formalin containers are crucial steps before specimens are sent for processing.

Tumor Characteristics:

Detailed documentation of the gross appearance of tumors provides important diagnostic clues.

a) Color:

- Black pigmentation is seen in melanomas and nevi.
- Golden-yellow pigmentation is characteristic of pheochromocytomas.

b) Consistency:

- Lipomas are soft and greasy.
- A mucoid appearance is seen in mucinous adenocarcinomas.
- Gelatinous or myxoid consistency is noted in myxoid liposarcomas, myxofibrosarcomas, and fibromyxoid sarcomas. A spongy appearance is seen in vascular lesions.
- Gritty consistency is observed in tumors with extensive calcification, such as papillary carcinoma of the thyroid.
- A fleshy texture is characteristic of sarcomas, lymphomas, seminomas, and similar tumors.

Staging:

- **Size and dimensions:** The greatest dimension of the tumor directly influences staging in breast, oral cavity, renal, and thyroid cancers.
- **Capsular status:** In ovarian tumors, assessment of capsular integrity and surface deposits is essential. Capsular breach results in upstaging; therefore, sampling from such areas is mandatory.
- **Extent of invasion:** Tumor invasion into the submucosa, muscularis propria, and serosa in hollow organs determines staging. Sampling of the entire thickness is necessary. Gross perforation must be documented and sampled, as it leads to upstaging.
- **Depth of invasion:** Staging of endometrial, cervical and oral cancers depends on the depth of invasion. Representative sections should be taken from the area of maximum tumor thickness to accurately assess the depth of myometrial invasion.
- **Involvement of adjacent structures:** Involvement of adjacent structures indicates local tumor extension and results in upstaging, reflecting advanced disease and poorer prognosis.
- **Lymph nodes:** Adequate lymph node dissection ensures accurate staging and provides vital prognostic information, directly influencing adjuvant therapy and overall treatment planning.

Margin Evaluation:

Proper orientation of specimens using sutures or markers facilitates accurate margin assessment. Specimens without clear orientation should be discussed with the operating surgeon before grossing. Margins should be inked, and distances from the tumor to the margins should be carefully measured.

Proper margin evaluation determines:

- a) Whether the tumor has been completely excised.
- b) The need for re-excision, radiotherapy, and planning of adjuvant treatment.