

# Pathological staging (Core)

## Reason/Evidentiary Support

By American Joint Committee on Cancer (AJCC)/Union for International Cancer Control (UICC) convention, the designation “T” refers to a primary tumour that has not been previously treated. The symbol “p” refers to the pathologic classification of the TNM, as opposed to the clinical classification, and is based on gross and microscopic examination. pT entails a resection of the primary tumour or biopsy adequate to evaluate the highest pT category, pN entails removal of nodes adequate to validate lymph node metastasis, and pM implies microscopic examination of distant lesions. Clinical classification (cTNM) is usually carried out by the referring physician before treatment during initial evaluation of the patient or when pathologic classification is not possible.

Pathologic staging is usually performed after surgical resection of the primary tumour. Pathologic staging depends on pathologic documentation of the anatomic extent of disease, whether or not the primary tumour has been completely removed. If a biopsied tumour is not resected for any reason (e.g. when technically unfeasible) and if the highest T and N categories or the M1 category of the tumour can be confirmed microscopically, the criteria for pathologic classification and staging have been satisfied without total removal of the primary cancer.

## TNM Descriptors

For identification of special cases of TNM or pTNM classifications, the “m” suffix and “y” and “r” prefixes are used. Although they do not affect the stage grouping, they indicate cases needing separate analysis.

The “m” suffix indicates the presence of multiple primary tumours in a single site and is recorded in parentheses: pT(m)NM.

The “y” prefix indicates those cases in which classification is performed during or following initial multimodality therapy (i.e. neoadjuvant chemotherapy, radiation therapy, or both chemotherapy and radiation therapy). The cTNM or pTNM category is identified by a “y” prefix. The ycTNM or ypTNM categorizes the extent of tumour actually present at the time of that examination. The “y” categorization is not an estimate of tumour prior to multimodality therapy (i.e. before initiation of neoadjuvant therapy).

The “r” prefix indicates a recurrent tumour when staged after a documented disease-free interval, and is identified by the “r” prefix: rTNM.

## Additional Descriptors

### Residual Tumour (R)

Tumour remaining in a patient after therapy with curative intent (e.g. surgical resection for cure) is categorized by a system known as R classification, shown below.

RX Presence of residual tumour cannot be assessed

R0 No residual tumour

R1 Microscopic residual tumour

R2 Macroscopic residual tumour

For the surgeon, the R classification may be useful to indicate the known or assumed status of the completeness of a surgical excision. For the pathologist, the R classification is relevant to the status of the margins of a surgical resection specimen. That is, tumour involving the resection margin on pathologic examination may suggest residual tumour in the patient and may be classified as macroscopic or microscopic according to the findings at the specimen margin(s).

The 8th edition of the AJCC/UICC staging of head and neck cancers includes a separate chapter for mucosal melanomas.<sup>1,2</sup> Approximately two-thirds of mucosal melanomas arise in the sinonasal tract, one-quarter are found in the oral cavity and the remainder occur only sporadically in other mucosal sites of the head and neck.<sup>3</sup> Even small tumours behave aggressively with high rates of recurrence and death.<sup>3</sup> To reflect this aggressive behaviour, primary cancers limited to the mucosa are considered T3 lesions.

Advanced mucosal melanomas are classified as T4a and T4b. The anatomic extent criteria to define moderately advanced (T4a) and very advanced (T4b) disease are given above. The AJCC staging for mucosal melanomas does not provide for the histologic definition of a T3 lesion; as the majority of mucosal melanomas are invasive at presentation, mucosal based melanomas (T3 lesions) include those lesions that involve either the epithelium and/or lamina propria of the involved site. Rare examples of in situ mucosal melanomas occur but in situ mucosal melanomas are excluded from staging, as they are extremely rare.<sup>3</sup>

## References

- 1 Amin MB, Edge S, Greene FL, Byrd DR, Brookland RK, Washington MK, Gershenwald JE, Compton CC, Hess KR, Sullivan DC, Jessup JM, Brierley JD, Gaspar LE, Schilsky RL, Balch CM, Winchester DP, Asare EA, Madera M, Gress DM, Meyer LR (eds) (2017). *AJCC Cancer Staging Manual 8th ed.* Springer, New York.
- 2 International Union against Cancer (UICC) (2016). *TNM Classification of Malignant Tumours (8<sup>th</sup> Edition)*. Brierley JD, Gospodarowicz MK, Wittekind C (eds). New York: Wiley-Blackwell.
- 3 Patel S and Shah JP (2010). *Lip and oral cavity*. In *AJCC Cancer Staging Manual 7th ed.* Edge SB, Byrd DR, Compton CC, Fritz AG, Greene FL, Trotti A (eds). Springer, New York