Tumour dimensions (Core and Non-core)

Assessment is based on macroscopic evaluation and microscopic confirmation/correction. The latter is important, because ductal adenocarcinoma of the pancreas often has a highly dispersed growth pattern,[1] and small clusters of cancer cells that are widely separated from the main tumour mass will be missed on macroscopic assessment. Conversely, the microscopic extent may sometimes be less than the apparent macroscopic maximum size because of peritumoural fibrosis.

As pT-staging is based on tumour size,[2] it is important that a tumour is measured in three dimensions such that the largest dimension can be correctly identified. Tumours of the body or tail of the pancreas often have their largest dimension along the length of the pancreas. In case of serial sagittal slicing of the pancreatic body and tail, this means that this tumour dimension must be assessed across specimen slices. Similar considerations apply to the measurement of tumours in the pancreatic head.

Measurement of the tumour dimensions may be difficult following neoadjuvant treatment, especially when two or more foci of residual tumour tissue are present.[3] Two approaches are being used:

- **Approach 1:** measurement of the largest linear dimension of the entire area involved by viable residual tumour cells including intervening non-cancerous tissue, e.g., stroma and/or pancreatic parenchyma or other tissue structures
- **Approach 2:** measurement of the maximum dimension of each tumour focus and calculation of the sum of these.

Both approaches have disadvantages that may lead to incorrect assessment of tumour size. Moreover, the accuracy of measurement is also dependent on the extent of tissue sampling. Given the lack of evidence on how to best measure tumour size, there is currently no international consensus. The approach that is used, based on local practice or dependent on the particular case, should be recorded.

In case of intraductal papillary mucinous neoplasm with associated invasive carcinoma, only the dimensions of the invasive carcinoma are to be recorded. This rule also applies to invasive carcinoma associated with intraductal oncocytic papillary neoplasm, intraductal tubulopapillary neoplasm, or mucinous cystic neoplasm.

References

1 Verbeke CS, Knapp J and Gladhaug IP (2011). Tumour growth is more dispersed in pancreatic head cancers than in rectal cancer: implications for resection margin assessment. *Histopathology* 59(6):1111-1121.

2 Brierley JD, Gospodarowicz MK and Wittekind C (eds) (2016). *UICC TNM Classification of Malignant Tumours, 8th Edition*, Wiley-Blackwell.

3 Verbeke C, Haberle L, Lenggenhager D and Esposito I (2018). Pathology assessment of pancreatic cancer following neoadjuvant treatment: Time to move on. *Pancreatology* 18(5):467-476.