

## Treatment effect (Core)

Treatment effect is defined as areas of scarring, hyalinisation, necrosis, mucoid or myxoid change; collection of foamy histiocytes in the lymph node (akin to tumour bed in the breast specimen), and/or the presence of cellular alterations in the residual carcinoma attributable to the neoadjuvant treatment. Reporting of treatment effect in lymph nodes is *strongly* encouraged, as it constitutes an index of the extent of lymph node involvement before neoadjuvant treatment, and of the tumour response to treatment.

Treatment effect is best reported separately for lymph nodes with residual metastatic carcinoma and for lymph nodes without residual metastatic carcinoma.

Some lymph nodes show residual viable carcinoma admixed with areas of fibrosis, indicating metastasis with evidence of some treatment response. The total number of lymph nodes with residual viable carcinoma should be reported.

Some lymph nodes show only post-treatment fibrosis and no residual viable carcinoma. The number of nodes with fibrosis but no residual viable carcinoma should be given as a reflection of pre-treatment nodal burden.

In some cases, it may be difficult to determine with certainty whether a (small) focus of fibrosis is secondary to the resolution of a metastatic deposit or not. For example, post biopsy tissue reaction cannot always be distinguished with certainty from post-treatment fibrosis.

In some cases, scattered residual carcinoma cells may resemble histiocytes and collections of histiocytes may also be present in areas of tumour regression. Immunohistochemical stains can be used to resolve uncertain cases, as carcinoma cells usually retain expression of broad-spectrum cytokeratins, whereas macrophages will express CD68.

In patients with biopsy-proven lymph node metastasis documented before neoadjuvant chemotherapy, for which a marker was placed during biopsy, histologic evidence of the marker site in the lymph node should also be documented in the final pathology report.