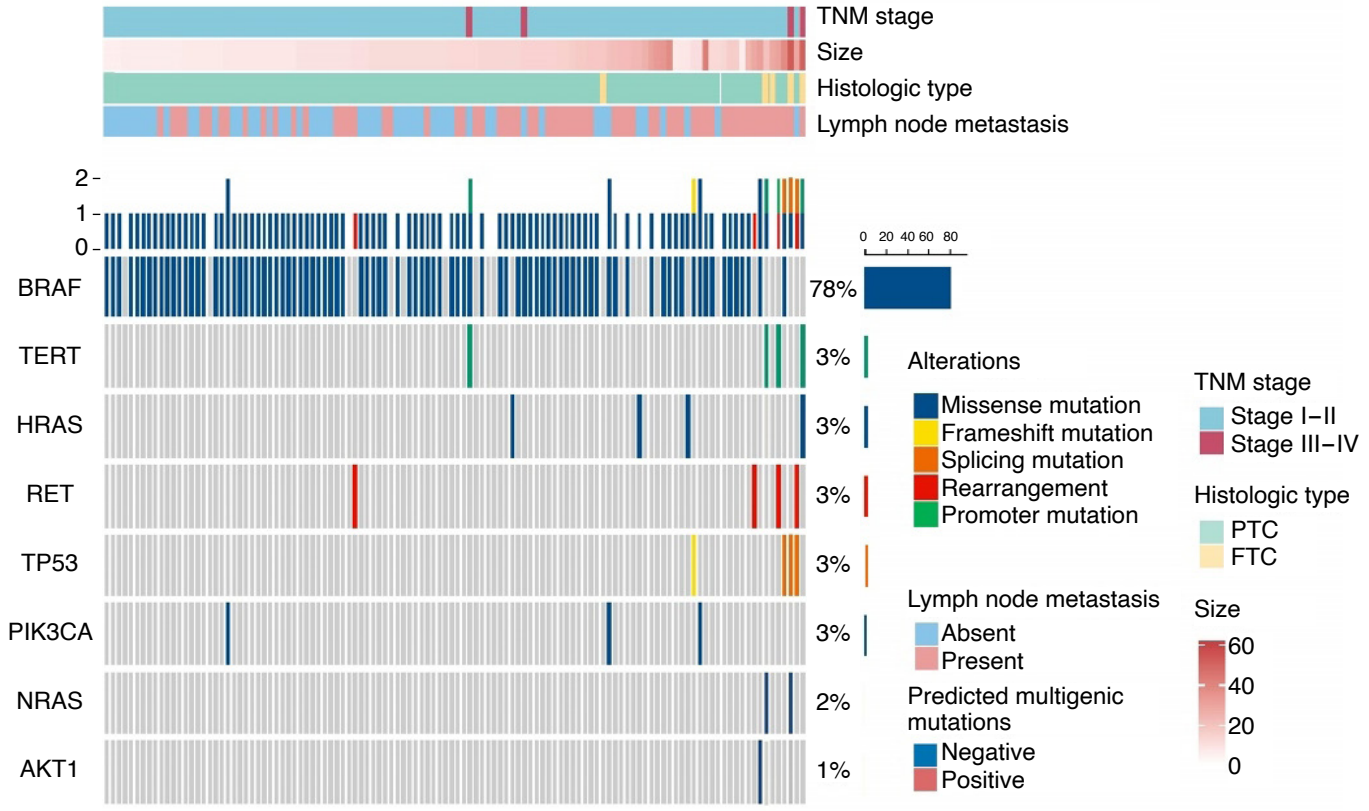
Supplementary Table 1. Grayscale ultrasound and contrast-enhanced ultrasonography features

Feature	Definition
Echogenicity	Hypoechogenic: Less echo-dense than surrounding tissue Iso-/hyperechogenic: Equal to or more echo-dense
Shape	Taller than wide: Height>width on transverse view Wider than tall: Width≥height
Margin	Smooth/ill-defined: Well-circumscribed or indistinct borders Lobulated/irregular: Bumpy or uneven edges
Microcalcification	Present: Tiny echogenic foci Absent: No such foci detected
Extrathyroidal extension	Present: Tumor invades beyond thyroid capsule Absent: Confined to thyroid
Contrast agent arrival time	Earlier: Enhances before surrounding normal thyroid parenchyma Synchronous/later: Matches or lags behind parenchyma
Enhancement direction	Scattered: Random contrast distribution Centripetal: From periphery inward Centrifugal: From center outward
Enhancement homogeneity	Homogeneous: Uniform contrast uptake Heterogeneous: Patchy/non-uniform uptake
Peak intensity	Isoenhancement: Matches parenchyma Hypo-/hyper-enhancement: Less/more intense than parenchyma
Rim enhancement	Present: Peripheral ring-like enhancement Absent: No distinct rim



Supplementary Fig. 1. OncoPrint of clinical-pathologic features and genetic variables for all participants. TNM, tumor node metastasis; PTC, papillary thyroid cancer; FTC, follicular thyroid cancer.