

MAP - mitogen-Activated Protein)

PAPILLARY THYROID CARCINOMA: -mc

⇒ PTC is a malignant epithelial tumour showing evidence of follicular cell differentiation.

PATHOMECHANISMS:

→ Regulate cell growth and division

→ Activation of MAP kinase Pathway

Result of unregulated MAPK Pathway

→ point mutation in BRAF

→ translocation of genes in RET or NTRK

→ oncogenic mutation of RAS

① Activating point mutation in BRAF (Gain of point mutation)
↳ ↑ Risk of extrathyroidal extension and Recurrence.

② Translocation that Result in gene fusion of RET or NTRK

↓
This Rearrangement causes the fusion of tyrosine kinase domain of RET or various other genes.

→ RET: PTC fusion oncogenes.

NTRK Also Activate proteins and activate the MAP kinase pathway.

RET: PTC Rearrangement and BRAF point mutations not found in follicular adenomas of carcinoma.

⑧ Oat cell carcinoma of PA

MORPHOLOGY:

GROSS

- solitary or multifocal lesions
- well circumscribed, encapsulated, ill defined
- Gray, white, firm to hard tumor
- cut surface → papillary foci.

MICRO

- complex branching papillae.
 - papillae are covered by single to multiple layers of uniform cuboidal to columnar epithelial cells.
- Nuclear features → disputed chromatin
 - ↳ produced optically clear or empty appearance.
 - ↳ ground glass nuclei or Orphan Annie eye nuclei.
- Intranuclear inclusions of intracellular groove
 - ↳ App of eosinophilic intranuclear inclusions or intracellular groove.
- Pammoma Bodies → concentric calcified structures usually within the papillary core.

→ Foci of lymphatic invasion & lymphatic spread

Histological Variants of Papillary Thyroid Carcinoma.

→ Encapsulated follicular variant → most common variant
↳ have nuclei of PTC but have follicular Architecture.

→ Infiltrative follicular PTC

→ Diffuse sclerosing variant: extensive diffuse fibrosis with a prominent lymphocytic infiltrate.

Three Aggressive forms:

→ Tall cell PTC → columnar PTC

→ Hobnail PTC

SPREAD

lymphatic spread → spread to Regional cervical lymph node

Clinical course

- Asymptomatic thyroid nodules.

Diagnostic tests These include Radioisotope

Scanning and fine needle Aspiration