

BREAST TUMOR MAP

ER POSITIVE (* at least mostly)

LEGEND

SMALL GLAND PROLIF
 PALPABLE MASS
 NODULAR / LOBULATED
 PAPILLARY
 CYSTIC / ENCAPSULATED
 INFILTRATIVE
 YOUNG WOMEN
 OLD WOMEN
 TRIPLE NEGATIVE

BENIGN

NIPPLE ADENOMA

MX Proliferative epithelial lesion w/ irregular ducts. UDH, cribriform and sclerosing patterns. May have ulceration of nipple skin.

IHC POS: MyoEps, ER, CK5/6 (patchy)

DDX Syringoma (based on location), Tubular adenoma

PSEUDOANGIOMATOUS STROMAL HYPER.

MX Inconspicuous spindle cell myofibroblasts, with artifactual cracking of stroma. Occasionally fascicular with collagen.

IHC POS: ER, PR, CD34, Desmin
NEG: Ker, S100, CD31, D2-40

DDX Myofibroblastoma (if fascicular), Vascular lesions

BENIGN PHYLLODES TUMOR

MX Fibroepithelial lesion with broad, leaf-like projections. No stromal overgrowth, atypia or excess mitoses (<5/10hpf)

IHC Epithelium: ER+ (50%), PR+, Ker+
Stroma: ER+ (50%), PR+

DDX Juvenile FA (? same thing) vs cellular FA
Borderline Phylloides tumor

TUBULAR ADENOMA

MX Circumscribed borders, closely packed bilayered tubules, no compression, scant stroma: +/- secretions. Usu. younger women

IHC MyoEp+: p63, p40.
Luminal+: EMA, CK19

DDX Regular fibroadenoma, Ductal adenoma, AME

PAPILLOMA

MX Rounded lesions with fibrovascular cores, frequent UDH, slit-like spaces. +/- Apocrine changes, squamous metaplasia

IHC MyoEp: Around and inside stalks. UDH: CK5/6+ patchy, ER+ patchy

DDX w/ ADH/DCIS, Encapsulated, Papillary carcinoma

MYOFIBROBLASTOMA

MX Bland spindle cells + collagen + entrapped fat **without** entrapped DLUs. Not widely infiltrative. **del13q (RB1) typical**

IHC POS: ER, PR, CD34, Desmin, CD99, CD10
NEG: Ker, S100, Alk, STAT6, EMA

DDX Hamartoma, SFT, Fibromatosis, Fascicular PASH

LOW-GRADE / INDOLENT

TUBULAR CARCINOMA

MX Usually small sized, infiltrative tubules with angulated/comma-shaped outlines. Often see FEA or columnar lesions elsewhere.

IHC ER+, PR+, HER2-

DDX Adenoid cystic ca, LG adenosquamous ca

PAPILLOMA w/ ADH or DCIS

MX Papilloma with partial monotonous growth, rigid rounded spaces, rounded nuclei

IHC MyoEp: Around but missing in areas involved. ADH/DCIS: CK5/6 -, ER+ uniformly

DDX w/ ADH: <3mm w/DCIS: >3 mm

PAPILLARY DCIS

MX Papilloma with uniform monotonous growth, rigid rounded spaces, rounded nuclei

IHC MyoEp: Around periphery only. CK5/6 -, ER+ uniformly

DDX Encapsulated Papillary Carcinoma

BORDERLINE PHYLLODES TUMOR

MX Phylloides tumor that meets some, but not all malignant criteria or has **only** well-diff liposarc. heterologous elements

IHC Epithelium: ER+ (50%), PR+, Ker+
Stroma: ER+ (50%), PR+

DDX Juvenile FA (? same thing) vs cellular FA
Malignant Phylloides tumor

HIGHER-GRADE OR AGGRESSIVE BEHAVIOR

MUCINOUS CARCINOMA

MX > 90% mucinous component, with clusters of epithelial tumour cells of low to intermediate nuclear grade. No signet ring morphology.

IHC ER+, PR+, HER2 -

DDX Mucocele-like lesion (MyoEp+): Invasive lobular with extracellular mucin

MICROINVASIVE DUCTAL CARCINOMA

MX Focus/foci measuring <1 mm in size. Often associated with lymphoid reaction in HG-DCIS. Staged pT1mi regardless of #.

IHC MyoEps: Lost in areas of microinvasion

DDX Cancerization of lobules or ducts

ENCAPSULATED PAPILLARY CARCINOMA

MX Papilloma with uniform monotonous growth, rigid rounded spaces, rounded nuclei. Like DCIS clinically, indolent- pTis (if no invasion)

IHC MyoEp: Irregular/periphery, ER+ uniformly
NEG: CK5/6

DDX w/ microinvasion, Solid papillary carcinoma

MALIGNANT PHYLLODES TUMOR

MX Phylloides tumor with: infiltrative sarcomatous overgrowth in 40x field, >10 mitoses / 10hpf, diffuse cytologic atypia.

IHC **Rarely p63 / Ker+ focally positive !!** Take care in small biopsies with stroma only

DDX Metaplastic carcinoma (in small samples)
Stromal sarcoma (if no epithelium seen)

MICROPAPILLARY CARCINOMA

MX > 90% pattern of hollow or morula-like aggregates neoplastic cells w/o fibrovascular cores. Usually high-grade cytology.

IHC Usually ER+/PR+/HER2+ (20% triple neg)
EMA with parastromal staining

DDX Mucinous carcinomas

SOLID PAPILLARY CARCINOMA

MX Closely grouped & solid-appearing, with focal fibrovascular cores. pTis (if all rounded), Inv (if irregular shapes or frank invasive part)

IHC MyoEp: Usually absent. CK5/6-, ER+. Often synapto or chromo+

DDX Papilloma w/ florid UDH.