**World Health Organization 5th ed**

**Classification of Tumours of the Breast**

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#### WHO 5th ed Broad Categories

- **Epithelial tumours**
- **Fibroepithelial tumours and hamartomas**
- **Tumours of the nipple**
- **Mesenchymal tumours**
- **Tumours of the male breast**
- **Metastases to the breast**

#### Genetic tumour syndromes

- **NEW! in this WHO edition**
- in a section delineating the familial predisposition to breast cancer, specifically the established and emergent genes that are a source of discussion.
- BRCA1 and BRCA2 are well-established, and increasingly PALB2, as important predisposition genes that result in tumorigenesis in all patients with suspicious familial predisposition. Many other genes (two examples are ATM, CHEK2) have been identified in familial syndromes though there is limited data on frequency and absent data on ethnic variations.
- Detailed familial syndromes with breast CA relevance are included:
- BRCA 1/2-associated hereditary breast and ovarian cancer syndrome
- Cowden syndrome
- Li-Fraumeni syndrome, TP53-associated Li-Fraumeni syndrome, CHK2-associated CDH1-associated breast cancer
- Peutz-Jeghers syndrome
- Neurofibromatosis type 1
- The polygenic component of breast cancer susceptibility

#### Notes on core needle biopsy

- 3% of patients with screen-detected abnormalities typically undergo immediate excision, with 3:1 benign-to-malignant final diagnoses. Most patients with atypical breast lesions diagnosed on core biopsy are referred for surgical excision. However, recent studies indicate the rate of upgrade to carcinoma is lower than initially reported. Assure careful clinical-pathologic and radiopath correlation in: ADH, All patients should be referred for surgical consultation and excision
- ALH: Surveillance may be appropriate if incidental LCIS
- Neurofibromatosis type 1
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#### References


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**Introduction**

The World Health Organization (WHO) establishes the standard for histopathologic diagnoses, defining diagnoses on a per organ system basis.

The most recent classification of breast tumours is the 5th edition published in November 2019. The publication reflects the views of the WHO Classification of Tumours Editorial Board that convened at MD Anderson Cancer Center, Houston, USA, December 9-11, 2018. 153 authors from 21 countries contributed. The end result is an authoritative reference book that serves as the international standard for oncologists and pathologists.

This exhibit is designed to increase radiologists’ and technologists’ understanding of breast pathology, to enhance CME and CEU at this conference.

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**Invasive Breast Carcinoma (IBC)**

**Breast Cancer 2019**

**Estimated new cases and deaths from breast cancer in the US**

- **New cases:** 268,600
- **53.2% of all new cancer cases**
- **Death:** 41,760
- **6.9% of all cancer deaths**

Invasive Breast Carcinoma (IBC) refers to a large and heterogeneous group of malignant epithelial neoplasms of breast glandular elements. IBCs are classified by morphology below. All IBCs are grouped into biomarker-defined subtypes for treatment, based on estrogen receptor (ER) and human epithelial growth factor receptor 2 (HER2).

**Epithelial Tumours**

- **Invasive breast carcinoma**
  - Invasive carcinoma of no special type
  - Microinvasive carcinoma
  - Invasive lobular carcinoma
  - Tubular carcinoma
  - Coilocytic carcinoma
  - Mucinous carcinoma
  - Muscular glandular carcinoma
  - Invasive micropapillary carcinoma
  - Carcinoma with apocrine differentiation
  - Metaplastic carcinoma
  - Rare and salivary gland-type tumours
  - Acinic cell carcinoma
  - Adenoid cystic carcinoma
  - Sarcomatoid carcinoma
  - Mucoepidermoid carcinoma
  - Polymorphous adenocarcinoma
  - Tall cell carcinoma with reversed polarity
- **Neuroendocrine neoplasms**
  - Ductal carcinoma in situ
  - Non-invasive lobular neoplasia
  - Papillary neoplasms
  - Epithelial-myoepithelial tumours
  - Adenomas
  - Tubular adenoma
  - Lactating adenoma
  - Ductal adenoma
  - Adenosin and benign secreting lesions
  - Benign epithelial proliferations

**Mesenchymal tumours**

- **Vascular tumours:** haemangioma, angiomatosis, arteriovenous malformation, angiosarcoma, primary angiosarcoma
- **Fibroblastic and myofibroblastic tumours:** nodular fascitis, myofibroma, dermatofibroma, inflammatory myofibroblastic tumour
- **Peripheral nerve sheath tumours:** schwannoma, neurofibroma, granular cell tumour
- **Smooth muscle tumours:** leiomyoma, leiomyosarcoma
- **Adipocytic tumours:** lipoma, angiolipoma, liposarcoma
- **Pseudosarcomatous stromal hyperplasia**

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**Fibroepithelial tumours and hamartomas**

**Fibroadenoma**

**Paget Disease**

**Metastases to the breast**

**Tumours of the male breast**

**Gynaecomastia**

**Male breast CA**

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**References**