

14:30 - 15:00

Problems in Breast Core Needle Biopsy in Interpretation

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CORE BIOPSY

- ◆Mammographically or
- ◆Sonographically directed

Advantages of Core Needle Biopsy

- Overcomes limitations of FNA
- Eliminate need for excisional biopsy with benign lesion
- Minimally invasive
- Increase likelihood of negative margins at subsequent excision
- Cost effective

Diagnostic Problem

- ❖ Similar to those encountered in open surgical biopsies:
- ADH vs DCIS
- Identifying invasion in association with DCIS
- DCIS vs LCIS
- Tubular carcinoma vs sclerosing lesion
- Papillary lesion
- Mucocele-like lesion vs mucinous carcinoma
- Fibroepithelial lesion

Problematical lesions on CNB

- Papillary lesion
- Atypical ductal hyperplasia(ADH)
- Mucinous lesion
- Fibroepithelial lesion

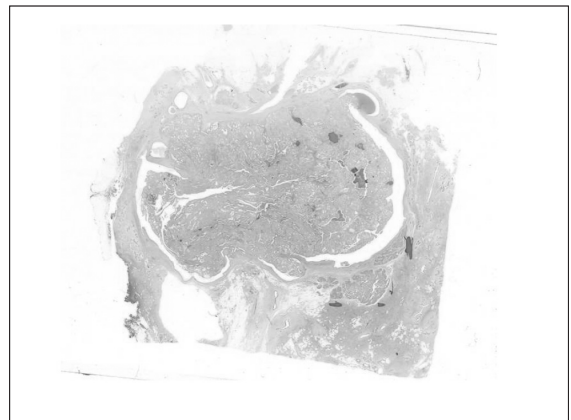
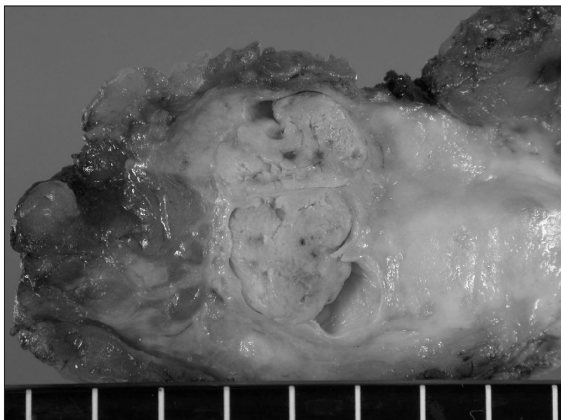
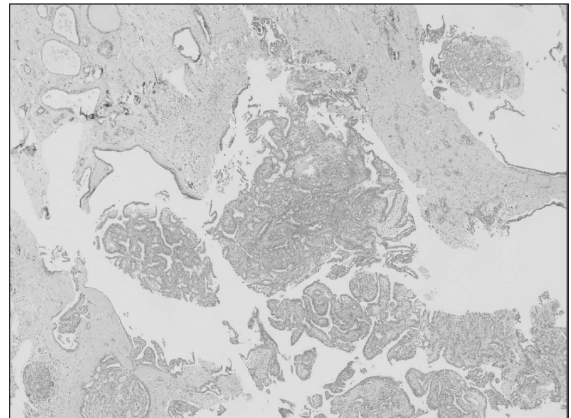
Papillary Lesion

Papillary lesion

- Papilloma
- Multiple intraductal papillomas
- Papilloma with atypia or focal DCIS
- Papillary DCIS
- Papillary carcinoma

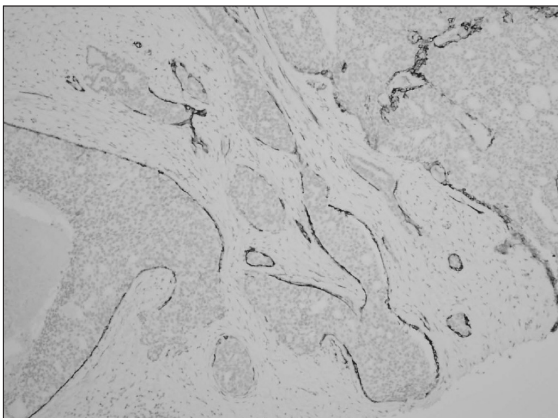
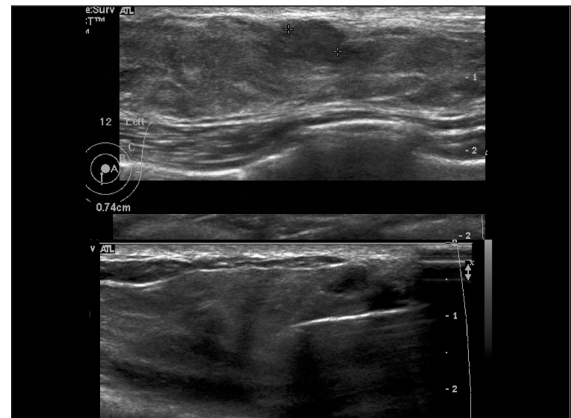
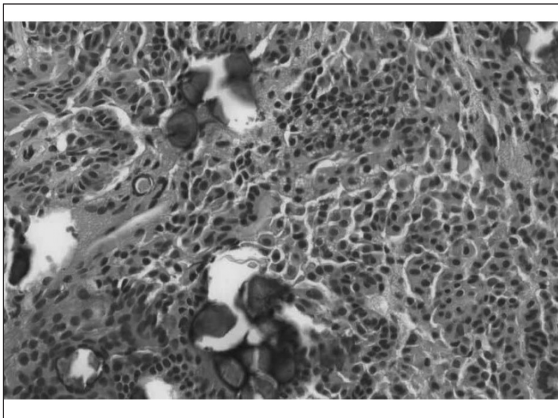
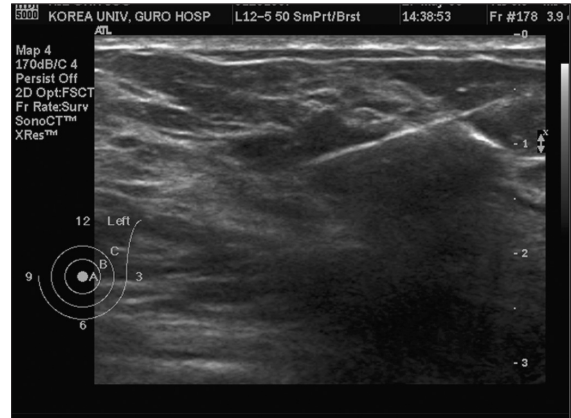
Intraductal Papilloma

- Multiple branching papillae with fibrovascular cores
- Cuboidal or columnar epithelium
- 2 cell layers or more
- Epithelial hyperplasia



Intraductal Papilloma on CNB

- Papilloma vs papilloma with ADH vs carcinoma
difficult, especially with limited material
- ?Representative of lesion as a whole
otherwise benign papillomas may harbor
foci of ADH or DCIS



Malignant papillary lesions

- Encapsulated Papillary Carcinoma
- DCIS in Papilloma
- Papillary DCIS
- Invasive papillary Carcinoma
- Papillary DCIS associated with Invasive Ductal Carcinoma
- Invasive Micropapillary Carcinoma

~Mercado, Radiology, 2006~

Core Needle Biopsy(43)	Surgical Excision(36)
• 29 Papillomas • 8 Sclerosing Papillomas • 6 Papilloma, NOS	• 10 No Residual Lesion • 14 Intraductal Papilloma • 2 Multiple papillomatosis • 8 Papilloma with ADH • 2 Papillary DCIS

~Lieberman, AJR, 1999~

Core Needle Biopsy	Surgical Excision
• 9 Papillomas ⇒ 1 malignant 8 benign • 10 Papillomas with ADH ⇒ 3 DCIS 7 ADH or benign • 6 Papillary DCIS ⇒ 3 Invasive carcinoma 4 DCIS	

Papillary Lesions on CNB

- Atypical hyperplasia or Carcinoma ⇒ EXCISE
- Mammographic-Histologic discordance ⇒ EXCISE
- Pathologist uncertain ⇒ EXCISE

Atypical Ductal Hyperplasia (ADH)

Atypical Ductal Hyperplasia(ADH) on CNB

- Needle core biopsy prevents surgery in women with benign diagnosis
- Plan surgery for a diagnosis of carcinoma
- Borderline or uncertain lesions
- Management of ADH controversial

ADH

Quantitative:

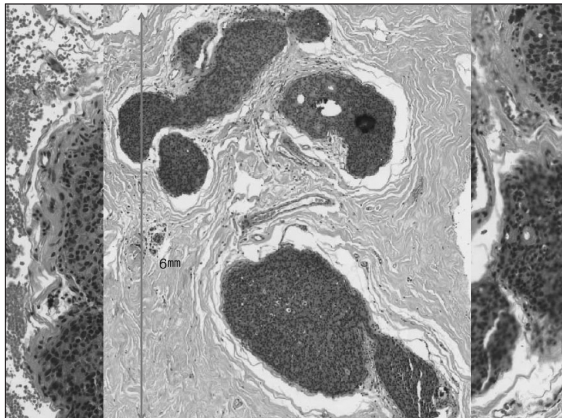
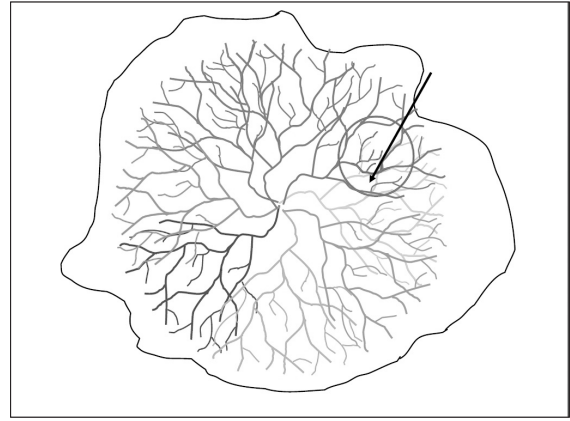
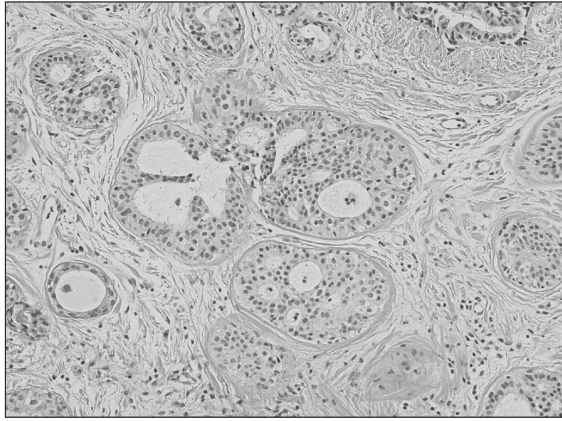
- Numbers of duct involved (2) or The dimension of the affected area (3mm)

Qualitative

Uniform population
No comedonecrosis

Normal





Breast Imaging

Radiology

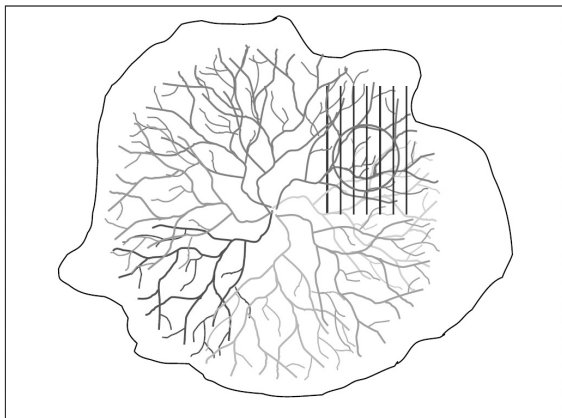
Roger J. Jackman, MD
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Index terms:
Breasts, lactography
Breast, biopsy, 90.1261, 90.1267
Breast, ducts, 90.171
Breast neoplasms, diagnosis, 90.32, 90.81

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Radiology 2002; 224:545-554
Abbreviations:

**Atypical Ductal Hyperplasia:
Can Some Lesions Be Defined
as Probably Benign after
Stereotactic 11-gauge Vacuum-
assisted Biopsy, Eliminating
the Recommendation for
Surgical Excision?¹**

- 104 consecutive non-palpable ADH lesions
- Correlated with lumpectomy findings
- Clinical, mammographic and stereotactic biopsy features were examined
- Unable to define a subset of lesions with <2% chance of carcinoma at lumpectomy



— Ely et al, AJSP, 2001—

- 152 cases
- Micropapillary ADH:3
Solid:2
cribriform:32
Mixed:11
- Surgical excision: 14 benign
13 residual ADH
15 DCIS
2 invasive carcinoma
- 1 or 2 foci: no more ominous lesion
4 or more foci: Strong predictor of carcinoma

–Sneige et al, AJCP , 2003–

- 42 cases
- Directional vacuum–assisted Stereotactic biopsy, 11G
- EXCISION ⇒ 15 ADH
 - 24 no residual lesion
 - 3 DCIS
- ADH less than 3 lobules or ducts ⇒ no higher risk lesion on excision

ADH on Core Biopsy

- “Tip of the iceberg”
(A part of DCIS)
- ADH itself

ADH on CNB

- Micropapillary pattern–EXCISE
 - More than 2 foci–EXCISE
 - Residual mammographic lesion–EXCISE
- ❖ADH on CNB requires surgical excision to exclude carcinoma (DCIS ± invasion)

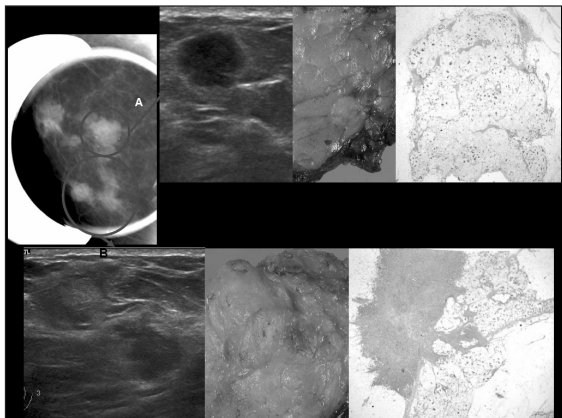
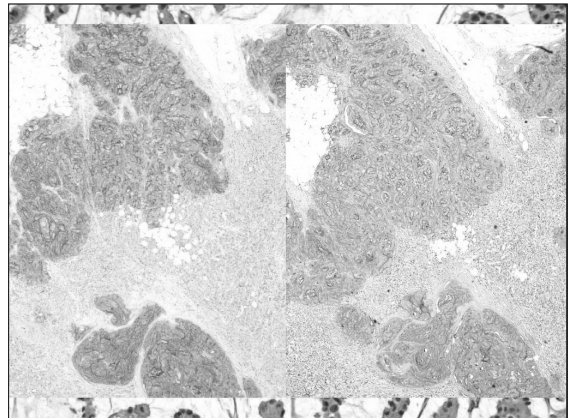
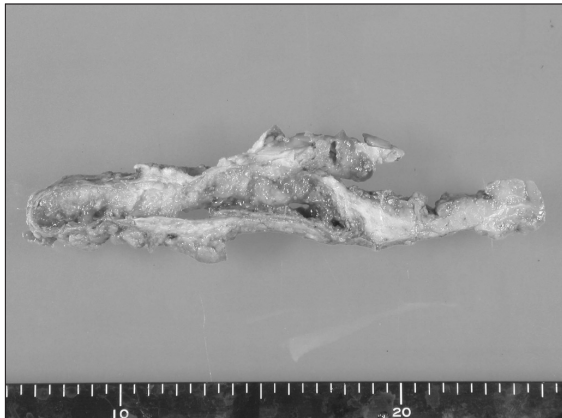
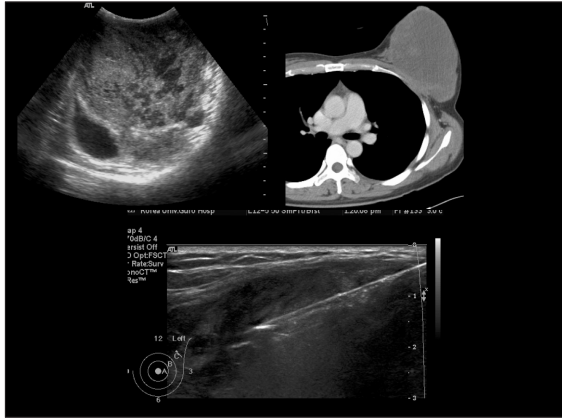
Mucinous Lesion

Mucinous Lesions of Breast

- Mucinous carcinoma
- Mucocel–like lesions
- Fibroadenoma with myxoid stroma
- Myxoma
- Neurofibroma

Mucinous carcinoma

- Pure form accounts for ~2% of breast carcinoma
- On average, pts older than those with NST carcinomas(but wide age range)
- Gross: glistening gelatinous appearance with bosselated, pushing margins
- Micro: proliferation of tumor clusters floating in lakes of mucus



Stromal Mucin Pools on CNB
→
Excision Required

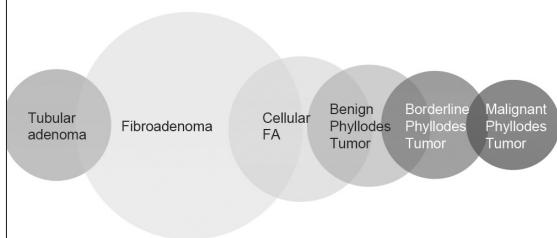
Stromal Mucin Pools on Excisional Biopsy
→
Multiple levels
Submit all tissue

Mucocele-like lesion on CNB should lead to excision,

- because of the frequent association with intraductal carcinoma.
- to exclude mucinous carcinoma.
- because it progress to mucinous carcinoma, theoretically.

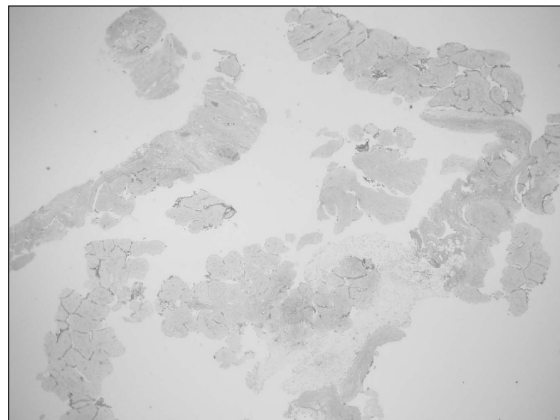
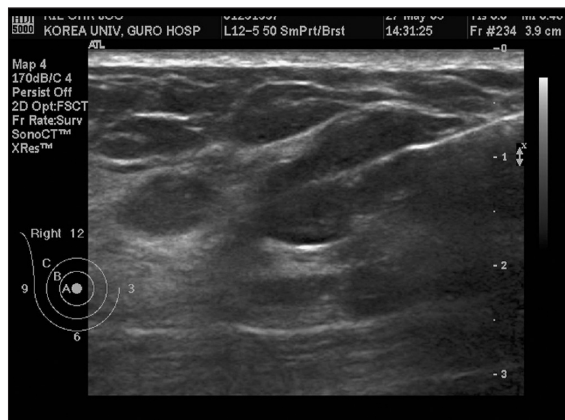
Fibroepithelial lesion

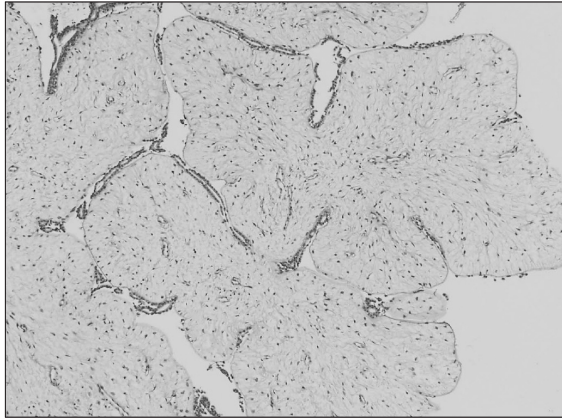
Fibroepithelial lesion



Fibroadenoma

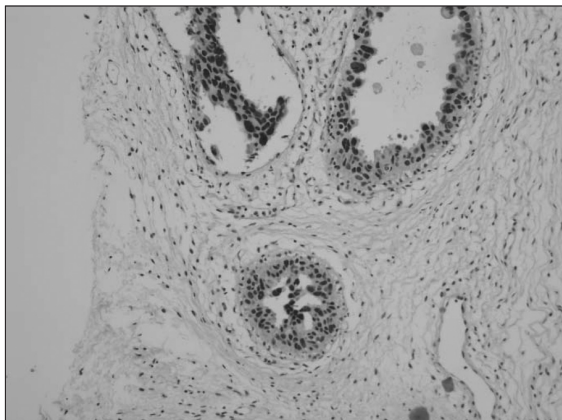
- Most common benign tumor of female breast
- Fibroadenomatoid feature in Fibrocystic change
- Complex fibroadenoma
- Cellular fibroadenoma
- Fibroadenoma with atypical ductal hyperplasia(ADH), DCIS or LCIS





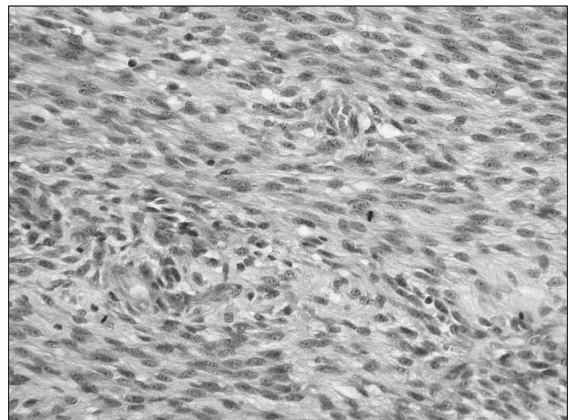
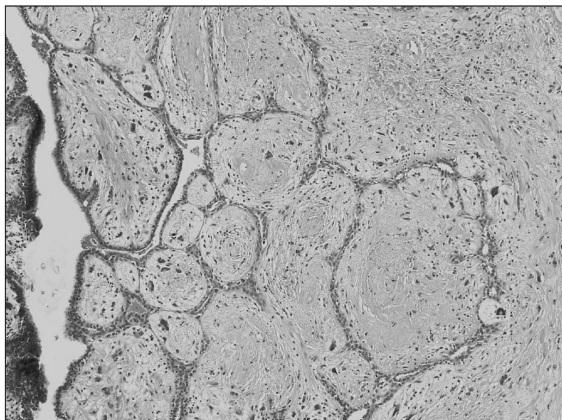
Fibroepithelial lesions on CNB

- Diagnosis of fibroadenoma :
Readily made on CNB
Excision is not required
- Fibroepithelial lesion requiring excision:
Increased stromal cellularity
Atypical ductal hyperplasia



Phyllodes tumor

- cannot be diagnosed on core biopsy alone
- classified benign, borderline and malignant based on histologic factors (mitotic activity, necrosis, size, etc.)
- The most consistently predictive factors are presence or absence of “stromal overgrowth” and the status of surgical resection margins.



—Sandra Shin; Jean Koo; Yao-Tseng Chen, Weil Medical College of Cornell University
2006, XXVI Congress of the IAP Abstract #92—

Fibroepithelial Lesions of the Breast: DNA Microarray Analysis of the Stromal Component Suggest a Continuing Spectrum Gene Expression

—Kuijper et al. 2002—

**Analysis of the progression of
fibroepithelial tumors of the breast by
PCR-based clonality assay:**
Fibroadenoma can progress in epithelial direction to
CIS and in a stromal direction to phyllodes tumor.

Contents of the Surgical pathology reports of CNB

- Sufficient information to permit radiologic–pathologic correlation and to get patients into appropriate therapeutic algorithm
- Optimal amount of information to include for cases of invasive cancer
 - controversial
 - inclusion of too much information can be problematic

NHSBSP WIDE BORE NEEDLE BIOPSY FORM

Demographics: Name: _____ Date of birth: _____
 Referring to: Hospital: _____ Date of referral: _____
 Date performed: Location: _____ Operator: _____
 Ref: Pathologist: _____ Referring clinician: _____
 Specimen: Site: _____ Location: _____
 Site: _____

Diagnosis

- B1 Normal tissue
- B2 Benign lesion
- B3 of uncertain malignant potential
- B4 Suspicious
- B5 Malignant

UK NHSBSP Non-operative Guidelines

Immunohistochemistry: ☐ Not present
 Size of lesion: _____ mm (largest dimension, if available)
 Type: ☐ No special type (benign)
☐ Atypical special type (benign)
☐ Atypical special type (benign)
☐ Malignant special type (benign)
☐ Other malignant (specify: _____)

Diagnosis of CNB

Should not be interpreted in isolation
but **considered together with results
of clinical examination and imaging
features** at a multidisciplinary
meeting, to judge whether the
specimen is representative, to
purpose diagnosis and to decide
on further management.