Protocol for the Examination of Biopsy Specimens from Patients with Ductal Carcinoma In Situ (DCIS) of the Breast

Version: 1.1.0.0

Protocol Posting Date: June 2026

The use of this protocol is recommended for clinical care purposes but is not required for accreditation purposes.

This protocol may be used for the following procedures AND tumor types:

Procedure	Description
Biopsy	Includes specimens designated needle biopsy, fine needle aspiration, and others (for excisional biopsy, see below)
Tumor Type	**Description**
Ductal carcinoma in situ without invasive carcinoma or microinvasion	
Paget disease of the nipple not associated with invasive breast carcinoma	
Encapsulated papillary carcinoma without invasive carcinoma	
Solid papillary carcinoma without invasive carcinoma	

The following should NOT be reported using this protocol:

Procedure
Resection (consider Breast DCIS Resection protocol)
Excisional biopsy (consider Breast DCIS Resection protocol)
Tumor Type
Any tumor with invasive carcinoma (consider the Breast Invasive Carcinoma Biopsy protocol)
Lymphoma (consider the Precursor and Mature Lymphoid Malignancies protocol)
Sarcoma (consider the Soft Tissue protocol)

Version Contributors

Author(s): Kimberly Allison, MD, FCAP*, Uma Krishnamurti, MD, PhD, FCAP *, Hannah L Gilmore, MD, FCAP*, Michael Berman, MD, FCAP*, Veronica Klepeis, MD, PhD, FCAP*

Other Expert Contributors: Patrick L. Fitzgibbons, MD, FCAP, James Connolly, MD

** Denotes primary author.*

For any questions or comments, contact: cancerprotocols@cap.org.

Glossary:

Author: Expert who is a current member of the Cancer Committee, or an expert designated by the chair of the Cancer Committee.

Expert Contributors: Includes members of other CAP committees or external subject matter experts who contribute to the current version of the protocol.

Accreditation Requirements

The use of this case summary is recommended for clinical care purposes but is not required for accreditation purposes. The core and conditional data elements are routinely reported. Non-core data elements are indicated with a plus sign (+) to allow for reporting information that may be of clinical value.

Summary of Changes

v 1.1.0.0

- WHO 6th Edition updates to content and explanatory notes
- Cover page update
- Tumor Site and Architectural Pattern(s) question updates
- Histologic Type and Nuclear Grade questions now multi-select
- Added Extent of DCIS in this Limited Biopsy in Millimeters (mm) question
- Added Additional Lesion(s) question

Reporting Template

Protocol Posting Date: June 2026
Select a single response unless otherwise indicated.
CASE SUMMARY: (DCIS OF THE BREAST: Biopsy)
Standard(s):
This template is recommended for reporting biopsy specimens, but is not required for accreditation purposes.

SPECIMEN

Procedure
___ Needle biopsy
___ Fine needle aspiration
___ Other (specify): _____
___ Not specified

Specimen Laterality
___ Right
___ Left
___ Not specified

TUMOR

+Tumor Site
Tumor Site descriptor should specify the location of the invasive cancer based on correlation with radiology designation (e.g., "R1, 3:00, 2 cm from nipple" or "upper outer quadrant").
___ Specify tumor site / location: _____
___ Not specified

Histologic Type (Note A) (select all that apply)
___ Ductal carcinoma in situ (DCIS)
___ Paget disease
___ Encapsulated papillary carcinoma in situ (features)
___ Solid papillary carcinoma in situ (features)
___ Other histologic type not listed (specify): _____

+Extent of DCIS in this Limited Biopsy Sample in Millimeters (mm)
Measure the largest extent based on span in a single core. Do not add up extent in multiple separate cores since this may overestimate size. Note that the span in a core biopsy sample may be used for radiation decisions if there is no residual DCIS in the excision.
___ Exact measurement: _____ mm
___ At least: _____ mm
___ Other (specify): _____
___ Cannot be determined: _____

+Architectural Pattern(s) (Note B) (select all that apply)
___ Comedo
___ Cribriform

___ Micropapillary
___ Papillary
___ Solid
___ Solid papillary carcinoma in situ
___ Encapsulated papillary carcinoma in situ
___ Paget disease (DCIS involving nipple skin)
___ Other (specify): _____

Nuclear Grade (Note C) (select all that apply)
___ Grade I (low)
___ Grade II (intermediate)
___ Grade III (high)
___ Other (specify): _____
___ Cannot be determined (explain): _____
+Nuclear Grade Comment: _____

Necrosis (Note D)
___ Not identified
___ Present, focal (small foci or single cell necrosis)
___ Present, central (expansive "comedo" necrosis)
___ Other (specify): _____
___ Cannot be determined (explain): _____

+Microcalcifications (Note E) (select all that apply)
___ Not identified
___ Present in DCIS
___ Present in non-neoplastic tissue
___ Other (specify): _____

+Additional Lesion(s) (Note F) (select all that apply)
Non-classic / variant subtypes of LCIS include: Pleomorphic LCIS (pleomorphic nuclei greater than 4 times the size of a lymphocyte or equivalent to nuclei of high-grade DCIS) and Florid LCIS (proliferation of cells cytologically similar to those of classic LCIS but expanding the acini of the involved TDLUs so that little to no residual intervening intra-lobular stroma is present, and / or an expanded acinus or duct spans approximately 40–50 cells in diameter). Comedonecrosis in classic LCIS may also be considered non-classic / variant (describe in "Other (specify)).
___ Not identified
___ Lobular carcinoma in situ, classic
___ Lobular carcinoma in situ, pleomorphic
___ Lobular carcinoma in situ (specify): _____
___ Atypical lobular hyperplasia
___ Atypical ductal hyperplasia
___ Flat epithelial atypia
___ Other (specify): _____
+Additional Lesion(s) Comment: _____

SPECIAL STUDIES

For hormone receptor and HER2 reporting, the CAP Breast Biomarker Template should be used. www.cap.org/cancerprotocols

+Breast Biomarker Studies (specify pending studies): _____

COMMENTS

Comment(s): _____

Explanatory Notes

A. Histologic Type

Multiple forms of DCIS may be present in a given sample including papillary forms and Paget's disease. This protocol applies only to cases of DCIS. The protocol for invasive carcinoma of the breast applies if invasion or microinvasion (less than or equal to 1 mm) is present.

When DCIS involves nipple skin only, without underlying invasive carcinoma or DCIS, the classification is DCIS (i.e., pTis [Paget]). The majority of these cases are strongly positive for HER2.

The WHO criteria for a diagnosis of encapsulated papillary carcinoma (EPC) and solid papillary carcinoma in situ (SPC in situ) should be used in classification.[1] Myoepithelial cells may be absent or attenuated, but the contours of these lesions should be circumscribed to classify them as in situ. These lesions are clinically managed like DCIS. On a limited core biopsy sample, features of encapsulated papillary carcinoma or solid papillary carcinoma in situ may be present but definitive classification may not be possible without examination of the entire lesion in a surgical excision. Therefore, in a core biopsy report these diagnoses are often reported as having features of EPC and SPC if no definitive invasion is present.

References

1. WHO Classification of Tumours Editorial Board. *Breast Tumours.* Lyon (France): International Agency for Research on Cancer; 2026. (WHO classification of tumours series, 6th ed.).

B. Architectural Pattern

The architectural pattern has been reported traditionally for DCIS.[1,2] However, nuclear grade and the presence of necrosis are more predictive of clinical outcome. Paget's, encapsulated papillary carcinoma, and solid papillary carcinoma in situ can also be reported as architectural patterns, but they are also considered distinct histologic types of DCIS.

References

1. Schwartz GF, Lagios MD, Carter D, et al. Consensus conference on the classification of ductal carcinoma in situ. *Cancer.* 1997; 80:1798-1802.
2. Silverstein MJ, Lagios MD, Recht A, et al. Image-detected breast cancer: state of the art diagnosis and treatment. *J Am Coll Surg.* 2005; 201:586-597.

C. Nuclear Grade

The nuclear grade of DCIS is determined using 6 morphologic features (Table 1).[1,2]

Table 1. Nuclear Grade of Ductal Carcinoma In Situ

Feature	Grade I (Low)	Grade II (Intermediate)	Grade III (High)
Pleomorphism	Monotonous (monomorphic)	Intermediate	Markedly pleomorphic
Size	1.5 to 2 x the size of a normal RBC or a normal duct epithelial cell nucleus	Intermediate	>2.5 x the size of a normal RBC or a normal duct epithelial cell nucleus
Chromatin	Usually diffuse, finely dispersed chromatin	Intermediate	Usually vesicular with irregular chromatin distribution

Nucleoli	Only occasional		Prominent, often multiple
Mitoses	Only occasional	Intermediate	May be frequent
Orientation	Polarized toward luminal spaces	Intermediate	Usually not polarized toward the luminal space

Definition: RBC, red blood cell.

References

1. Schwartz GF, Lagios MD, Carter D, et al. Consensus conference on the classification of ductal carcinoma in situ. *Cancer.* 1997; 80:1798-1802.
2. Bane A.: Ductal Carcinoma In Situ: What the Pathologist Needs to Know and Why. *Int J Breast Cancer* 2013:914053. doi: 10.1155/2013/914053.

D. Necrosis

The presence of necrosis[1,2] is correlated with the finding of mammographic calcifications (i.e., most areas of necrosis will calcify). DCIS that presents as mammographic calcifications often recurs as calcifications. Necrosis can be classified as follows:

- **Central ("comedo"):** The central portion of an involved ductal space is replaced by an area of expansive necrosis that is easily detected at low magnification. Ghost cells and karyorrhectic debris are generally present. Although central necrosis is generally associated with high-grade nuclei (i.e., comedo DCIS), it can also occur with DCIS of low or intermediate nuclear grade. This type of necrosis often correlates with a linear and/or branching pattern of calcifications on mammography.
- **Focal (punctate):** Small foci, indistinct at low magnification, or single cell necrosis (<10%).

Necrosis should be distinguished from secretory material, which can also be associated with calcifications, cytoplasmic blebs, and histiocytes, but does not include nuclear debris.

References

1. Schwartz GF, Lagios MD, Carter D, et al. Consensus conference on the classification of ductal carcinoma in situ. *Cancer.* 1997; 80:1798-1802.
2. Fox SB, Webster F, Chen CJ, et al. Dataset for pathology reporting of ductal carcinoma in situ, variants of lobular carcinoma in situ and low-grade lesions: recommendations from the International Collaboration on Cancer Reporting (ICCR). *Histopathology.* 2022 Oct;81(4):467-476. doi: 10.1111/his.14725. Epub 2022 Aug 8. PMID: 35869801.

E. Microcalcifications

DCIS found in biopsies performed for microcalcifications will almost always be at the site of the calcifications or in close proximity.[1,2,3] The presence of the targeted calcifications in the specimen should be confirmed by specimen radiography. The pathologist must be satisfied that the specimen has been sampled in such a way that the lesion responsible for the calcifications has been examined microscopically. The relationship of the radiologic calcifications to the DCIS should be indicated.

References

1. Owings DV, Hann L, Schnitt SJ, How thoroughly should needle localization breast biopsies be sampled for microscopic examination? A prospective mammographic/pathologic correlative study. *Am J Surg Pathol.* 1990; 14:578-583.
2. Buono M, Schiavone L, Rizzo S, et. al. Imaging Ductal Carcinoma In Situ in the Era of De-Escalation: Role, Limits, and Clinical Implications for Risk-Adapted Management. *Diagnostics* (Basel). 2026 Mar 5;16(5):776. doi: 10.3390/diagnostics16050776.
3. Silverstein MJ, Lagios MD, Recht A, et al. Image-detected breast cancer: state of the art diagnosis and treatment. *J Am Coll Surg.* 2005; 201:586-597.

F. Additional Lesions

If the biopsy was performed for a benign lesion and the DCIS is an incidental finding, this should be documented. An example would be the finding of DCIS in an excision for a palpable fibroadenoma. In some cases, other pathologic findings, such as risk lesions or non-classic/variant subtypes of LCIS, are important for the clinical management of patients.