Ductal Carcinoma in Situ of Breast

Ductal carcinoma in situ of the breast (DCIS) is a noninvasive malignancy that arises from the terminal duct lobular unit. Microcalcifications and comedo necrosis may be seen on mammography and histology, respectively. Comedocarcinoma is a particularly malignant subtype that is high grade and shows dystrophic calcification patterns. Management is with surgical resection, mostly mastectomy. DCIS will progress to invasive breast cancer if not treated.



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Characteristics

Noninvasive Malignancy
Nun-invader and Malignant-man
DCIS is a noninvasive malignancy. This means it does not infiltrate adjacent mammary ductal glands or stroma. However, there is still histological evidence of malignant cells.

Terminal Duct Lobular Unit (TDLU)
Terminator Duck Ear Lobe Unite
The terminal duct lobular unit (TDLU) is the primary site of lactogenesis in breast tissue. Breast cancers often arise from the TDLU.

Microcalcifications
Microscope-Calcified-cow
90% of women with DCIS have microcalcifications on mammography. Microcalcifications have different patterns, which are highly suggestive of DCIS. Linear branching or segmental types are frequently associated with high nuclear grade, comedo type lesions, while fine, granular calcifications are primarily linked with low grade, micropapillary or cribriform lesions.

Comedo Necrosis
Comedy Necrosis-crow
There are several necrosis patterns in breast cancer. The comedo type is described by notable necrosis in the center. The necrotic material commonly becomes calcified. The comedo type is more often associated with invasion, and comedo necrosis in patients with DCIS seems to be a strong predictor for the risk of ipsilateral breast recurrence after treatment.

Comedocarcinoma
Comedian in Car-gnome
Comedocarcinoma is an aggressive type of DCIS. It is characterized by the presence of central necrosis as cellular debris completely fills and dilates the ducts and lobules in the TDLU with plugs of high-grade tumor cells.

High Grade
High Grade
High-grade lesions typically display a lack of estrogen and progesterone receptors and are highly proliferative. Also, this subtype shows overexpression of the HER2 oncogene, and mutations of the p53 tumor suppressor gene.

Dystrophic Calcification
Disc-trophy Calcified-Cow
Microcalcifications are one of the main categories of abnormalities detectable by mammograms. The widespread uptake of screening mammography has been associated with a marked increase in the diagnosis of ductal carcinoma in situ (DCIS), as this lesion is frequently associated with dystrophic calcifications, particularly when comedo necrosis is present.

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Management

Surgical Resection

Surgeon

Mastectomy is curative for over 98% of patients with DCIS. Disease recurrence is rare after mastectomy (1 to 2%). Women treated with mastectomy are candidates for breast reconstruction; immediate reconstruction is usually preferred. Women with unilateral DCIS are at a moderately increased chance of developing either invasive breast cancer or DCIS in the contralateral breast. Therefore, bilateral prophylactic mastectomy is preferred by some patients to prevent future breast cancer. Breast-conserving therapy (BCT) refers to wide excision of the tumor with negative surgical margins followed by radiation therapy (RT) to eradicate any residual disease. Lumpectomy is wide excision of the lesion with negative margins. Studies comparing BCT with mastectomy for DCIS have demonstrated equivalent long-term survival. However, local recurrence rates are higher with BCT.

Considerations

Progresses to Invasive Breast Cancer

Invader-alien Breasted Tumor-character

If left untreated, DCIS may become invasive ductal carcinoma (IDC) of the breast. This will demonstrate stromal invasion and adjacent fibrosis. IDC is the most common type of malignant breast cancer.

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