Invasive Ductal Carcinoma of Breast

Invasive ductal carcinoma of the breast (IDC) is the most common type of breast cancer. It presents as a firm, palpable mass with nipple retraction (in late stages of disease). Histologically, spiculated margins, microcalcifications, and stromal glandular cells may be seen. Management strategies include surgery, chemotherapy, and radiation.

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Characteristics

Most Common Breast Cancer
#1 Foam-finger with Breast Tumor-guy
Invasive ductal carcinoma (IDC) is the most common type of breast cancer, accounting for ~80% of all invasive carcinoma types. IDC is associated with unilateral localization, is unifocal in nature, and presents with early metastases being more aggressive in nature.

Presentation

Firm, Palpable Mass
Woman Palpating Firm Marble
Invasive ductal carcinoma usually presents as a firm ("rock hard") palpable mass with sharp margins.

Nipple Retraction
Nipple Retracted
In advanced stages, both skin dimpling and nipple retraction can occur. Cooper's ligaments are the breasts' suspensory ligaments and fuse with the underlying fascia located under the dermis eventually joining the deep fascia over the pectoralis muscle. As these ligaments provide structure to the breasts, infiltration (e.g. tumor) will produce a tethering effect, which leads to surface deformities such as nipple retraction and skin dimpling. Nipple retraction, in general, is of more concern symptomatically as is can indicate the presence of invasion or inflammatory nipple disease.

Histologic Findings

Spiculated Margins
Spike-Bra
Spiculated margins consists of tissue radiating from an ill-defined mass, leading to a stellate ("spiked") appearance. The spiculation signals the retraction of tissue toward the tumor due to fibrosis, which is the result of a desmoplastic response.

Microcalcifications
Micro-Calcified-cow
Invasive ductal carcinoma can present with microcalcifications, which are calcific opacities often seen within the acini of the terminal duct lobular unit.

Stromal Glandular Cells
Straw-Man and Glands with Glandular Pattern
Histologically, a desmoplastic stromal reaction involving glandular, duct-like cells is a key finding.

Management

Surgery

Surgeon

The treatment of invasive carcinoma varies based on the staging of disease progression (i.e. early vs. advanced). Early disease can include a lymph node biopsy, systemic adjuvant therapy, and a lumpectomy with radiotherapy.

Chemotherapy

Chemo-head-wrap

Chemotherapy is usually considered in more advanced cases of invasive ductal carcinoma. As this pertains to higher-risk patients the considerations of chemotherapy include lymph node involvement, tumor size (> 2 cm), indications of aggressiveness based on histology, and if related to triple negative breast cancer.

Radiation

Radiation-radio

Radiotherapy is indicated in both early and advanced instances of invasive ductal carcinoma.