Breast Cancer Surgical Practice Guidelines

By Monica Morrow, MD [2], Kirby I. Bland, MD [3], and Roger Foster, MD [4]

The Society of Surgical Oncology surgical practice guidelines focus on the signs and symptoms of primary cancer, timely evaluation of the symptomatic patient, appropriate preoperative evaluation for extent of disease, and role of the surgeon in diagnosis and treatment. Separate sections on adjuvant therapy, follow-up programs, or management of recurrent cancer have been intentionally omitted. Where appropriate, perioperative adjuvant combined-modality therapy is discussed under surgical management. Each guideline is presented in minimal outline form as a delineation of therapeutic options.

Scope and Format of Guidelines

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Since the development of treatment protocols was not the specific aim of the Society, the extensive development cycle necessary to produce evidence-based practice guidelines did not apply. We used the broad clinical experience residing in the membership of the Society, under the direction of Alfred M. Cohen, md, Chief, Colorectal Service, Memorial Sloan-Kettering Cancer Center, to produce guidelines that were not likely to result in significant controversy.

Following each guideline is a brief narrative highlighting and expanding on selected sections of the guideline document, with a few relevant references. The current staging system for the site and approximate 5-year survival data are also included.

The Society does not suggest that these guidelines replace good medical judgment. That always comes first. We do believe that the family physician, as well as the health maintenance organization director, will appreciate the provision of these guidelines as a reference for better patient care.

Society of Surgical Oncology Practice Guidelines: Breast Cancer

Symptoms and Signs

Early-stage disease
• Asymptomatic
• Breast mass
• Nipple discharge
• Crusting, scaling, flaking of nipple
• Breast pain (rare)
• Nipple inversion
• Skin dimpling or retraction
• Abnormal mammogram-suspicious microcalcifications, masses, asymmetric densities

Advanced-stage disease
• Change in size or contour of breast
• Erythema of breast
• Peau d'orange of breast
• Enlarged axillary or supraclavicular lymph nodes
• Ulceration of the skin of the breast

Evaluation of the Symptomatic Patient

Breast mass
• History, including breast cancer risk factors, duration, fluctuation with menstrual cycles
• Possible gross cyst: needle aspiration
  1. If mass resolves completely with aspiration, discard fluid (if nonbloody). Consider screening
mammograms.
2. If fluid is bloody, send for cytology, obtain diagnostic mammogram, and refer to surgeon. If same
cyst persistently refills, obtain diagnostic mammogram and refer to surgeon.
3. If mass does not resolve completely after aspiration, send fluid for cytology, obtain diagnostic
mammogram, and refer to surgeon.

**Solid mass**
- Women less than 35 years old: If true dominant mass (discrete, different from other nodularity),
  refer to surgeon. If vague nodularity, thickening or asymmetry, repeat examination in one to two
  menstrual cycles approximately 1 to 2 weeks after menstrual period. If abnormality resolves,
  reassure patient. If abnormality persists, refer to surgeon. Breast imaging may be appropriate.
- Women more than 35 years old: If dominant mass present, obtain diagnostic mammogram, refer to
  surgeon. If vague nodularity or thickening, obtain mammogram if patient has not had one for 6 to 12
  months and reexamine premenopausal women at midcycle 1 to 2 months later. If abnormality
  persists, refer to surgeon. Refer postmenopausal women for surgical consultation after
  mammogram.

**Nipple discharge**
- History to distinguish pathologic from physiologic discharge
- Characteristics of physiologic discharge: nonspontaneous, multiple duct, frequently bilateral,
  nonbloody
- Characteristics of pathologic discharge: Spontaneous serous or bloody, usually unilateral and
  usually single duct. Spontaneous discharge, whether serous or bloody, requires surgical evaluation.
- Examination to determine presence of blood in discharge (use guaiac card), whether single duct or
  multiduct
  - If discharge is physiologic and patient is under age 35, reassure patient.
  - If discharge is physiologic and patient is over age 35, obtain screening mammogram.
  - If discharge meets any of the criteria for pathologic discharge, obtain diagnostic mammogram and
    refer to surgeon.
  - If discharge of any type is present in association with a breast mass, obtain diagnostic
    mammogram and refer to surgeon.

**Crusting, scaling, flaking of nipple**
- Obtain history of other dermatologic problems, change in soap or clothing. If absent, obtain
diagnostic mammogram if patient is over age 35 and refer to surgeon.

**Breast pain**
- Obtain history of relationship to menstrual cycle, duration, severity.
- If breast examination is normal and patient is under age 35, reassure patient about benign nature.
  If pain persists, keep pain diary of occurrence of pain and severity for two menstrual cycles. If pain
  that is severe enough to interfere with lifestyle persists, refer to surgeon for further evaluation and
  nonoperative management.
- If patient is over 35 years old, without a mammogram for 6 to 12 months, obtain screening
  mammogram and follow steps above.
- Diuretics are not effective in the management of breast pain.

**Nipple inversion, skin dimpling, retraction**
- Obtain history of duration of problem. (Some women have chronically inverted nipples.)
- Obtain diagnostic mammogram.
- Refer to surgeon.

**Abnormal mammogram**
- Physical examination
  - Obtain spot compression or magnification views if recommended by radiologist.
  - If physical examination is normal and mammographic abnormality appears benign or resolves with
    extra views, follow with age- appropriate screening guidelines.
  - If physical examination is normal and interval (3- or 6-month) films are recommended, obtain
    follow-up mammograms.
  - If physical examination is normal and mammographic abnormality is felt to be indeterminate or
    suspicious after extra views, refer to surgeon.

**Signs of advanced breast cancer**
- Refer to surgeon.

**Appropriate timeliness of surgical referral**
- Refer to surgeon as indicated above.
Preoperative Evaluation for Extent of Disease

All patients
- Bilateral mammography (if not obtained prior to diagnosis)
- CBC, screening blood chemistries
- Chest x-ray

Bone scan
- Stage III or IV preoperatively
- Any symptomatic women
- Postoperative baseline in selected node-positive patients

Role of the Surgeon in Initial Management

Evaluation of the symptomatic patient
- Distinguish between dominant breast masses requiring biopsy and prominent glandular nodularity that can be safely observed.
- Evaluate and localize pathologic discharges to allow for diagnostic terminal duct excision.
- Determine significance of potential secondary signs of breast cancer, such as nipple inversion, skin dimpling, or skin changes on the nipple.
- Obtain a prompt histologic diagnosis in women with obvious advanced breast cancer, while organizing an efficient metastatic work-up and developing a multimodality treatment plan with specialists from radiation oncology and medical oncology.

Diagnostic procedures
- Fine-needle aspiration (FNA) cytology for "solid" masses and to rule out cysts (Reliability of FNA for diagnosis of solid masses varies based on adequacy of specimen and experience of cytopathologist.)
- Core-cutting needle biopsy for solid masses · Excisional biopsy with clear pathologic margins for solid masses
- Incisional biopsy for masses too large to be excised when aspiration or core-cutting needle biopsy cannot be used
- Terminal duct excision for diagnosis of pathologic nipple discharge in the absence of palpable mass or mammographic abnormality

Surgical considerations
- For ductal carcinoma in situ (DCIS):
- Lumpectomy and radiotherapy
- Total mastectomy
- Total mastectomy and immediate reconstruction
- Lumpectomy alone in selected patients
- For invasive carcinoma:
- Lumpectomy, axillary dissection, and radiotherapy
- Modified radical mastectomy
- Modified radical mastectomy with immediate reconstruction

Adjuvant considerations
- Chemotherapy, hormones, or both in the majority of patients
- Preoperative adjuvant therapy in selected patients with locally advanced cancer

Breast cancer is the most common cancer in American women, and the second most common cause of cancer death. According to American Cancer Society estimates, 184,300 invasive breast cancers occurred in 1996, and 44,560 women died from the disease. Multiple risk factors that increase the likelihood of breast cancer development have been identified. Of these, the most important is age. Half of a woman's lifetime risk of developing breast cancer occurs after the age of 65, while the risk of breast cancer development for the entire 20-year period between the ages of 35 and 55 is only 2%. Family history is another well-known risk factor. Women with inherited breast cancer due to mutations of such genes as BRCA1, and BRCA2 have an extremely high (approximately 80%) lifetime risk of developing breast cancer. This genetically transmitted form of the disease is uncommon, accounting for only 10% to 15% of breast cancer cases. Genetically transmitted breast cancer should...
be suspected in women with multiple relatives with the disease, particularly when it occurs at a young age or is bilateral. Women who do not have genetically transmitted breast cancer but have a family history of the disease have a much lower level of risk, which rarely exceeds 30%. Other breast cancer risk factors include early menarche; late menopause; nulliparity or birth of a first child after age 30; radiation exposure with the potential for scatter to the breast area in infancy, childhood, or adolescence; and the finding of atypical hyperplasia or lobular carcinoma in situ on a breast biopsy. Despite the number of risk factors that have been identified, it is important to remember that the majority of women who develop breast cancer have no risk factors beyond being female and aging.

### Staging

**TABLE 1**

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<tr>
<th>Stage</th>
<th>Description</th>
<th>5-Year Survival Rate</th>
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<tbody>
<tr>
<td>I</td>
<td>Tumors 2 cm or less in greatest diameter with negative nodes</td>
<td>95%</td>
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<tr>
<td>II</td>
<td>Tumors more than 2 cm in size with negative nodes or tumors 5 cm or less with nodal involvement</td>
<td>85%</td>
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<tr>
<td>III</td>
<td>Tumors more than 5 cm in size with nodal involvement and tumors with skin ulceration, skin satellites, peau d'orange, or inflammatory changes</td>
<td>60%</td>
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<tr>
<td>IV</td>
<td>Metastases to any distant site</td>
<td>5%</td>
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The initial staging of breast cancer is clinical. The final pathologic stage often differs from the clinical stage due to the inaccuracy of physical examination of the axillary nodes, which has a false-negative rate of 35%. The TNM system includes a determination of tumor size, axillary node status, and identification of the features of locally advanced breast cancer (stage III) or distant metastases (stage IV). The TNM staging system for breast cancer is shown in Table 1, along with approximate 5-year survival rates for each stage grouping.

The term "primary operable breast cancer" refers to stage I and II disease, for which surgery has traditionally been the initial therapy. Stage I breast cancer is limited to tumors 2 cm or less in greatest diameter that lack axillary metastases. Stage II disease includes tumors more than 2 cm in size with negative nodes or tumors 5 cm or less with nodal involvement.

Stage III breast cancer is a heterogeneous group that includes tumors more than 5 cm in size with nodal involvement and tumors with skin ulceration, skin satellites, peau d'orange, or inflammatory changes. Tumors of any size with axillary nodes that are fixed to one another or to other structures are also included in stage III, as are tumors more than 5 cm in size with involvement of the ipsilateral internal mammary nodes. About 20% of breast cancers are stage III at presentation. Patients with metastases to any distant site, including the supraclavicular nodes, are classified as having stage IV disease, which accounts for about 5% of cases at presentation.

### Screening

In contrast to many other cancers, an effective screening strategy is available for breast cancer. The use of annual screening mammography in asymptomatic women over the age of 50 has been shown to reduce breast cancer mortality by 30%. Debate persists over the benefits of screening women 40 to 50 years old who are not at increased risk for breast cancer. In high-risk women, institution of annual mammography at age 40 is appropriate. For women with a family history of breast cancer at a very young age, screening may begin before age 40.

Clinical breast examination is complementary to mammographic screening, and should be performed annually in women over age 30. Since mammography has a false-negative rate of 10% to 20%, dominant masses identified on physical examination must be diagnosed regardless of mammographic findings.
Management

Management of the patient with breast cancer is a multidisciplinary process. Guidelines for patient selection for breast-conserving therapy have been developed by a multidisciplinary group. Approximately 80% of women with stage I and II breast cancer are candidates for breast conservation, but national statistics suggest that more than half of the women in this country continue to be treated with mastectomy.

The most important determinant of outcome in early-stage breast cancer is axillary nodal status, followed by tumor size. Multiple other prognostic factors have been identified. These include tumor grade, hormone receptor status, S-phase fraction, patient age, and lymphatic invasion. None of these factors reliably separates patients into good- and poor-risk groups.

Survival for patients with tumors less than 1 cm in size and negative nodes is 90% at 10 years. For women with larger node-negative tumors (between 1 and 5 cm), survival rates range from 60% to 85% over the same time period. With involvement of one to three axillary nodes, survival rates after surgery alone fall to 34% to 63%, and when four or more nodes are involved, survival ranges from 16% to 27% at 10 years.

Adjuvant systemic therapy (chemotherapy or hormonal therapy) is routinely administered to node-positive women and to the majority of node-negative women with tumors more than 1 cm. Systemic therapy has been shown to reduce the annual risk of breast cancer recurrence and breast cancer death by approximately 30% in women with node-positive or node-negative cancers. The absolute reduction in recurrence and mortality varies with the risk of relapse, and is greater for node-positive than for node-negative women.

Follow-up

Follow-up of the breast cancer patient is directed at the identification of recurrent disease prior to the development of avoidable complications and the early detection of second primary cancers of the opposite breast. Women with unilateral breast carcinoma have a risk of developing a contralateral tumor of approximately 1% per year. Annual mammography, regardless of patient age, is an essential part of follow-up care, as is careful breast examination, which is usually done at 6-month intervals.

There is debate about the use of other routine imaging studies and laboratory testing in the asymptomatic patient. Recent studies suggest that survival is not prolonged by such an approach since the treatment of metastatic breast cancer is palliative. Proponents of aggressive follow-up testing believe that negative tests are psychologically beneficial to patients.

References:


Miller BA, Feuer EJ, Hankey BF: The significance of the rising incidence of breast cancer in the United


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