

APPROACH TO BREAST MASS

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Overview

In primary care, breast lumps are a common complaint among women. In one study, 16% of women age 40-69y presented to their physician with a breast lesion over a 10-year period.¹ Approximately 90% of these lesions will be benign, with fibroadenomas and cysts being the most common.² Breast cancer must be ruled out, as one in ten woman who present with a new lump will have cancer.¹

Diagnostic Considerations⁶

Benign:

- Fibroadenoma: most common breast mass; a smooth, round, rubbery mobile mass, which is often found in young women; identifiable on US and mammogram
- Breast cyst: mobile, often tender masses, which can fluctuate with the menstrual cycle; most common in premenopausal women; presence in a postmenopausal woman should raise suspicion for malignancy; ultrasound is the best method for differentiating between a cystic vs solid structure; a complex cyst is one with septations or solid components, and requires biopsy
- Less common causes: Fat necrosis, intraductal papilloma, phyllodes tumor, breast abscess

Premalignant:

- Atypical Ductal Hyperplasia, Atypical Lobular Hyperplasia: Premalignant breast lesions with 4-6 times relative risk of developing subsequent breast cancer;³ often found incidentally on biopsy and require full excision
- Carcinoma in Situ:
 - Ductal Carcinoma in Situ (DCIS): ~85% of in-situ breast cancers; defined as cancer confined to the duct that does not cross the basement membrane; the risk of developing invasive disease is increased if it is of a high nuclear grade and of the comedo subtype;¹⁰ often asymptomatic and detected on screening but 10% of DCIS present as a breast mass⁹ or rarely as bloody nipple discharge; requires surgical management +/- adjuvant therapy
 - Lobular Carcinoma in Situ (LCIS): Much less common than DCIS (~15%); marker of increased invasive cancer risk in either breast

Invasive Cancer:

Types of invasive cancer include ductal carcinoma (most common), lobular carcinoma, medullary carcinoma, and tubular carcinoma

Two rare types of breast cancer with unique presentations:

- Inflammatory BC: Invades lymphatics thus causing the characteristic erythema, pain and skin changes (peau d'orange); more aggressive form of cancer; occurs in ~1-3% of cases¹
- Paget's disease: incidence <5%;¹ typically presents with unilateral nipple-areolar dermatitis/eczema

Diagnostic Approach

History^{4,5}

Characteristics of mass	Location and duration of lump
Changes in size	Variation with menstrual cycle
Pain/swelling/erythema	Nipple discharge or inversion
Medical/Surgical hx	Personal hx of breast or ovarian cancer
Personal hx of breast biopsy or surgery	Radiation exposure to the chest
Recent breast trauma	Family hx of breast or ovarian cancer
Age at first childbearing	Menarche/menopause
Hx of breastfeeding	Social history (environmental, diet, smoking)
Hx of hormone replacement therapy	Hx of drugs known to cause gynecomastia by increasing prolactin (cimetidine, ranitidine, nifedipine, efavirenz, HAART)

Physical Examination¹

- Systematic approach:
 - Visual inspection with patient sitting and supine
 - Patient supine with one arm raised – palpate tissue in superficial, intermediate, and deep tissue planes
 - Include examination of axilla, supraclavicular area, neck, and chest wall
 - Inspect nipple for discharge
- Search for a suspicious lesion
 - General "lumpiness" is normal
 - If no dominant mass on exam, consider ultrasound or mammogram based on patient's age (see below), or referral to breast clinic if unsure
 - If suspicious lesions is found (single lesion, hard, immobile, irregular borders), cannot definitively be diagnosed as cancer; requires further work up with Fine Needle Aspiration (FNA), ultrasonography, mammography

Imaging

Modality of imaging is dependent upon women's age, characteristics of mass, availability of resources and physician skill. Generally, breast MRI not indicated for workup of undiagnosed breast mass and is best reserved for difficult diagnostic cases after mammography and ultrasound completed.¹

- o < 30 y.o, no risk factors, non-specific mass on exam by clinician:¹
 - o Return 3-10 days after onset of menses to determine ?regression
 - o Ultrasonography (+/- mammogram) useful step to determine whether mass is simple cyst, complex cyst, or solid tumour
 - Ultrasound useful in this age group due to high breast density^{1,2}
- o > 30 y.o. (* Note there is some variability depending on guideline)
 - o Mammography should be standard part of work up¹
 - Include 2 views of each breast, with compression/magnification views of any abnormal areas
 - o Normal mammogram alone cannot exclude a cancer suspected clinically, as mammogram may miss 10 -20% of cancers¹
- o If no mass palpable on exam:
 - o F/U in 2-3 months or
 - o Order mammography for women >40 yrs if no mammography in last 1 year or
 - o Refer to subspecialist for further evaluation²
- o If persistently palpable mass on exam but normal imaging:
 - o Referral for biopsy
- o If suspicious mass palpated:³
 - o Mammogram +/- ultrasound no matter the age, refer for biopsy

Biopsy

Modality of biopsy is dependent upon patient characteristics, imaging findings, physician skill.

- o Fine Needle Aspiration:³
 - o An acceptable first step when the patient has a low pre-test probability of malignancy (young, breast mass with associated mastalgia, no significant risk factors)
 - o If the aspirated fluid is non-bloody and the mass disappears with aspiration, this is diagnostic for a benign cyst
 - Following up with repeat clinical exam in 4 – 8 weeks to ensure no recurrence
 - If recurrent, requires re-imaging via U/S or mammogram
 - o If the aspirated fluid is bloody
 - Send off for cytology
 - Refer for re-imaging and specialist consultation
 - o If the aspiration does not cause lump to disappear
 - Refer for re-imaging and specialist consultation
- o Core biopsy
 - o Preferred method of biopsy for solid or suspicious masses
 - o Requires specialist consultation
 - o Sensitivity and specificity approaches excisional biopsy²

When to Refer⁷

- Any suspicious features on diagnostic imaging or physical exam
- Persistent palpable mass but the diagnostic imaging is normal – this still requires biopsy
- If diagnostic imaging reveals a complex cyst, or aspiration of a cyst is bloody
- Abnormal biopsy results
- Whenever biopsy results are discordant with the physical exam and radiographic findings

Bottom Line

Breast lumps are a common presentation in Family Medicine. There is no clear algorithm for how to approach a breast lump; the approach is dependent upon the patient risk factors, the clinical characteristics, the findings on imaging, and the possible outcomes of in-office FNAs. Any concerning features should be referred to a specialist for further work up.

References can be found online at http://www.dfcu.utoronto.ca/programs/postgraduateprogramme/One_Pager_Project_References.htm