## Surgical Management of High-Risk Breast Lesions

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#### **KEYWORDS**

- High-risk lesion Atypical hyperplasia Lobular carcinoma in situ
- Percutaneous breast biopsy Breast cancer risk Papillary lesions Radial scar

#### **KEY POINTS**

- High-risk breast lesions include 2 large main categories: those lesions that are found on percutaneous biopsy that have a significant risk of demonstrating cancer at excision and lesions that indicate an increased risk of breast cancer over a woman's lifetime.
- In general, the following lesions identified on percutaneous breast biopsy should be excised: atypical ductal hyperplasia (ADH), flat epithelial atypia, papillary lesions with atypia, and radial scar with atypia.
- For papillary lesions and radial scars without atypia, observation can be considered in select cases with favorable features and radiologic-pathologic concordance; however, surgical excision is a safe approach with low morbidity. Cases that do not undergo surgical excision must be followed with clinical and imaging surveillance to assure stability.
- For percutaneous biopsies demonstrating atypical lobular hyperplasia (ALH) or lobular
  carcinoma in situ (LCIS), observation can be considered if there are no other associated
  high-risk lesions in the specimen and/or there is another histologic finding that is concordant with the original imaging lesion (ie, the ALH or LCIS represents an incidental finding);
  otherwise, surgical excision is a safe approach with low morbidity. Cases that do not
  undergo surgical excision must be followed with clinical and imaging surveillance to
  assure stability.
- ADH, ALH, and LCIS are histologic findings that indicate a significantly increased longterm risk of breast cancer that may affect either breast. Women with these findings should be counseled on risks and benefits of prevention strategies.

Funding sources: None. Conflict of interest: None.

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#### INTRODUCTION

The term *high-risk lesion* of the breast refers to any of a group of histologic abnormalities that confer an increased risk of breast cancer. The surgeon's role in the clinical management of these lesions is 2-fold and includes issues related to the method of diagnosis as well as strategies for surveillance and risk reduction.

In the era of widespread mammography and image-guided needle biopsies, the surgeon is often presented with a high-risk lesion as a histologic finding on core needle biopsy. In this setting, the key is in understanding which lesions require a surgical excision of the biopsy site to rule out the possibility of an associated malignancy. In the absence of a concurrent malignancy, a high-risk lesion is simply a histologic finding in breast tissue that is associated with an increased risk of breast cancer in the future.

In general, patients who are found to have high-risk lesions are managed long term with surveillance and prevention strategies; but in some circumstances, surgical risk reduction may be considered. In this article, the authors review issues related to the diagnosis of high-risk lesions and recommendations for clinical management.

#### **HIGH-RISK LESIONS: HISTOLOGIC ENTITIES**

The classic high-risk breast lesions, lobular carcinoma in situ (LCIS), atypical ductal hyperplasia (ADH), and atypical lobular hyperplasia (ALH), are those that were identified many years ago as being associated with an increased future risk of breast cancer. In the 1970s, it was recognized that a diagnosis of LCIS conferred an increased risk of breast cancer of approximately 1% per year and that this risk was conferred equally to both breasts. In 1985, Dupont and Page² demonstrated that women with either ADH or ALH had an approximate 4-fold increased risk of breast cancer compared with the general population, a level of risk that was approximately one-half of that conferred by a diagnosis of LCIS. With technical advances, the shift to percutaneous core needle biopsy and increased attention to benign histologic findings frequently identified in breast specimens, several additional lesions are now included in the high-risk lesion category, including papillary lesions, radial scar, and flat epithelial atypia (FEA). Each of these is discussed in further detail.

#### RATIONALE FOR SURGICAL EXCISION OF HIGH-RISK LESIONS

Percutaneous core needle biopsy of breast abnormalities is subject to several limitations. First, the targeted lesion can be inadequately sampled or clearly missed; fortunately, this occurs only infrequently. However, it is common that only a portion of the lesion is removed, introducing the possibility of sampling error<sup>3</sup>; and the lesions are often fragmented into multiple smaller pieces by the nature of the procedure, which can increase the difficulty in making a definitive histologic diagnosis.<sup>4</sup>

It is well documented that certain histologic diagnoses, when made on core needle biopsy specimens, will frequently be upgraded to cancer when the remaining biopsy site is surgically excised.<sup>5–7</sup> Multiple studies have also shown that the likelihood of upgrading to a diagnosis of cancer is related to the volume of tissue sampled by the needle biopsy, with higher upgrade rates for smaller-gauge biopsy needles (ie, 14G needle vs 11G vacuum-assisted biopsy devices) and larger mammographic lesions.<sup>8–10</sup>

For all of these reasons, it is important to confirm that there is concordance between the radiologic findings and pathologic findings on the core biopsy and to understand which lesions on the core needle biopsy should be surgically excised. When surgical excision is undertaken, the goal is to remove the biopsy site and the original imaging

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