



The Role of Pathology in Appropriate Management

**The 3rd International
Congress of Breast
Disease Centers**

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Breast Cancer

The Plan

- To provide an overview of the role of pathologists in the delivery of personalized breast care

Breast Cancer

The Facts

- A major public health problem across the globe
- A physical and psychosocial threat to women's lives



Breast Cancer

The Advances

- **Enhanced public awareness and screening**
- **Improvement in breast imaging**
- **Introduction of minimally invasive diagnostic and therapeutic procedures**
- **Interest in breast cancer risk reduction and prevention**
- **Discovery of breast cancer genes and new molecular pathways**
- **Introduction of molecular targeted therapy**

The Changing Role of Pathologists

The Progression

- The emergence of new technologies**
- Molecular characterization of tumors**
- Stratification of patients for therapy based on tumor characteristics**
- A paradigm shift in patient outcome**

The Changing Role of Pathologists

The Way We Were

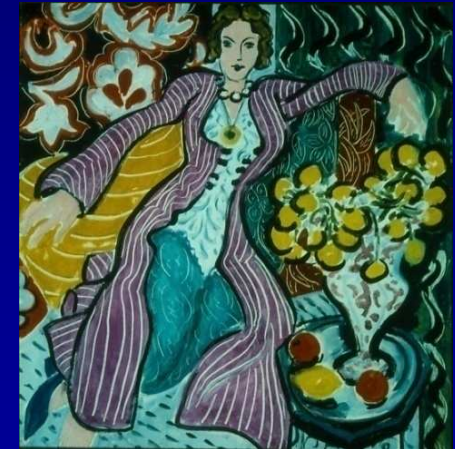
- Pathology diagnosis was based on:
 - Gross examination
 - Light microscopy
- The most common diagnosis was:
 - Undifferentiated malignant neoplasm



The Changing Role of Pathologists

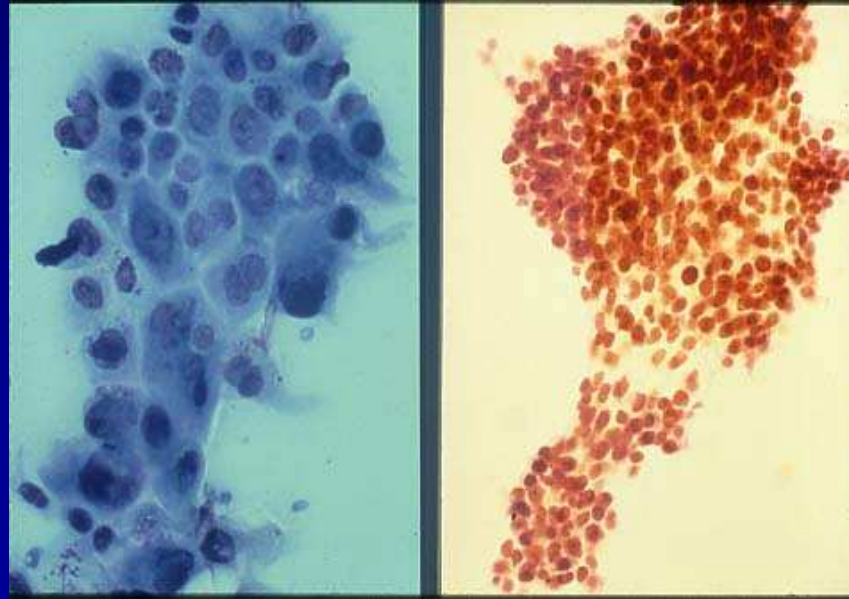
The Way We Are

- Establish a diagnosis
- Classify a neoplasm
- Differentiate between a primary versus a metastatic tumor
- Predict the response to therapy
- Provide the prognosis
- Compose a comprehensive pathology report



Pathology Report

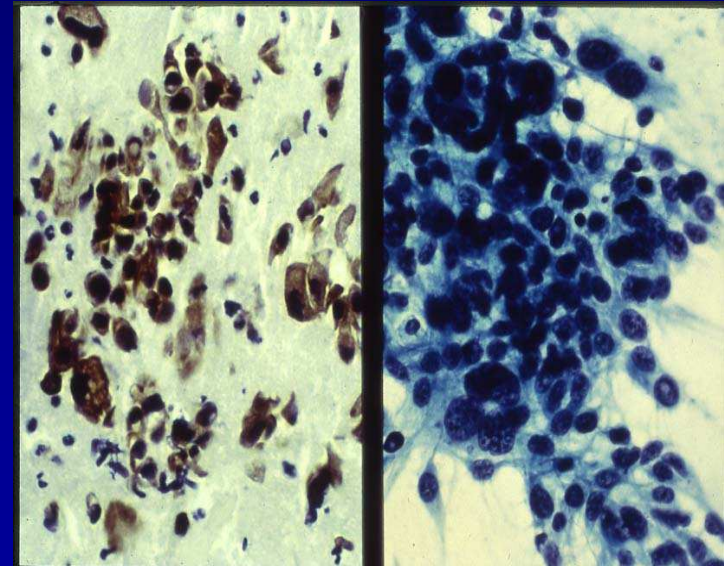
- Diagnostic Information
- Prognostic/Predictive Information



The Role of Breast Pathologists

Diagnosis

- Benign versus malignant
- Malignant
 - Primary breast carcinoma
 - Uncommon malignant lesions
 - Lymphomas/leukemias
 - Sarcomas
- Metastatic tumors
 - Malignant Melanoma
 - Lung carcinoma
 - Prostate cancer in men
- Borderline breast lesions
 - Spectrum of proliferative breast disease



The Role of Breast Pathologists

Risk Prediction

- **Identification of borderline breast lesions**
 - **Risks reduction modalities**
 - **Surveillance, chemoprevention, bilateral mastectomy**
- **Detection of metastasis in sentinel lymph nodes**
 - **Selection of patients for axillary node dissection**
- **Detection of tumor cells at surgical margins in lumpectomy specimen**
 - **Less surgery/Less frequency of tumor recurrence**

The Role of Breast Pathologists

Prognosis: Treatment Planning

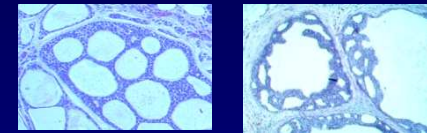
- Tumor size**
- Tumor type**
- Histologic grading**
- Lympho-vascular invasion**
- Lymph node status**
- Status of surgical margins**

The Role of Breast Pathologists

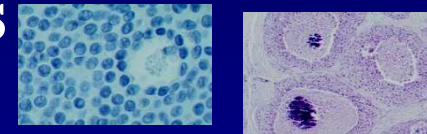
Prognosis: Treatment Planning

- Presence or absence of ductal carcinoma in situ

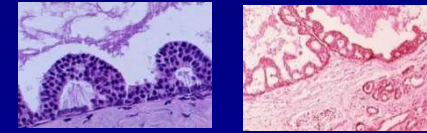
- Nuclear grade



- Presence or absence of necrosis



- Growth patterns



- Multicentricity/multifocality

- Presence or absence of nipple involvement, and ulceration

The Role of Breast Pathologists

Prediction of Response to Therapy

- **Assessment of the status of expression of estrogen and progesterone**
 - **Endocrine therapy**
- **Assessment of the pattern of expression of HER-2/neu oncogene**
 - **Herceptin therapy**
- **Assessment of others/new genetic molecular pathways**
 - **Molecular/adjuvant chemotherapy**

The Role of Breast Pathologists

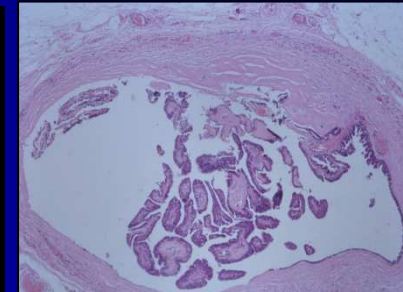
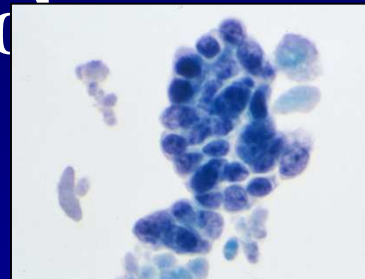
The Significance of Accurate Prognostic/Predictive Testing

- Selection of those patients who will most likely benefit from systemic therapy**
- Offering personalized medicine with greater safety and effectiveness**
- Providing affordable and cost-effective care**

The Role of Breast Pathologists

Tissue Sampling: Clinical/Research

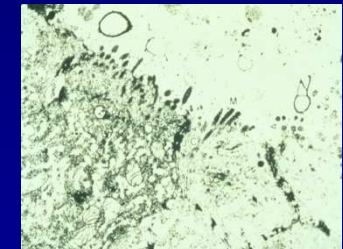
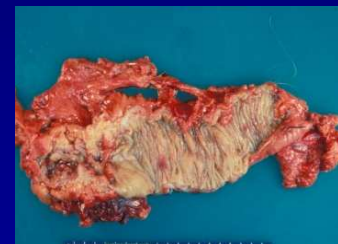
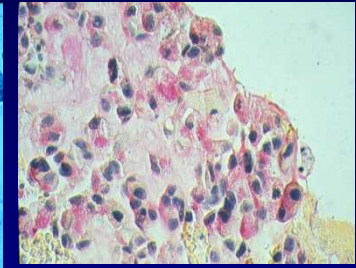
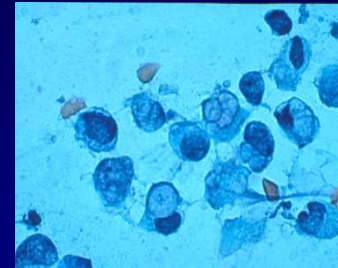
- Fine needle aspiration biopsy
- Nipple aspiration fluid cytology
- Ductal Lavage



**What Does A
Pathologist Need to
Provide an Accurate
Pathology Report?**

Effective Communication

- Type of the procedures
- Pertinent clinical history
 - Age/Risk Factors
 - The site and the size
 - History of other malignancies
 - History of chemo/radiation therapy
- Breast imaging
 - The site and the size
 - The pattern of abnormality
 - Presence or absence of microcalcifications
 - BI-RADS characterization
- Appropriate tissue orientation





Challenges of Practice of Breast Pathology in Low Resource Countries

- Limited financial resources**
- Inadequate number of appropriately trained pathologists and technologists**
- Differences in stage of breast cancer presentation**

The Essentials

- Pathology diagnosis must be provided for every patient with a breast lesion
- Approach to therapy without a confirmed diagnosis is not acceptable

The Essentials

- Selection of sampling procedure for the initial diagnosis should be based on:
 - Availability of the necessary infrastructure
 - Experience of the person who samples the lesion and the one who interprets the pathology findings

Suggestions/Call to Action

- Encouraging international collaboration and networking in:**
 - Assistance in training**
 - Offering access to pathology services**
 - Telepathology**

Suggestions/Call to Action

- Acknowledgement of the necessity of establishment/improvement of pathology practices across the world**
- Realization of the value of integration of breast pathology into clinical practice**

Integration of Breast Health Services

