COMPARATIVE STUDY OF THE VALUE OF DIFFERENT PATHOLOGICAL PROCEDURES IN DIAGNOSIS OF BREAST LESIONS

Thesis Submitted for M.D. Degree

in PATHOLOGY

By

ALI MOHAMED FOUAD EL SHARABY

M.B., B.Ch., D.M.Sc. (Pathology)

Pathology Department, Faculty of Medicine,

Ain Shams University

1974

N.B.

I am grateful also to late professor Omar Attia head of the Pathology Department Ein Shams University for his supervision and fatherly attitude that encouraged me to proceed in this work.

I wish to express my deepest appreciation and great thanks to professor Kamal. K. Ahmed head of the Pathology Department and Dean of the Faculty of Medicine, Mansura University for his valuable help and masterly teaching.

Page

—o-o-o-o-o—

I N T R O D U C T I O N

Histology is the universally accepted mean of establishing a definite pathological diagnosis, whereas the use of cytology is controversial. The methods generally used in obtaining tissues for the histologic study of any lesion, include excisional or incisional biopsy. In addition, needle biopsies have been used extensively by internists to obtain cores of liver tissues, but their possibilities have not been fully exploited in other organs. As regard cytology, two methods of study are available and these include, exfoliative cytology which has already gained world wide acceptance as a diagnostic method (Papanicolaou, 1954 and Koss, 1968) and tissue or non-exfoliative cytology, which is less popular (Soderstrom, 1966).

The latter refers to cells obtained by fine needle aspiration on solid organs or tissue masses or form the cut surface of freshly removed surgical biopsy material (Dudgeon and Patrick, 1927). Considering breast pathology, the diagnosis is usually based on either excisional or incisional biopsy but the other methods mentioned above are sparsely employed. Because of the fact that early diagnosis of cancer breast is still one of the most important factors governing the ultimate prognosis for the patient, so no method

therefore should be overlooked when [illegible] of prompt demonstration of a malignant neoplasm at the patient first visit.

The present work aims at study of the value of the following methods in diagnosis of breast lesions:

1. Clinical assessment.
2. Cytologic examination of nipple discharge.
3. Aspiration biopsy.
4. Needle biopsy.
5. Examination of vaginal smears to assess hormonal patterns associated with breast lesions.

.. .. ..

REVIEW OF LITERATURE

I. NORMAL HISTOLOGY OF THE BREAST

The histological appearances of the breast at various stages of life, possess important bearings upon the conception of certain pathological states.

Cheatle and Cutler (1931) described the histological appearances of the breast at the various stages of life from birth till menopause as follows:

(a) At birth: In some breasts only few acini and ducts form the chief part of the gland. In some instances, large irregular shaped columns of epithelium may be seen dipping into the subcutaneous tissue to form the future ducts and acini. In other instances the epithelial proliferations may be so great as to resemble a lactating breast.

(b) Between birth and puberty: The breast is in state of quiescence. The lobules have formed, there is very little pericanalicular and periacinous fibrous tissue and only few acini. The epithelium lining the ducts and acini is intact and inactive.

(c) At puberty: New ducts and lobules of acini are formed and there is hyperplasia of pericanalicular and periacinous

fibrous connective tissue amongest which lymphocytes may be present. There may be desquamative epithelial hyperplasia in ducts and acini.

(d) In connection with menstruation: At the intermenstrual period, the breast consists of ducts but no acini, and at time of ovulation with formation of corpus luteum, rapid multiplication of the epithelium takes place with formation of large number of small lobules. And with regression of corpus luteum the breast lobules regress and disappear during the post menstrual period.

(e) During pregnancy: In some parts of the gland there may be hyperplasia of pericanalicular and periacinous connective tissue amongest which some lymphocytes may be seen, and in this part also there may be some slight new formation of acini and ducts, the epithelium of which is undergoing hyperplasia. In other parts of the same breast where new ducts and acini have also been formed, the epithelium of the acini has undergone enormous hypertrophy by forming new acini. Very little periacinar and pericanalicular connective tissue can be seen.

(f) During lactation: The changes are the same throughout the whole breast. The new formation of ducts and acini is enormous, lobules are markedly increased in size and

II. PATHOLOGY OF THE BREAST

Acute Non-specific Mastitis:

Hesseltin and Priddle (1951) mentioned that acute non-specific mastitis consists of non-specific inflammation of the breast caused by any of the ordinary pyogenic organisms. This condition usually occurs within the first six weeks of the puerperium and the organism gain entrance by way of cracked or fissured nipples. infrequently the condition may be non-puerperal and may occur in conjunction with lesions of the skin overlying the breast, carcinoma of the breast and other conditions.

Robbin (1957) pointed out that in the early stage of acute mastitis, the inflammatory changes may consist largely of the collection of pus within the affected ducts accompanied by periductal neutrophilic infiltration with involvement of the gland buds and surrounding stroma. However in the course of time the suppurative necrosis may destroy large but usually only focal areas of breast substance. Under these circumstances the destroyed breast substance is replaced by fibrous scar as a permanent residual of the inflammatory process. Such scarring creates a localized areas of increased consistence

[illegible] accompanied by retraction of skin [illegible] simple changes that may later be mistaken for [illegible] neoplasm.

Tuberculosis:

According to Deaver and McFarland (1917) tuberculosis of the breast may be:

a) Miliary.
b) Conglumerate with large single or multiple nodular masses.
c) Sclerosing tuberculous mastitis which is comparable to chronic fibroid tuberculosis of the lung.
d) Mastitis tuberculosa obliterons in which chronic periacinar and periductal tuberculosis lead to obliteration of breast epithelium.

The diagnosis depends not only upon the presence of histologically demonstrable tubercles but must be supported by bacteriologic evidences.

Grausman and Goldman (1945) recorded that tuberculosis of the breast constitute as high as 1.87 percent of all mammory lesions. They mentioned that pathologically the process is generally unilateral and grossely may appear as a nodular caseating mass, as a more sclerosing lesion or as a cold abscess. The histologic changes are typical of tuberculosis.

[illegible] tuberculosis of the breast associated with carcinoma has been observed.

Mammary Cystic Hyperplasia:

There is no agreement as to the mthod of classification of the various types of the disease although various authors have suggested certain ways of classifying the various lesions encountered.

Cole and Rossiter (1944) classified these lesions into four groups:

1. Adenofibrosis: The essential lesion is a fibrosis which is relatively diffuse throughout the breast.
2. Benign parenchymatous hyperplasia: There is proliferation of glands and ducts but no change resembling malignancy or malignant tendencies. Secretory products accumulate in dilated ducts.
3. Precancerous hyperplasia: There is an advanced proliferation of cells (chiefly of the ducts) which reveal plication, layering and increase in mitosis. The shape of the cells is atypical.
4. Cystic disease: Cysts are the predominant lesion. No epithelial hyperplasia is encountered.

Only on rare occasions will the lesion consist entirely of one of the four types described above.

Heller and Fleming (1950) reported that fibrosing adenosis which is a lesion characterized by proliferation of acinar epithelium and its basement membrane with agressive intralobular fibrosis could be considered as a variant of mammary cystic hyperplasia.

Elwi (1963) mentioned that mammary cystic hyperplasia is characterized by the presence of fibrosis, adenosis and cystic changes and one of these is usually predominant over the others.

1. Fibrosis: results from the proliferation of the periductal connective tissue. The lesion present itself as an ill defined, indurated mass which is tender particualarly in the days preceeding menstruation.

2. Adenosis: The hyperplastic ductal epithelium forms new glandular spaces closely pressed to each other or piles up and forms small papillary processes or solid plugs.

3. Cyst: may be single or multiple and small or large in size. Multiple cysts may be localized to the upper outer quadrants or widely distributed in both breasts. The epithelium lining the cysts may be smooth or may have papillary processes. The cysts are distended with a serous fluid.