

857 Breast Biopsies as an Outpatient Procedure:

Delayed Mastectomy in 41 Malignant Cases

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BIOPSY of lesions of the breast that appeared to be clinically benign were performed in the outpatient surgical clinic of Walter Reed Army Hospital of Washington, D. C., from 1950 through 1962. Patients with suspicious or grossly malignant lesions were admitted into the hospital for treatment. Clinical findings in the benign cases will be reviewed. In addition, malignant lesions that were biopsied will be reviewed both clinically and from the standpoint of 5-year survival.

Methods

An organized, standard and routine method of examination of the breast was used and familiarity with the clinical aspects of fibrocystic disease, fibroadenoma, intraductal lesions and carcinoma was essential. In the examination, palpation was the most important single procedure. An extremely useful and atraumatic maneuver in the screening and palpation of breast lesions was the use of the soaped hands.¹ The breasts were carefully and easily palpated in a circumferential direction. Breast masses, even minute ones, could be located quickly. Tactile sensitivity is increased by

the removal of friction and the breast can be evaluated in continuity since there is no need for raising the hands from the breast.

After a diagnosis of probable benignancy was made, the patient was scheduled for operation. An oral antihistaminic was given in the operating room. The breast was prepared with suitable antiseptics and draped. Field block anesthesia was accomplished with 1 per cent Lidocaine with epinephrine. The tumor was removed and sent immediately to the pathologist for frozen section. While awaiting the report, after irrigation with saline and hemostasis, the wound is closed.

A total of 857 breast biopsies were performed, 41 specimens were malignant, an incidence of 4.8 per cent. Sixty-seven benign lesions are excluded because of insufficient data. Thus, 790 biopsies on 767 patients are available for analysis. Biopsies were performed by residents and attendings assigned to the surgical clinic of the Walter Reed Army Medical Center.

Benign Lesions (749 Patients)

Age. Ages ranged from 13 to 76 years in females and from 16 to 92 in males. Fibroadenomas were common in younger individuals and rare in patients over 40 years of age. There were, however, 23 such cases and three patients were over 50 years of age. There were 185 patients over 40 years with fibrocystic disease: from 40 to 50 years—162, from 50 to 60 years—18, and over 60 years—five.

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Sex. 728 patients were women and 21 were men. Twenty men had gynecomastia, among whom one had intraductal hyperplasia. One man had a lipoma.

Race. Of those with benign lesions 665 were Caucasians and 84 were Negroes.

Types of Lesions. Fibrocystic disease was the most common condition found and occurred as a single entity in 356 patients, and combined with other lesions in 67 patients. The second most common lesion was fibroadenoma, which was found alone in 185 patients and combined with other tumors in 37. Ductal papillomas were found in 45, and inflammation in 40 patients.

Other changes noted were lipomas, changes associated with pregnancy and lactation, gynecomastia, fat necrosis, accessory breast tissue, normal breast tissue, scar tissue, lymph nodes, eczema, Mondor's disease, calcified nodule and ectopic bone.

Inflammation. Inflammatory changes were found in 40 patients. Usually breast abscesses were admitted to the hospital for incision and drainage. Six patients had incision and drainage done while outpatients. In these instances, biopsy of the abscess wall was done to rule out carcinoma. Six other patients had a mass and only on section was a localized walled-off abscess found. Chronic nonspecific inflammation was found in eight, and one had an inflamed epidermal inclusion cyst. Mammary duct ectasia occurred in 19 instances, ten of which were associated with sinuses.

Endometriosis. Five patients had endometriosis, two of whom also had fibrocystic disease. Three others treated with Enovid had marked engorgement of the breasts with multiple masses. Biopsy revealed fibrocystic disease with marked lobular hyperplasia.

Mondor's Disease. Eight patients after biopsy of the breast developed firm fibrous cords typical of thrombophlebitis of the superficial veins.

Other findings worthy of discussion were

nipple discharge, recurrent masses beneath scars and pregnancy.

Nipple Discharge. Twenty-four patients had nipple discharge. The secretion was sanguineous in eight, and on biopsy intraductal papillomas were found in seven—the most common cause of hemorrhagic discharge in the series. A dilated duct was present in one. Nonbloody discharge occurred in 16 patients: six with fibrocystic disease, four with inflammation, two with intraductal papillomatosis, two with carcinoma, one with dilated duct and one with fibrocystic disease and intraductal papilloma.

Recurrent Mass Beneath Scar. A frequent cause of concern was residual thickening or nodularity at the site of a previous biopsy of the breast. In two such cases biopsy performed in the hospital showed carcinoma. Of 8 patients operated upon in the outpatient department, fibrocystic disease was found in seven and fibrocystic disease with foci of lobular carcinoma in situ in one.

Pregnancies. There were 47 patients who were pregnant or lactating. The average age was 24.8 years; only 8 were over 30. (There was one carcinoma in this group.) Fibroadenomas were also found and occurred more frequently in Negroes.

Malignant Lesions (41 Patients)

Age, Sex and Race. All were women—38 Caucasians and 3 Negroes. Ages ranged from 27 to 74 years, with an average of 47.6 years. Of the 41 patients with malignant lesions there were one from 20 to 30, seven from 30 to 40, 21 from 40 to 50, four from 50 to 60, and 8 over 60. Thus, 80 per cent were over 40 years.

Location and Size. The malignant tumors were located in the right breast in 21, the left breast in 19 patients. Bilateral malignant disease was found in one patient. The majority (29 or 70.7 per cent) were located in the upper outer quadrant. Sizes

TABLE 1. 5-Year Determinate Survival in 37 Malignant Cases with Delayed Mastectomy*

	No.	Residual Tumor		Died	Survived	Survival (Per Cent)
		No.	Incidence			
With axillary metastasis	9	8	88.8%	5	4	44.4
Without axillary metastasis	28	18	64.3%	3	25	89.3
Total	37	26	70.2%	8	29	78.4

* Mastectomy done within 72 hours of biopsy in 31 patients (83.8%). Three others operated upon within 1 week, three within 1 month.

ranged from 2 to 3 mm. to 4.5 cm.—smaller than 1 cm. in seven, between 1 to 2 cm. in 25, and over 2 cm. in nine.

Histologic Types. Most tumors (38) were invasive ductal carcinoma. Three of these also had lobular carcinoma in situ. In addition there was one lobular carcinoma, one carcinoma in an intraductal papilloma, and one medullary carcinoma.

Clinical Notes. Review indicated that six of the patients had clinical signs of malignant disease according to descriptions in the records and should have been treated as in-patients. Lesions in the remaining 35 patients appeared clinically benign. An important consideration is history of rapid growth; this occurred in five patients. Nipple discharge was present in two. In early carcinoma, diagnosis is difficult. Tumors are often small or are situated deeply in the breast tissue, making the findings similar to those with benign tumors. Frozen section was reported as benign in four instances and inconclusive in two. Definitive operation was delayed from 7 to 30 days in six patients. In three of these, the diagnosis was questionable and required consultation. Biopsies in two other patients were initially reported as benign, and one patient had left the country. One other patient had delayed operative treatment because of an upper respiratory infection.

Surgical Treatment. Radical mastectomy was performed in 39 patients. Two patients had simple mastectomy—one followed by radiation therapy, the other had lobular carcinoma and received no further treat-

ment. Radiation therapy was given to 11 patients, radioactive gold to one, oophorectomy to five. Simple mastectomy was performed on the opposite breast in five patients.

Malignant Lesions and 5-Year Survival Rate

Thirty-seven of the 41 patients were available for analysis of 5-year survival (determinate survival) (Table 1). Of the four excluded, two were alive and well, but had not reached the 5-year mark. Two others had died—one a year after mastectomy from renal carcinoma; the other, 4 years after mastectomy from complications arising from a fractured hip. Necropsy examination in both revealed no evidence of metastasis from a carcinoma of the breast.

Delay. Mastectomy was performed within 72 hours of biopsy in 31 of the 37 patients (83.8 per cent): 15 within 24 hours, 12 within 48 hours, four within 72 hours, three within 4 days, and three within 1 month. There were eight deaths in this series; the overall 5-year survival rate was 78.4 per cent. No evidence of metastatic disease was found in the survivors.

Axillary Metastasis. Nine patients had axillary metastasis; four survived for 5 years (44.4 per cent survival rate). Of 28 patients without axillary metastasis, 25 survived (89.3 per cent).

Discussion

The prime purpose of the breast biopsy is to exclude the possibility of cancer or to

remove a possible premalignant lesion. The principal benign tumors are *fibrocystic disease*, *fibroadenoma* and *intraductal lesions*. Carcinoma in the early stages may be indistinguishable from a benign tumor.

Clinical judgment and acumen are necessary to avoid unnecessary biopsies in patients with multiple masses. In such instances follow up, charting of lesions, and mammography can be helpful.

In a series of outpatients on whom *breast biopsy* was performed for ostensibly benign masses, there were 41 cancers (4.8 per cent). In the literature the incidence of error ranges from 2.9²⁰ to 13²¹ per cent: 3.75 per cent (Massie and McClellan¹³), 6 per cent (Wright²⁴), 8.3 per cent (Arcari and Wilson⁴), and 10 per cent (Urban²²). In the only series of outpatients (69 patients), reported by Singleton and Martinez,²⁰ two cancers were found. Biopsies were performed in a highly selective group in this series.

Principal methods of biopsy are: aspiration, incision or excision. Aspiration or needle biopsy has been recommended by the Memorial Hospital Group³ since they believe that open biopsies, excision and sponging disseminate tumor cells and open lymphatics and blood vessels. Incisional biopsy has been recommended by Haagensen⁶ since carcinoma frequently infiltrates far beyond the grossly visible limits of the disease. Wide excision is recommended by Harrington⁸ and Wilson.²³ Five-year survival in Pierce's series¹⁵ with excisional biopsy was 70.9 per cent and with incisional biopsy was 47.5 per cent. In general, Pierce prefers excisional biopsy when the lesion is 2 cm. or smaller and incisional biopsy with larger lesions. Since in the presently reported series tumors were removed in the outpatient department and were considered benign, complete excision was attempted in all instances. However residual carcinoma was found in 26 of 37 patients who had cancer (70.2 per cent). Eight of nine

patients with axillary metastases, and 18 of 28 without metastases, had residual carcinoma in the resected breast. Compared with other statistics, residual carcinoma seemed to have little effect on 5-year survival when mastectomy was done early. It is worthy of note that all 11 patients who had no residual carcinoma in the resected breast survived 5 years.

There is correlation between size, type of the tumor and survival rate. All seven patients with lesions less than 1 cm. survived 5 years; axillary metastases were found in one of these. All eight deaths were associated with infiltrating ductal carcinomas.

Five-year survival rates in carcinoma of the breast have improved from 28.9 per cent in 1907⁷ to 48.5 per cent in 1957.¹¹ Prognosis is better in patients thought to be clinically benign than in those thought to be clinically malignant.²² This was corroborated by our findings.

In this series there was little deleterious effect on *5-year survival* (78.4 per cent) when radical mastectomy was done within the time intervals recorded. Nohrman's¹⁴ conclusions were similar, he stated, however, that when the interval exceeded 3 days, the prognosis was poorer. Haagensen⁶ found in 13 cases when radical operation was followed by an interval of 6 days or less, survival rate was 84.6 per cent. Also, in 49 cases when mastectomy followed biopsy by more than 7 days, survival rate was greater than with immediate operation. In the series of 96 patients, reported by Pierce *et al.*,¹⁵ 5-year survival was 44.2 per cent with axillary metastases, and 75.1 per cent without metastases. Seventy-six per cent of patients were operated upon within 1 month, and in four patients delay was for more than 1 year. Others (Siemens,¹⁹ Scheel,¹⁸ Rödén,¹⁶ Jackson and Pitts,¹⁰ and Fries⁵) report equal or better results with delayed operation.

On the other hand, Harrington⁹ con-

cluded that prognosis was poorest when a month or more elapsed between biopsy and resection. Adair² reported that in 283 patients who had delayed mastectomy 5-year survival was 20 per cent, and when operation was performed immediately, it was 51 per cent. Sayago and Sirebrenik¹⁷ found that 39 patients operated upon immediately (82 per cent had axillary metastasis) had a survival rate of 84.7 per cent. With delayed mastectomy (averaging 25.3 to 33.1 days) in 33 patients (70 per cent had axillary metastasis), the survival rate was 27.3 per cent.

The local recurrence rate ranged from 10 to 18 per cent whether or not a preliminary biopsy was done prior to mastectomy.¹⁵ One of our patients had local recurrence. The effect of delay on nodal metastasis is also of interest. Harrington⁹ found a higher incidence of nodal metastases with delay, 79 per cent, as compared to 64 per cent in those treated immediately. Others^{12, 14, 18} were unable to demonstrate increased incidence of metastases to axillary nodes in the interim between biopsy and mastectomy.

Axillary metastases (Stage 3) or absence thereof (Stages 1 and 2) have a definite effect on prognosis. Survival rate in this series was 44.4 per cent in patients with axillary metastases and 89.3 per cent when axillary nodes were uninvolved. In the cancer prognosis manual,¹¹ 5-year survival rate with metastasis was 35.3 per cent, and without metastasis was 76 per cent; the overall determinate rate was 48.5 per cent. Axillary metastases were found at operation in 52.7 per cent,¹¹ whereas in our series, metastases were noted in only 24.3 per cent.

Conclusion

Biopsy of lesions of the breast and immediate mastectomy is the ideal treatment for carcinoma of the breast. However, biopsies for clinically benign lesions can ade-

quately be done as an outpatient procedure. In the occasional instance when cancer is encountered and definitive operation is performed early (preferably within 3 days), 5-year survival is equal to or better than reported in other series.

Summary

From 1950 through December 1962 biopsies of lesions of the breast considered clinically benign were performed under local anesthesia in the out-patient department of Walter Reed Army Medical Center, Washington, D. C. This is the largest such series reported.

Out-patient management has saved hospital beds, eased operating schedules and saved extensive and costly diagnostic study and preparation. In patients with benign lesions, the psychological advantage is obvious since the procedure is minor and the patient can go home after the frozen section is reported negative. In patients with malignant lesions, there is always psychological trauma.

A total of 857 biopsies were performed and there were 41 cancers—an incidence of 4.8 per cent. Clinical findings in both benign and malignant lesions were analyzed.

Five-year survival of patients with malignant lesions was determined. 83.8 per cent of patients were operated upon within 3 days after biopsy. Five-year survival was 78.4 per cent—evidence that there was no deleterious effect on survival when radical mastectomy was done during this time interval.

Axillary metastases were present in 24.3 per cent of the patients. Five-year survival with metastases was 44.4 per cent and without metastasis was 89.3 per cent. Residual carcinoma in the resected specimen apparently had little effect on 5-year survival when compared with reports of others. However, all 11 patients with no residual carcinoma survived 5 years, indicating an

earlier lesion with lack of invasion and a better prognosis.

There were seven patients with lesions less than 1 cm. in diameter. None of these patients died.

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