Breast Cancer and Pregnancy

Report of 49 Cases Followed 5 Years *

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HOW MUCH EFFECT does pregnancy have on the course of a patient with breast cancer? The surgeons who have attempted to answer this question have drawn their conclusions with the qualification that they have had too few cases to make clear cut statements, yet most agree that a coincident pregnancy would decrease the patient's chances for cure. We only partially agree with this point of view.

Breast cancer and pregnancy coexist more frequently than is generally believed. About 2 per cent of our New York and Seattle series of breast cancers have had pregnancy as a complication (Fig. 1) whereas the collected series of 45,881 patients [1] with breast cancer has shown a slightly higher incidence of pregnancy (2.8 per cent). In other words, approximately one of every 35 patients with breast cancer, or one in every three during the childbearing age, will have pregnancy as a complication. On the other hand, the obstetrician's chance of seeing such a case is much less, with breast cancer appearing about thrice in 10,000 pregnancies [1, 2] (Fig. 2). It is obvious that this problem cannot be studied in one practice or in one hospital but it lends itself to a mass study of several hospitals. For this reason we have gathered 49 cases from six Seattle and three New York City hospitals.*

* Presented before the American Surgical Association, White Sulphur Springs, West Virginia, April 11, 1956.

* The Doctors, King County, Maynard, Providence, Seattle General, and Swedish Hospitals of Seattle, and the Bellevue, Roosevelt, and University Hospitals of New York City.

PATIENTS TREATED PRIMARILY DURING PREGNANCY

The 11 patients primarily treated for breast cancer while pregnant are illustrated in Figure 3. The four with disease limited to the breast can be seen in the left hand columns, with two deaths occurring within a year; two 14 year survivors; one (M. K.) without further evidence of disease after this interval, and the other (C. K. G.) with death ensuing from breast cancer in the opposite breast. All the patients with involved axillary nodes died within four years. The month of pregnancy during which each patient was treated is indicated above the survival columns. Three of the localized tumors occurred during the second trimester of pregnancy and one was in the first. Those with axillary spread were seen in all months of pregnancy. Patients L. W. and C. K. G. had subsequent pregnancies; the first aborted because of very advanced disease and the second was allowed to proceed to term, only to have a new cancer in the opposite breast; death followed, five and eight years later, respectively. There was an average survival period of 45.1 months and a mean survival of 10.4 months. One of the four patients (M. K.) is a woman who had a radical mastectomy in the middle of pregnancy for a duct cell carcinoma localized to the breast (Fig. 4). Both she and her child are well, without evidence of recurrence in the mother after 14 years.

Cases Treated During Nursing Where the Tumor Had First Been Noted During Pregnancy. In 14 instances a tumor was

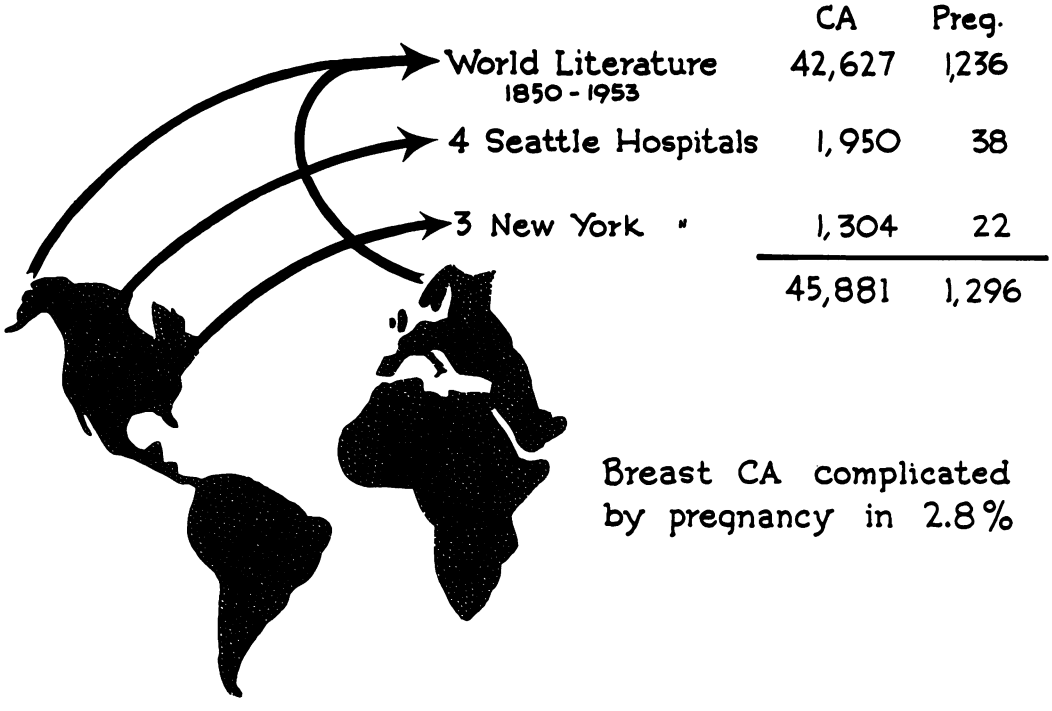

FIG. 1. The incidence of pregnancy as a complication of breast carcinoma in an analysis of the world literature and seven New York and Seattle hospitals is portrayed here to be about 2.8 per cent.

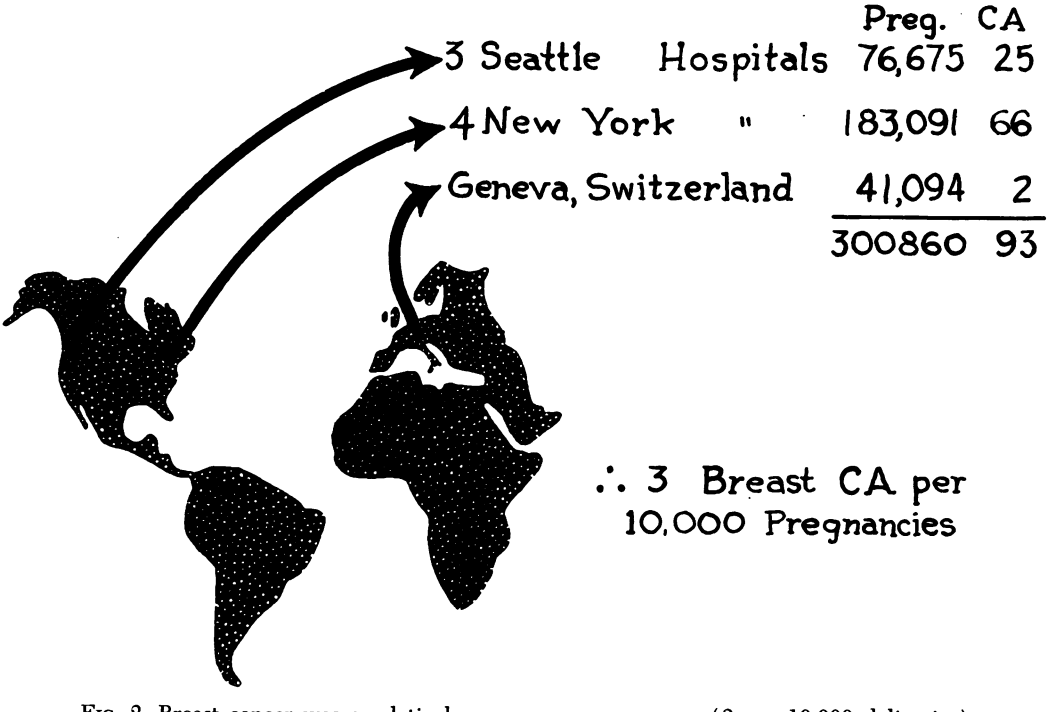

FIG. 2. Breast cancer was a relatively uncommon occurrence (3 per 10,000 deliveries) among patients seen on eight large obstetrical services.

RESULTS IN 11 PATIENTS HAVING MASTECTOMY DURING PREGNANCY

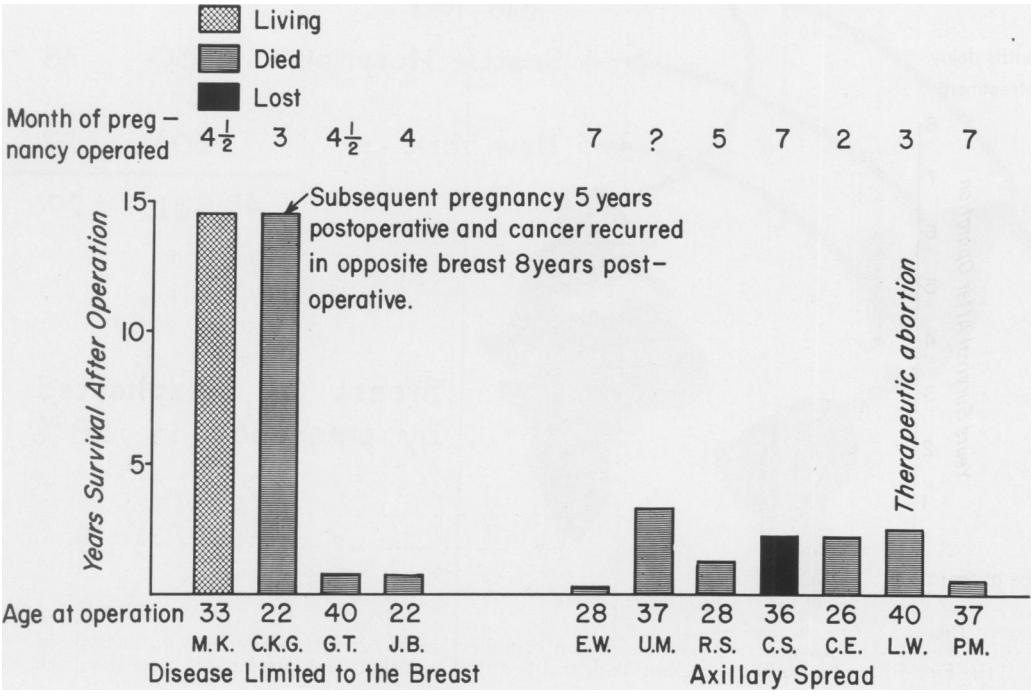

FIG. 3. Eleven patients were treated primarily for breast cancer during pregnancy with an average survival period of 45.1 months and a mean survival of 10.4 months. Operations were performed in all trimesters of pregnancy. One pregnancy was terminated at the time of mastectomy (L. W.), while another occurred 5 years postoperatively (C. K. G.).

noted during pregnancy, while treatment was deferred until sometime during nursing (Fig. 5). In two instances (M. O. and G. P.) the tumor was noticed during one pregnancy, no treatment was instituted until after the second pregnancy, with consequent delays in treatment of 48 and 13 months, respectively. The remaining patients were treated following the first pregnancy with intervals between first observation by the physician and treatment of up to 18 months. The average delay was 11 months, while the mean delay was nine and one-half months. The delay noted in each patient can be seen above the survival columns. There were three patients with disease localized to the breast and 11 in whom axillary nodes were involved. One of the three patients with localized disease survived seven and one-half years

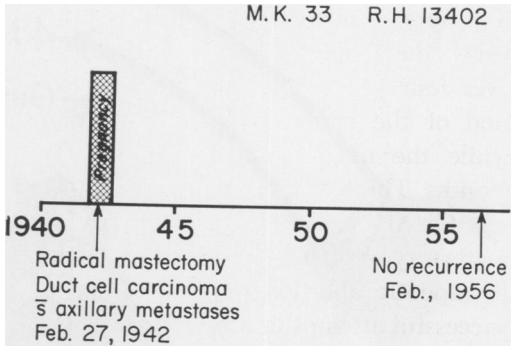

FIG. 4. An example of a 33-year-old woman (M. K.) who had a radical mastectomy for duct cell carcinoma without axillary metastases while four and one-half months pregnant. She has had no recurrence after 14 years.

while the other two survived three and one-half years at the end of which time one was dead and the other was lost to follow up. All of the 11 patients with axil-

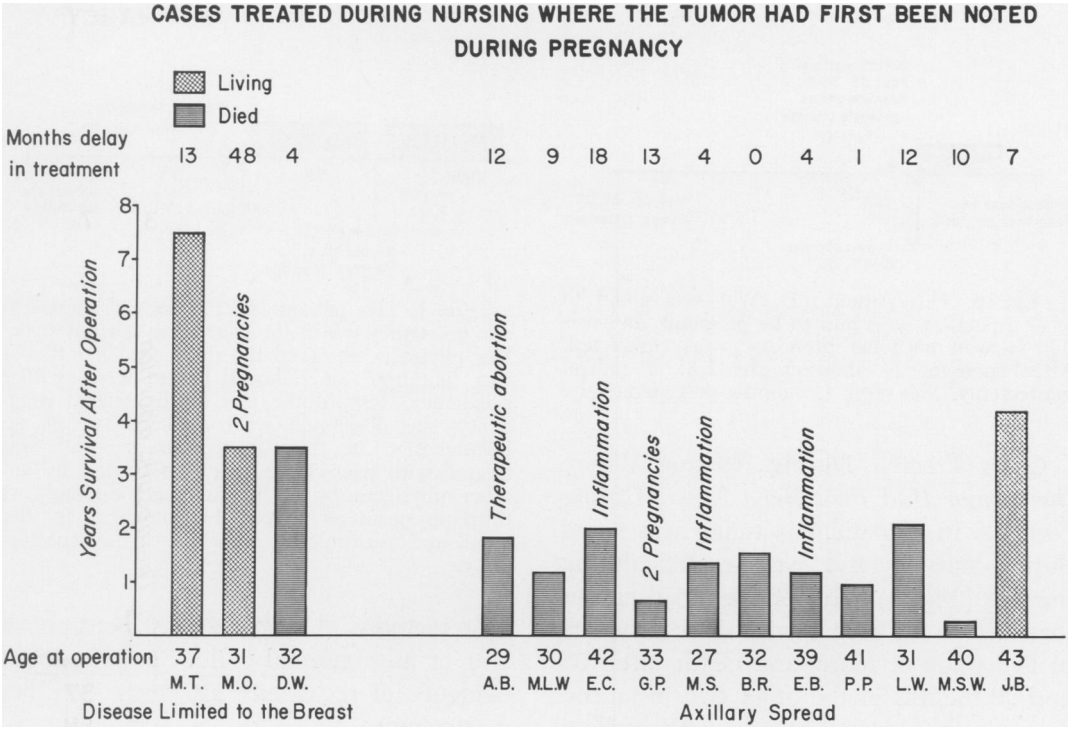

FIG. 5. In 14 patients the tumor was first treated during pregnancy, and treatment was deferred until the nursing period. The average delay in treatment was 11 months, while the mean delay was nine and one-half months. The average survival period for the entire group was 27 months while the mean survival period was 14 months. Three patients had inflammatory type cancers. One had a therapeutic abortion. Two patients had tumors in one pregnancy, not treated until after a second pregnancy was completed.

lary spread were dead in less than five years, the longest survivor lasting a little over four years. The average survival period of the entire group was 27 months while the mean survival period was 14 months. Three of those with axillary spread (E. C., M. S., and E. B.) had an inflammatory type of tumor. One (A. B.) had a therapeutic abortion performed in an unsuccessful attempt to arrest the disease partially.

Patient D. W. (Fig. 6) is an example of a woman who was noted to have a breast mass, and to be pregnant in January, 1950. Treatment was deferred several months because of the pregnancy, then instituted only after a spontaneous abortion had occurred four months later. This patient had an adenocarcinoma with no positive axillary nodes, but was dead as a result of diffuse spread 41 months after the operation.

Patient G. P. (Fig. 7) is an example of a patient who noted a mass during one pregnancy, which became more prominent after delivery of her child, was told that this mass was "nothing" by her physician and was allowed to become pregnant again. By the end of her second pregnancy her breast appeared to be inflamed. Her physician continued treatment with packs until after delivery, when she went to a second physician who incised and drained the mass. Finally, 13 months after discovery of the tumor, she had a biopsy by a third physician proving the lesion to be a carcinoma, and then a radical mastectomy was done. She survived mastectomy only eight months.

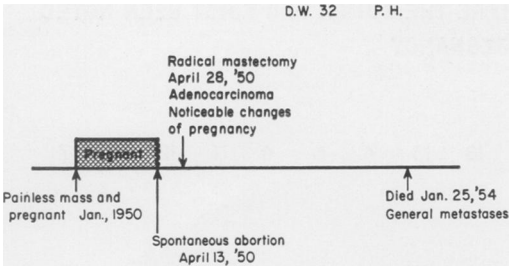

FIG. 6. This patient (D. W.) was noted to have a painless mass and to be pregnant, and was told to wait until her pregnancy was completed. After spontaneous abortion she had a radical mastectomy. She died 41 months postoperatively.

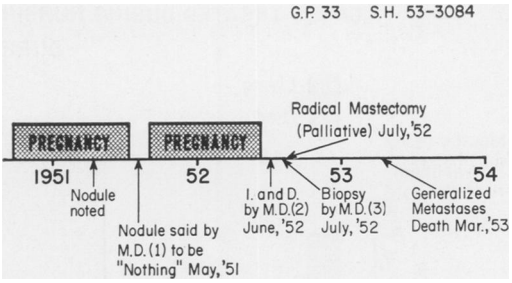

FIG. 7. This patient (G. P.) noticed a mass in one pregnancy which she showed to her physician. Her physician observed the mass, told her that it was "nothing," and allowed her to have another pregnancy. Toward the end of the second pregnancy she developed what appeared to be an inflammation in the affected breast, and was treated with packs. Later she was treated by another physician by an incision and drainage. A third physician recognized the true basis for her mass, and performed a palliative radical mastectomy.

Cases Treated During Nursing Where the Tumor Had First Been Noted During Nursing. In 12 patients a tumor was noted during nursing and was treated during nursing (Fig. 8). Five of these had cancer localized to the breast, with three survivors of five years or more, and deaths after 58 and 29 months in the other two instances. Two of the seven patients with axillary spread survived five years, one dying at the end of this period and the other remaining well. One seriously ill patient (J. S.) had a therapeutic abortion performed two months postoperatively, with no perceptible effect on the course of her disease. Those patients with tumors found and treated during nursing appeared to have been treated more promptly than those in whom the tumor was first found in pregnancy. There was an average delay in treatment in this group of three and a half months and a mean delay of one month, with an average survival period of 52 months and a mean survival period of 56 months.

One patient (H. P. D.) (Fig. 9) is an example of a promptly treated woman who has had no difficulties to date in spite of the fears of her physicians and a second pregnancy. She had a radical mastectomy for a Grade III carcinoma five months postpartum, and a second pregnancy two years later. After some deliberation, her physicians terminated this second pregnancy by hysterectomy at two months because of fear of an abnormal child. She is without evidence of recurrence six years after her mastectomy.

Cases Operated Upon for Breast Cancer Who Later Became Pregnant. Twelve patients operated upon for breast cancer later became pregnant at least once, and one twice (Fig. 10). Eight of these patients had disease localized to the breast and four had axillary node involvement. Seven of the eight patients with local disease survived 10 years or more, with survival periods of 11 years and three months, 12 years, 13 years and six months, 16, 24, 34, and 34 years, while the remaining patient survived just over a year. Only one of the four with axillary node involvement survived five years. The time interval between operation and subsequent pregnancy is noted above the survival columns. One of the 34 year survivors had pregnancies two and four years after operation, and the remaining 11 patients within four years or less. Two pregnancies ended in spontaneous abortion and one in therapeutic abortion. One patient, M. W., had spread to the opposite breast two years after her pregnancy, five years after her first mastectomy.

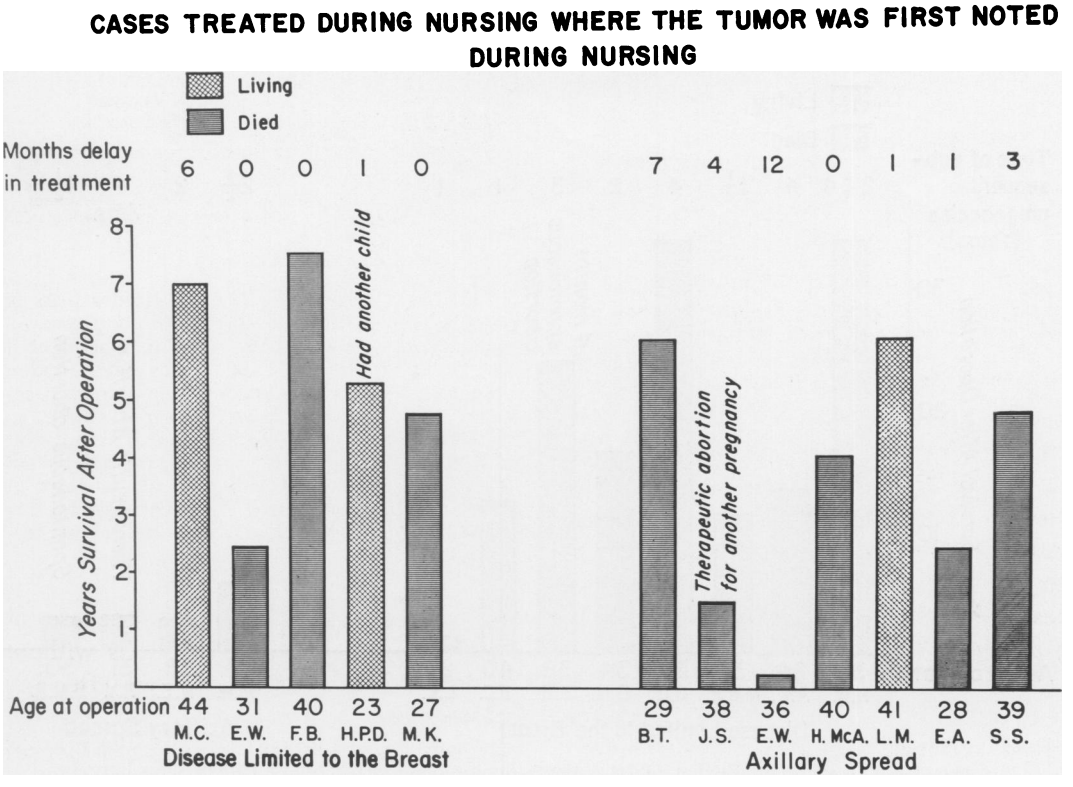

FIG. 8. Twelve patients found tumors in their breasts during nursing and were treated during this period. There was an average delay in treatment of only three and one-half months and a mean delay of one month in this group, while there was an average survival period of 52 months and a mean survival period of 56 months. Two patients (H. P. D. and J. S.) had termination of pregnancies occurring subsequent to mastectomy.

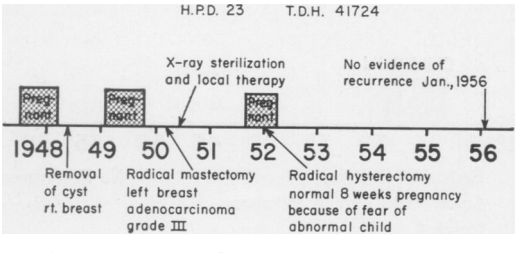

FIG. 9. During the nursing period following her second pregnancy, this patient (H. P. D.) noted and had a mass in her left breast treated for Grade III adrenocarcinoma. Her ovaries were also irradiated. Two years later she had a radical hysterectomy to avert the possibility of an abnormal child. She has had no evidence of recurrence after five and one-half years, and has recently been seen water skiing.

One patient (H. W.) had normal children two and four years after her radical mastectomy for carcinoma localized to the breast (Fig. 11). The mother is without evidence of spread after 34 years, works in an editorial capacity, while both children are well today.

COMMENT

We believe that about one third of patients who develop breast cancer during the childbearing period will have pregnancy as a complication. For this reason we feel that the problem is important enough to warrant the attention of every surgeon. Of this group of patients, the patients treated during pregnancy or nursing should be considered separately from those who became pregnant at some time after original treatment of their breast carcinoma.

As regards patients treated during pregnancy or nursing, those treated promptly

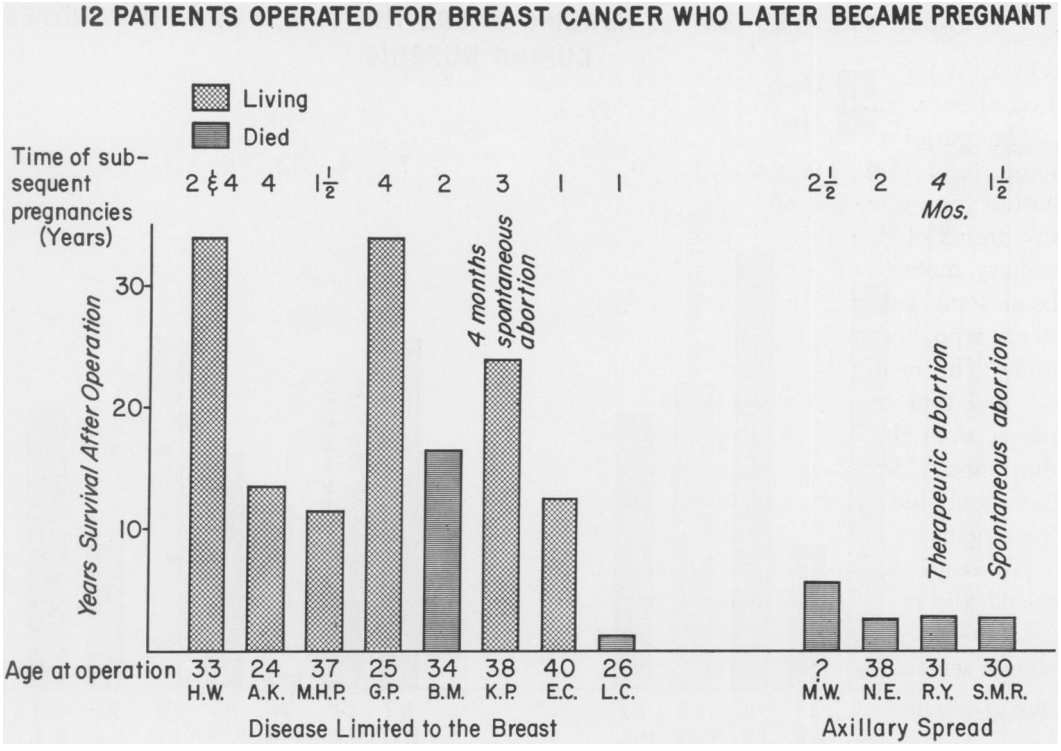

FIG. 10. This slide shows that of 12 patients operated upon for breast cancer who later became pregnant, seven survived 10 years or more, two of these for 34 years without recurrence. The intervals between operation and subsequent pregnancy are all four years or less.

with disease localized to the breast have done very well, with six of 12 surviving five years or more. On the other hand, only two of 25 with axillary spread survived five years or more. There was a tendency to postpone operating on a number of patients seen with tumors during pregnancy until after delivery. This delay was not significant in the group of patients who had their primary treatment during pregnancy as opposed to those treated during nursing, where there was an average delay from first observation of tumor to treatment of 7.6 months (11 months among those where the tumor had been first noted during pregnancy and three and one-half months among those in whom the tumor had first been noted during nursing).

In three cases the delay was owing to confusion of the tumor with an inflammation. It was owing to difficulty as to diagnosis in a number of other cases either by the doctor or the patient. Because of the increased size of the breast during pregnancy or nursing the mass was not often detected until either the mass was very large or the breast had decreased in size toward normal and there was a relative enlargement of the mass relative to the

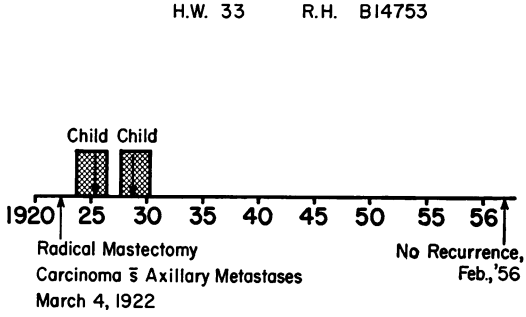

FIG. 11. This patient (H. W.) is working in an editorial capacity 34 years after her radical mastectomy. She had children 30 and 32 years ago, four and two years after her mastectomy.

breast volume. In other instances the doctor and the patient wished to delay operation until the conclusion of pregnancy for a number of emotional or religious reasons.

The patients who became pregnant at some time after mastectomy all did so within four years or less. Since more than two thirds of this group of patients had no axillary metastases, we feel that there has been some selection in regard to the patients who became pregnant after mastectomy. The results have been so good that we feel that the condition of the patient rather than the time interval since operation should determine whether or not the patient should be allowed to become pregnant again.

Although abortion, spontaneous or induced, did occur in six patients, we do not feel that any definite benefit could be shown secondary to this event.

CONCLUSIONS

1. About one-third of patients who develop breast cancer during the childbearing period will have pregnancy as a complication during or after the occurrence of the disease.

2. Patients treated during pregnancy or nursing without spread of the disease beyond the breast have a prognosis similar to that of uncomplicated series.

3. Patients with spread of their disease are usually in a very advanced state of disease due to delay in treatment.

4. Although there appears to be some natural selection of cases, the prognosis of patients who became pregnant after operation appears to be unusually good, while the interval between operation and pregnancy does not appear to be important. Recurrence occurred only once and a new tumor once in the other breast in such instances.

5. Abortion cannot be shown to have any definite influence on the course of the disease.

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2. White, T. T.: Prognosis of Breast Cancer for Pregnant and Nursing Women. Analysis of 1413 Cases. Surg., Gynec. and Obst., **100**: 661, 1955.

DR. STUART W. HARRINGTON, Rochester, Minn.: I compliment Dr. White upon his excellent presentation and for bringing before the Association this analysis of records of patients treated by radical mastectomy during pregnancy and lactation, and patients who became pregnant subsequent to radical mastectomy done for carcinoma of the breast. Dr. White has requested me to discuss his paper, which I am pleased to do, because it deals with subjects in which I have been greatly interested for a number of years. The importance of these subjects is evidenced by the fact that there is considerable difference of opinion in the profession as to the management of the patients concerned. Some surgeons have considered the presence of pregnancy or lactation to be a contraindication to radical surgical treatment for carcinoma of the breast; some surgeons advise delay of surgical treatment until after delivery of the child or termination of the pregnancy. I believe that the radical operation should be carried out immediately upon establishment of the diagnosis of carcinoma of the breast, whether during pregnancy or lactation, and that in such cases the usual methods for the establishment of a definite diagnosis by biopsy should be followed immediately by radical surgical treatment, if the lesion proves to be malignant.

As for patients who have undergone radical mastectomy for carcinoma of the breast and who are in the childbearing period of life, there is great difference of opinion in the profession as to the advisability of subsequent childbirth for them.

As Dr. White has said, these are entirely different subjects. I shall first discuss our results of treatment of carcinoma of the breast during pregnancy and lactation. Our results differ from those of Dr. White in that they have been better after radical mastectomy done for patients whose carcinoma was recognized and treated during pregnancy than they were when the lesion was treated surgically during lactation. Our results are similar to his in that when axillary nodal metastasis was not found at the time of operation, the