

Unnecessary morbidity from breast surgery

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Cancer of the breast is the commonest lethal neoplasm suffered by Canadian women.¹ Substantial health resources are spent diagnosing and treating the disease, but as yet demonstrable improvements in age-specific mortality rates have not been observed^{2, 3} in spite of our efforts toward earlier diagnosis and apparently worthwhile advances in therapy. No doubt this is because the timing of treatment of breast cancer is not nearly as important in determining the patient's outcome as the "tumour-host potential".⁴⁻⁹

Moreover, we are so busy stamping out cancer of the breast that little consideration is given to the morbidity that is created by our activities. Though no one is likely to die from a breast biopsy, every biopsy patient has her civil liberties suspended while she is incarcerated in hospital and all suffer some pain and discomfort. Varying numbers will suffer complications such as hematomas, wound infection or breakdown, reactions to adhesive tape, or untoward reactions to the tranquillizers, sedatives, anesthetics, antiemetics, antibiotics and other therapeutic agents to which they are subjected. More important,

all practitioners who deal with women with breast disorders are aware of the anxiety that these may cause. The fear of breast cancer and the fear of mutilation are usually intensified by the decision to perform breast biopsy and these fears are shared by most husbands. This anxiety has to be borne throughout the waiting period until hospitalization is possible, which at the Ottawa Civic Hospital is four to six weeks.

Just as important, but usually ignored, is the waste of health resources that results from unnecessary breast biopsy. The bed occupied by a patient with a breast cyst is not available to a patient whose disorder can be managed nowhere else but in hospital. Likewise, the operating room time (often the time sufficient for mastectomy) is lost, as may be the blood crossmatched in case it is needed, because the time during which such blood may be used is limited. Few hospitalized patients escape having at least some laboratory and radiological examinations which not only interfere with necessary procedures but also consume personnel and facility time. Though the nursing, technical and clerical time expended in caring for the patient hospitalized for an unnecessary breast biopsy can usually be provided by even an over-worked staff without extra cost, the fees of the surgeon, anesthetist and others must come from public tax or premium dollars, a fact which should be resented by discriminating surgeons and by

the non-operating medical disciplines.

Breast surgery at the Ottawa Civic Hospital was reviewed to see if any reduction could be achieved in the patient morbidity or in the utilization of health resources that result from unnecessary or inefficient efforts to diagnose and treat carcinoma of the breast.

Method

The charts of all female patients undergoing breast surgery at the Ottawa Civic Hospital between the years 1965 to 1969 inclusive were reviewed. Patients undergoing incision and drainage of a breast abscess or augmentation or reduction mammoplasty were excluded. A total of 2004 breast biopsies were performed with the object of diagnosing or excluding breast cancer. In the case of multiple biopsies done on the same occasion each was counted separately. All cases of malignant neoplasm of the breast were included in this review and designated simply as cancer.

Results

Of the 2004 biopsies, 509 (25.4%) were considered to be malignant. The likelihood among surgeons of finding cancer ranged fairly evenly from a low of 4.3% to a high of 55.4%. This wide variation in the rate of selection of patients for biopsy is difficult to justify. As four of 29 surgeons did succeed in achieving a benign biopsy rate of 50%, it must be accepted that more discretion could have been practised by the others.

Though no review was possible of the details of the physical features of the breast masses, the survey did elicit from the histories and general clinical findings many points that strongly

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suggested the benign or malignant nature of the lesions, and which could have reduced the number of unnecessary biopsies.

The likelihood of a carcinoma depended on the patient's age (Table I) and on the menopausal status (Table II), as well as on the history of a previous breast biopsy (Table III). If a former biopsy had revealed cancer there was a 50% chance of cancer again being present, while if an earlier biopsy had been negative, or if there had not been one, the chance of cancer being found was much less.

Multiple lesions were associated with a lower likelihood of cancer. There were no instances of cancer in the 33 women who had multiple unilateral breast biopsies. In women subjected to bilateral biopsy the risk of finding breast cancer was only half that when only a single biopsy was necessary. As in many cases of bilateral biopsy the diagnosis of cancer was obvious, the likelihood of one of multiple obscure lesions being malignant is remote (Table IV).

The number of days of postoperative hospitalization was also studied (Table V). Many of the longer stays were accounted for by the patients who underwent mastectomy for a benign disorder. Only five surgeons performed three-quarters of these operations, indicating that the majority did not agree that benign disease justified mastectomy.

There was an unacceptably wide range in the length of stay after operations for benign disease. For individual surgeons this varied from a low of 1.2 days to a high of 5.3 days. The patients of only five of 30 surgeons had a mean stay of 1.5 days or less. The range of mean postoperative days' stay after operations for breast cancer was also unacceptably broad, from a low of 6.4 days to a high of 28.8 days. Five of the 28 surgeons had stays of 9.0 days or less.

A definite change in the surgical procedures for breast cancer occurred during the period surveyed (Table VI). The use of traditional radical mastectomy and simple mastectomy declined. Most patients were subjected to a modified radical mastectomy, but there was an increase in the number, admittedly small, of wide tumour excisions (lumpectomy).

Although there were wide ranges in each group, in general the more highly qualified surgeons, those who had graduated after 1950 and those who saw more than four breast cancer

Table I
Malignant breast biopsies in various age groups

| Age | Number of biopsies | Number of cancers | Percent of cancers |
|----------|--------------------|-------------------|--------------------|
| under 19 | 43 | 0 | 0 |
| 20-24 | 112 | 0 | 0 |
| 25-29 | 84 | 0 | 0 |
| 30-34 | 130 | 9 | 6.9 |
| 35-39 | 214 | 24 | 11.2 |
| 40-44 | 367 | 57 | 15.5 |
| 45-49 | 437 | 87 | 19.9 |
| 50-54 | 205 | 63 | 30.8 |
| 55-59 | 121 | 75 | 62.0 |
| over 60 | 291 | 194 | 66.7 |

Table II
Breast biopsies with cancer according to menopausal status

| | Number of biopsies | Number of cancers | Percent |
|----------------|--------------------|-------------------|---------|
| Premenopausal | 1092 | 143 | 13.1 |
| Postmenopausal | 555 | 314 | 55.6 |
| Unknown* | 357 | 52 | 14.6 |

*Includes patients between the ages of 40 and 55 who had had a hysterectomy without bilateral oophorectomy or whose records did not mention their menopausal status.

Table III
Influence of biopsy history on incidence of cancer

| | Number of biopsies | Number of cancers | Percent |
|------------------------|--------------------|-------------------|---------|
| Previous benign biopsy | 365 | 33 | 9.0 |
| Previous breast cancer | 64 | 32 | 50.0 |
| No previous biopsy | 1575 | 444 | 28.2 |

Table IV
Incidence of malignancy when multiple biopsies were performed

| | Number of patients | Number of cancers | Percent |
|------------|--------------------|-------------------|---------|
| Unilateral | 33 | 0 | 0 |
| Bilateral | 126 | 15 | 11.9 |

Table V
Postoperative days stay after operation for benign disease

| Days | Number of patients | Days | Number of patients |
|------|--------------------|-------|--------------------|
| 0 | 24 | 6 | 33 |
| 1 | 556 | 7 | 24 |
| 2 | 465 | 8 | 14 |
| 3 | 204 | 9 | 6 |
| 4 | 101 | 10 | 8 |
| 5 | 49 | 11 | 1 |
| | | 12-26 | 10 |

Table VI
Operations for breast cancer, Ottawa Civic Hospital, 1965-1969

| | Radical mastectomy | Modified radical mastectomy | Simple mastectomy | Tumour excision | Biopsy only |
|------|--------------------|-----------------------------|-------------------|-----------------|-------------|
| 1965 | 22 | 52 | 24 | 1 | 1 |
| 1966 | 23 | 55 | 20 | 3 | 0 |
| 1967 | 13 | 54 | 24 | 4 | 2 |
| 1968 | 8 | 78 | 11 | 8 | 0 |
| 1969 | 6 | 86 | 7 | 6 | 1 |

patients a year, had the lowest rates of unnecessary breast biopsy, and their patients had the shortest postoperative stays following surgery for both benign and malignant breast disease.

Discussion

Though Moore *et al*¹⁰ have suggested that a yield of 15% and Harshman¹¹ a yield of 9% of malignancy in breast biopsies is reasonable, this review demonstrates that substantially better rates can be achieved. As four surgeons had rates of approximately 50%, it is clear that more discrimination in recommending breast biopsy can be practical; a 40% incidence of malignant disease as determined by biopsy is a reasonably acceptable minimum. A self-policing profession must devise means to ensure that patients are protected from the morbidity of unnecessary breast biopsy and that the community is protected from the attendant waste of health resources.

The physical features of breast lesions that indicate a need to perform biopsy are beyond the scope of this review. But the survey does indicate times when the cancer yield is low (age less than 39, before the menopause, history of a previous benign breast biopsy, or multiple lesions) and therefore occasions when biopsy is rarely indicated unless there are obvious clinical features of cancer. Possibly some surgeons avoided unnecessary breast biopsies by aspirating breast cysts in the office¹² and reserving biopsy for patients with a dominant mass. It was not the conclusion from this review that mammography would materially reduce the number of unnecessary breast biopsies.

Many who practise a liberal policy in regard to breast biopsy are concerned lest a discriminating approach may lead to cancers being missed or believe that only biopsy will relieve patient anxiety. But the decision not to perform biopsy is not irrevocable. The patient can be re-examined and should be instructed to practise self-examination. Nor is biopsy a certain way to discover the cancer. Six women in this study had had breast biopsies from the same area within two years of the discovery of cancer, suggesting that it had been missed on the earlier occasion by either the surgeon or the pathologist. Moreover, patient concern can usually be relieved without biopsy by a confident reassuring explanation and particularly by the successful aspiration of a

breast cyst. On the other hand the decision to perform a biopsy will maintain and usually increase the patient's anxiety until the operation is completed. Even where breast cancer is present, it does not appear that delay of a month or two significantly changes the eventual outcome which is determined by the "tumour-host potential".

It is also clear that there is an unacceptably wide range of duration of postoperative stay after benign breast biopsy. As 580 of the 1495 patients were discharged within 24 hours it is difficult to understand why all patients cannot go home within this period. Indeed, when the lesion seems clinically benign there is no reason why the biopsy cannot be done as an out-patient procedure, thus avoiding bed wastage and waiting periods. Most women realize that mastectomy is never done on out-patients so most of their anxiety about mutilation should be relieved by this policy. In the rare instance where such a lesion proves, unexpectedly, to be malignant there is no evidence that a delay of several days before definitive surgery is harmful; on the contrary it may be helpful.^{3, 13}

The review has also demonstrated an unacceptably wide variation in the length of postoperative hospital stay after breast cancer surgery. No doubt the greater use of wide excision (lumpectomy) would save enormously on beds and reduce morbidity, as would the directing of breast surgery to properly qualified and experienced surgeons.

If, in the series here reviewed, every patient with a benign breast biopsy had gone home within 24 hours, if every surgeon had achieved a cancer yield of 40%, if the mean postoperative stay after breast cancer surgery had been nine days, 5643 bed-days and 809 operating room hours would have been saved during this five-year period. This would be the equivalent of all of the private general surgical beds for a three-month period and all of the general surgery operating rooms for three-and-a-half weeks in the Ottawa Civic Hospital. Can the community afford this wastage? Can it tolerate the morbidity that unnecessary hospitalization causes by denying beds to those who need them?

Conclusions

1. A peer-review study at a large, university-affiliated hospital revealed that greater surgical discrimination

can eliminate unnecessary breast biopsies. Partly this can be achieved by being particularly selective in patients under 39 years of age, before the menopause, with a history of previous benign breast biopsy or with multiple lesions.

2. Patients undergoing benign breast biopsy, when this is not done as an out-patient procedure, should be discharged on the day following operation.

3. A mean postoperative stay of nine days after operation for breast cancer can and should be attained.

4. Substantial savings in patient morbidity and utilization of hospital resources can be realized in the diagnosis and primary treatment of breast cancer by these policies.

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