

# *The Validity of Radical Mastectomy in the Treatment of Breast Cancer*

Sompong Raksasook, MD, FRCS (Ire.)

Analysis of 100 patients suffering from breast cancer was made and the results of treatment by radical and simple mastectomy compared; post-operative radiation being given to both groups. It was found that radical mastectomy gave a higher incidence of survival rate than did simple mastectomy; being 82.36 per cent in the former and 68.75 per cent in the latter, within one to 10 years. Arm oedema occurred in 35.18 per cent of patients after radical mastectomy but none occurred after simple mastectomy.

Radical mastectomy still has a place in the treatment of early breast cancer in this country under the present circumstances. Severe operative morbidity is rather small. This type of operation is advantageous in enabling histological studies of axillary nodes, which serve as a criterion for the use of adjuvant systemic therapy after conventional local treatment.

Cancer of the breasts is the second most common malignant conditions in women. During 1974-1978, cancer of the cervix was the most common among female patients in Ramathibodi Hospital Medical School, with the incidence of 35.88 per cent while cancer of the breasts came second—the incidence of 10.78 per cent.<sup>1</sup>

During the last 10 years, the trends of surgical treatment of breast cancer has become more and more conservative. This is based upon the new concept of

*From the Department of Surgery,  
Ramathibodi Hospital Medical School,  
Mahidol University, Bangkok, Thailand.*

---

the natural history of breast cancer in that it is initially a disseminated or systemic disease and that the appearance of a localised mass is only a local manifestation of the disease.<sup>2</sup> Any local treatment alone will not completely eradicate this malignant condition. Hence, radical and mutilating operations, a form of local treatment, is considered as an unnecessary and unfair way to treat these unfortunate patients, when a smaller and more conservative type of operation combined with adjuvant systemic treatment will give as good or better results. Recently, reconstruction of the breast after conventional treatment of this malignant condition has been increasingly advocated.<sup>3-5</sup>

However, the author has considered that in the present circumstances, radical mastectomy with adjuvant radiotherapy is still a good method to treat breast cancer in this country, especially in the early clinical stages I and II.

To find out whether this belief is logical and valid, the author has followed a group of patients regularly. The following report is the analysis of this small trends

## MATERIAL AND METHODS

One hundred patients were picked up at random for this analysis from among breast cancer patients being primarily seen and treated by the author during May 1969-1979. Details of history and physical examination were uniformly recorded. Clinical staging was given preoperatively. This was based on criteria of T.N.M. classification according to the American Joint Committee for Cancer Staging and End Results Reporting-International Union Against Cancer (AJC-UICC TNM, 1977)<sup>6</sup>.

Excisional biopsy was performed and histological diagnosis verified in every patient before definitive surgery. Pre-operative investigations included routine complete blood count and urinalysis; fasting blood sugar and serum creatinine; liver function tests; liver scan and chest x-rays.

Three types of operations were used in this series. Radical mastectomy signifies removal of the whole breast including the axillary tail of Spence, both pectoral muscles and complete clearing of axillary fat and lymphatics from the level of the axillary vein downwards. Simple mastectomy involves removal of the whole breast including its axillary projection but without clearing of the axilla. Excision only indicates wide excision, avoiding cutting through tissue that may be involved by possible extension of neoplastic tissue as far as can be seen by the naked eye.

Cytotoxic agents were used as adjuvant treatment for only a few patients with clinical stages I & II; and as primary treatment for some of the clinical stages III & IV patients. Agents used were combinations of Adriamycin, Methotrexate, 5-Fluorouracil and Cyclophosphamide.

Radiotherapy was given to the anterior chest wall, axillary area and supra-clavicular region. A total of 4500 rads were usually given in three weeks, to most of clinical stages I & II patients.

Appointments for regular follow-ups were made as follows : every three months during the first three years; every six months thereafter for the rest of their lives. They were informed that should any untoward

symptoms or signs occur in between appointments, they should attend our out-patient clinic as soon as possible.

Basic observations and records for each visit are: examination of the remaining breast and the bare mastectomized chest wall; palpation of axillary, supra-clavicular and cervical lymph nodes; palpation of the liver; records of shoulder movement comparing to the normal, non-operated side; arm and forearm measurements at 15 cm. from the olecranon process on both sides. Other complaints or any physical signs which may indicate recurrence or metastases were added when evident. The criteria for measurements of arm oedema and shoulder stiffness are verified in Table 1.

Liver function tests, liver scan and chest x-rays were done every 6-12 months.

## RESULTS

All patients in this series were female. The average age was 47.03 years, ranging between 22 and 76 years. The median age was 47 years. Fifty-eight and eleven per cent of patients were classified as clinical stages I and II respectively. They will be referred to as "early cases." Patients who came primarily as "advanced cases" were those in the clinical stages III and IV; they comprise 29 per cent of the series. Another two per cent of patients were classified as stage X; they came in after primary lesions were excised elsewhere and details of the primary lesion and physical examinations were not available for staging (Table 2).

The methods of treatment were mainly local ones : a combination of surgery and radiotherapy. Radical mastectomy with postoperative radiotherapy were used in 36 per cent of patients; simple mastectomy combined with radiotherapy in 19 per cent (Table 3).

Most patients had infiltrating ductal carcinoma. Detail of histologic types are shown in Table 4.

There were no serious operative and postoperative complications. The most common was radiation pneumonitis which occurred in 7.69 per cent of patients receiving post-operative radiation. Wound infection was the second most common with the inci-

Table 1 Measurement of Morbidity

Degree	Arm Oedema Difference of Circumference	Shoulder Stiffness Limitation of Flexion/abduction
0	None	None
1	> 0 - 2 cm.	> 0 - 25 %
2	> 2 - 5 cm.	> 25 - 50 %
3	> 5 - 10 cm.	> 50 - 75 %
4	> 10 cm. upwards	> 75%-Complete Stiffness

Table 2 Clinical Staging TNM Classification 100 Patients

Stages	No.	Per cent
I	58	58 } "Early" 69
II	11	
III	24	24 } "Advanced" 29
IV	5	
X	2	

Table 3 Clinical Staging VS Primary Treatment  
100 patients

	Stages				
	I	II	III	IV	X
<b>No Radiation</b>					
Simple Mastectomy	—	1	2	—	—
Simple Mastectomy + Chemotherapy	—	—	3	1	—
Radical Mastectomy	8	1	—	—	—
Radical Mastectomy + chemotherapy	2	2	—	—	—
Excision	2	—	—	—	—
Chemotherapy	—	—	4	4	—
<b>With Radiation</b>					
Simple Mastectomy + Radiation	7	3	7	0	2
Simple Mastectomy + Radiation + Chemotherapy	3	—	3	—	—
Radical Mastectomy + Radiation	32	2	2	—	—
Radical Mastectomy + Radiation + Chemotherapy	3	2	—	—	—
Radiation + Chemotherapy	—	—	1	—	—
No Treatment	1	—	2	—	—
<b>Total</b>	<b>58</b>	<b>11</b>	<b>24</b>	<b>5</b>	<b>2</b>

Table 4 Histologic Types of Breast Cancer  
100 patients

Histology	No.	Per cent
Infiltrating Ductal Carcinoma	82	82 (including 4 Paget's disease)
Non-infiltrating Ductal Carcinoma	4	4
Medullary Carcinoma	3	3
Adenocarcinoma	3	3
Comedo Carcinoma	1	1
Mucinous Carcinoma	1	1
Infiltrating Lobular Carcinoma	1	1
Undifferentiated Carcinoma	1	1
Metaplastic Carcinoma	1	1
Malignant Cystosarcoma Phylloides	1	1
Unclassified	2	2
<b>Total</b>	<b>100</b>	<b>100</b>

dence of 7.29 per cent. Chronic ulceration occurred in 4.12 per cent; all after radiation. There were only 1.04 per cent of flap necrosis. One out of 65 patients had severe leucopenia following only one dose of radiation—the incidence of 1.54 per cent.

Two types of morbidities worth mentioning are arm oedema and shoulder stiffness. After simple mastectomy, the incidence of arm oedema was nil. There was 6.46 per cent of shoulder stiffness; these were in minor degrees. In radical mastectomy, 35.18

per cent of patients had arm oedema of varying degrees and 18.51 per cent had shoulder stiffness. (Table 5).

After radiation, the incidence of arm oedema increased significantly (Figure 1). Radiation does not seem to increase the incidence of shoulder stiffness after any type of operation (Figure 2).

Since most of the patients in this series were treated by simple or radical mastectomy with post-operative radiation, the results of follow-up of these two groups were compared. In the group treated by

Table 5 Morbidity Related to Type of Operation

	Degree	0	1	2	3	4
<i>ARM OEDEMA</i>						
Simple Mastectomy	31	31 (100 %)	—	—	—	—
Radical Mastectomy	54	35 (64.81 %)	8 (14.81 %)	9 (16.67 %)	1 (1.85 %)	1 (1.85 %)
		$\underbrace{\hspace{10em}}_{20.37}$				
		$\underbrace{\hspace{15em}}_{35.18}$				
<i>SHOULDER STIFFNESS</i>						
Simple Mastectomy	31	29 (93.55 %)	1 (3.23 %)	1 (3.23 %)	—	—
Radical Mastectomy	54	44 (81.48 %)	5 (9.26 %)	2 (3.70 %)	2 (3.70 %)	1 (1.85 %)
		$\underbrace{\hspace{10em}}_{18.51}$				

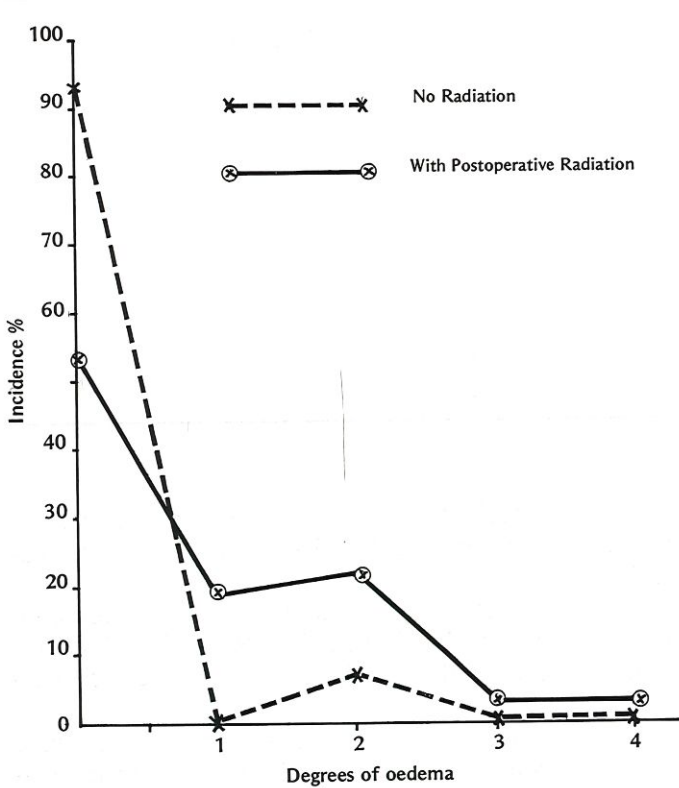


Fig. 1 Incidence of arm oedema after radical mastectomy

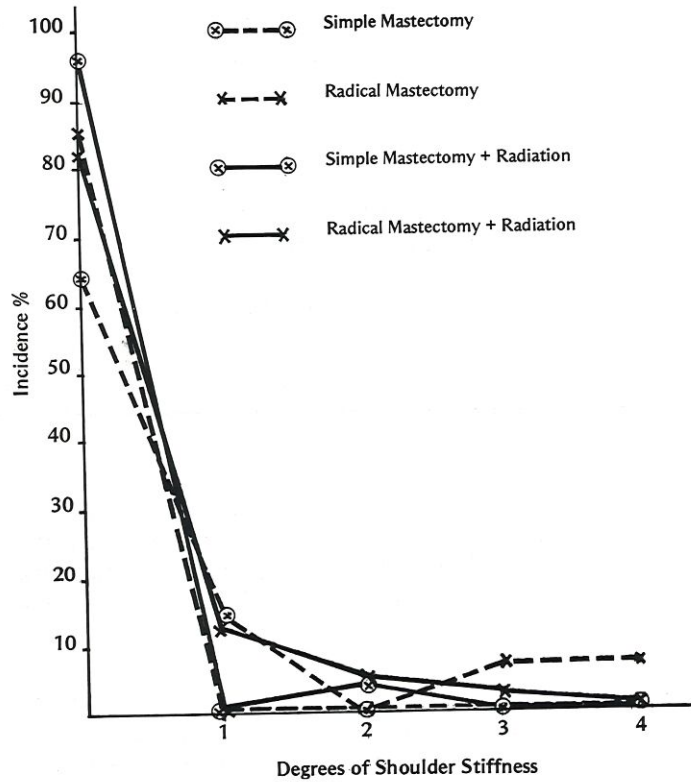


Fig. 2 Incidence of shoulder stiffness

Table 6 Comparison of Fate  
All Stage

Radical Mastectomy + Radiation 36 Patients (34 Known Fate)			Simple Mastectomy + Radiation 19 Patients (16 Known Fate)	
	No.	Per cent	No.	Per cent
Alive, Free of Disease	29/34	85.29	9/16	56.25
Alive with Disease	2/34	5.88	3/16	18.75
Dead of Cancer	3/34	8.82	4/16	25.00
Average length of follow-up (months)		46.82	38.69	

Table 7 Comparison of Survival

Radical Mastectomy + Radiation (34 Known Fate)			Simple Mastectomy + Radiation (16 Known Fate)	
Years	No.	Per cent	No.	Per cent
Survive within 1	5/34	14.71	0/16	0
1 - 5	16/34	47.06	8/16	50
5 - 10	7/34	20.59	3/16	18.75
10 - 15	3/34	8.82	1/16	6.25
Dead within 2-4 yrs	3/34	8.82	4/16	25.0
Average length of follow-up (months)		46.82	38.69	

radical mastectomy with postoperative radiation, 85.29 per cent are still alive and free of disease, while 5.88 per cent are alive with either recurrence or metastases; 8.82 per cent have died of cancer. The average length of follow-up was 46.82 months (Table 6).

Among patients having simple mastectomy and postoperative radiation, 56.25 per cent survive without evidence of disease; 18.75 per cent are still alive with either recurrences and/or metastases; 25 per cent have died of cancer. The average length of follow up was 38.69 months (Table 6).

The length of survival was compared between the two groups. It was found that 82.36 per cent of patients survive within 1-10 years in the group treated by radical mastectomy and postoperative radiation, while 68.75 per cent of patients treated by simple mastectomy and postoperative radiation survive within the same period of time (Table 7).

## DISCUSSION

The "standard" radical mastectomy as devised by Halsted has remained the primary approach to early cancer of the breast in this country over the last 50

years. Although the therapeutic pendulum swings from ultra-radical procedures at the one end to radical mastectomy in the middle and finally towards the most conservative form of surgery-local excision, it is very difficult to evaluate and compare the results of treatment at each end of the pendulum. This is due to the difference in the state of the disease among the patients. There are only a few controlled series available, whose results in conservative forms of treatment equalled or surpassed those treated by radical procedures.<sup>7,8</sup> Crile supported the conservative approach for the treatment of breast cancer. He suggested that conservative and radical operations gave the same rate of survival at 10 and 15 years.<sup>9,10</sup>

If one follows the literatures over the past sixty years, it will be seen that the treatment of breast cancer has always been controversial. Following reports from various centres, one finds that the pendulum has swung back and forth from conservative approaches to radical ones and back to conservative again. This is due to unsatisfactory results of any one type of treatment for this disease, most of which are local.

The author has no intention of advocating that a radical is superior to a conservative approach, but aims

to find out the advantages and disadvantages between the two. The purpose is to compare the morbidity and survival rate of both types of operation in a series that is technically identical i.e. operations performed and followed regularly by the same surgeon.

It is quite obvious in this small series that radical mastectomy followed by postoperative radiation gives a higher percentage of patients who are still alive and free of disease. The percentage of death from breast cancer is significantly higher in those treated by simple mastectomy and radiation (Table 6). Since the average length of follow-up in each type of treatment is very short (46.82 and 38.69 months respectively), comparison of survival in each group was split into periods of five years. Although radical mastectomy with postoperative radiation gives a higher percentage of survival, the difference of results between the two types of treatment in each period is very small and may be considered as insignificant. The percentage of death within 2-4 years is significantly higher in the group treated by simple mastectomy and post-operative radiation (Table 7).

The operative procedure alone does not seem to cause severe post-operative arm oedema; but when post-operative radiation was given, the percentage of arm oedema increased significantly in the radical mastectomy group. This shows that the operation causes a lesser degree of arm oedema than does radiation. (Figure 1)

Both types of operation equally cause shoulder stiffness; but when radiation is added post-operatively, the overall incidence is higher in those having radical mastectomy (Figure 2).

However, only 2.44 per cent suffered any severe degree of shoulder stiffness. It is interesting to note that in patients having radical mastectomy without radiation, the incidence of severe degrees of shoulder stiffness (third and fourth degrees is even higher than those having post-operative radiation (Figure 2). From this series, one cannot blame radiation as the only cause of shoulder stiffness. Patients who followed instructions to practice shoulder exercises regularly from the early post-operative days did not have shoulder stiffness, regardless of radiation. Radical mastectomy gives a higher incidence of arm oedema and shoulder stiffness, but only a few in this series have suffered severely from these complications.

Radical mastectomy includes meticulous dissection of the axilla and the presence of metastatic nodes can be verified histologically. Knowledge of histological status of axillary nodes help in the decision to use systemic chemotherapy as an adjuvant to conventional local treatment, in order to improve the survival rate and lower the incidence of local recur-

rences. Hence radical mastectomy remains an appropriate choice for surgical treatment of breast cancer. As for advanced cases, simple mastectomy or wide excision, combined with any form of systemic treatment and/or radiation should be used.

## CONCLUSION

The treatment of breast cancer still remains a controversial subject after sixty years. Although the pendulum of change swings towards a more conservative form of treatment, evidence from this analysis shows that radical mastectomy gives a somewhat more superior result than does simple mastectomy when post-operative radiotherapy is given to both groups. The group that had been treated by radical mastectomy and radiotherapy postoperatively gave a higher incidence of arm oedema and shoulder stiffness than did the simple mastectomy group; but only a few had these morbidities severely. This seems to be a small price to pay for a higher incidence of survival rate in the former type of treatment. However, the average duration of follow-up is rather short in this small series but this will be continued on and be reported on in the future.

## REFERENCES

1. Isarangkul, Na Ayuthaya : Relative Frequencies of Primary Cancers of All Sites in Ramthibodi Hospital, 1974-1978, Progress Reports, Department of Pathology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University.
2. Fisher, B : Surgery of Primary Breast Cancer. In McGuire, WL. (Ed.). Breast Cancer, Advances in Research and Treatment, 1, Current Approach to Therapy. Churchill Livingstone 1977, pp 1-42.
3. Stabile, RJ, Santoro E, Dispaltrio, F et al : Reconstructive Breast Surgery Following Mastectomy and Adjunctive Radiation Therapy. Cancer 45:2738-2743, 1980.
4. Bostwick III, J, Schefflan, M : The Latissimus Dorsi Musculocutaneous Flap : A One Stage Breast Reconstruction. Clinics in Plastic Surgery 7:71-78, 1980.
5. Vesconez, LO, Johnson-Giebink, R, Hall, EJ : Breast Reconstruction. Clinics in Plastic Surgery 7:79-88, 1980.
6. Donegan, WL : Staging Methods, Primary Treatment, Options and End Results. In Donegan-Spratt : Cancer of the Breast, 2nd Ed., Vol. V in the series MPCS, WB Saunders Co., Philadelphia, London, Toronto 1979, pp 234-235.
7. Williams, IG, Murley RS, and Curwen MP : Carcinoma of the Female Breast : Conservative and Radical Surgery. Br Med J 2: 787, 1953.
8. Smith, SS and Meyer AC : Cancer of the Breast in Rockford, Illinois. Am J Surg 98:653, 1959.
9. Taylor, AGC : Radical or Local Mastectomy and Radiotherapy. Royal South Hans Hospital, Southampton, England. (Quoted by Crile, in Postgrad Med 26:64, 1959).
10. Crile, George Jr. : Results of Conservative Treatment of Breast Cancer at Ten and 15 Years. Ann Surg 181:26-30, 1975.