

Early hospital discharge following mastectomy¹

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Data involving 43 consecutive patients undergoing either modified radical mastectomy, simple mastectomy, partial mastectomy, or axillary dissection following wide local excision over a four-month period were reviewed. Twenty-one patients were kept in the hospital after the operation until the drain was removed, and 22 patients were instructed about drain care and were discharged with the drain in place. The postoperative hospital stay for the first group ranged from three to eight days (mean, 5.5 days), and for the second group, zero to five days (mean, 2.1 days). Time off from work for the employed patients in the first group ranged from 17 to 34 days (mean, 25.3 days), and for the second group, one to 28 days (mean, 14.3 days). Ninety-five percent of the patients discharged with the drain in place were pleased with the early discharge. The practice of delaying discharge following mastectomy until the drain is removed is unnecessary. Considerable cost containment can be achieved by earlier discharge. Patients experience a quick sense of well being and more rapid recovery as evidenced by less time off from work.

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Breast cancer comprises 26% of all cancers occurring in women.¹ One out of 13 women (7%) will have breast cancer during her lifetime.² In the United States, 106,900 new cases of breast cancer were reported in 1979³ and 112,900 in 1982.¹ In 1981, 966 new cases were reported in Ohio.⁴ The usual mastectomy patient has an uneventful postoperative course, but remains in the hospital until the serousanguinous drainage from the wound has decreased suffi-

Table 1. Type of operation performed

Group	Modified radical mastectomy	Simple mastectomy	Partial mastectomy with axillary dissection	Axillary dissection	Total
1	14 (67%)	1 (5%)	6 (29%)	0 (0%)	21
2	11 (50%)	—	9 (41%)	2 (9%)	22

Table 2. Type of drain

Group	Davol (round)	Davol (flat)	Total
1	21 (100%)	0 (0%)	21
2	14 (64%)	8 (36%)	22

Table 3. Number of drains

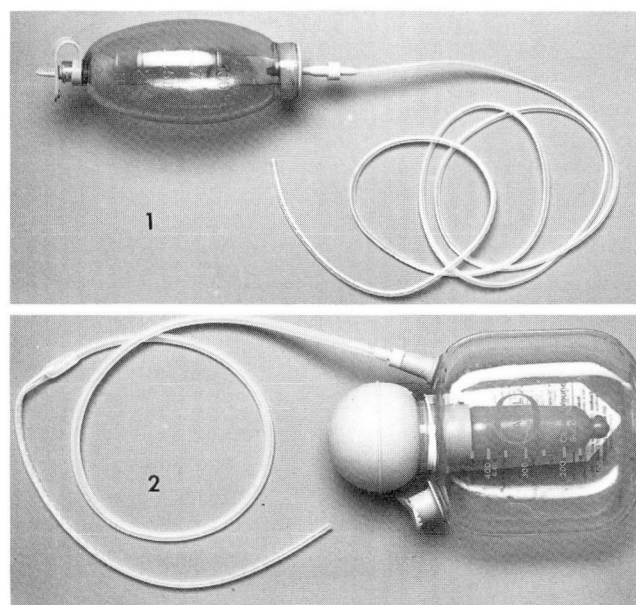
Group	1	2	4	Total
1	6 (29%)	15 (71%)	0 (0%)	21
2	8 (36%)	13 (59%)	1 (5%)	22

ciently for the drain to be removed (often between the fourth to seventh postoperative day). A clinical trial was initiated to study the proposal of early discharge with the drain still in place since it was believed that hospital convalescence to await drain removal was unnecessary.

Material and methods

Between August and November 1983, data dealing with 43 consecutive patients who underwent modified radical mastectomy, simple mastectomy, partial mastectomy with axillary dissection, or axillary dissection alone were reviewed at The Cleveland Clinic Foundation. During that period, early discharge from the hospital of the patient with the drain in place following mastectomy was started by one surgeon. The other surgeons continued their policy of discharging patients after the drain was removed. Patients were divided into two groups. Twenty-one patients (group 1) were kept after the operation until the drain was removed. Twenty-two patients (group 2) were taught how to care for the drain and discharged with the drain in place. Complete follow-up information through direct telephone contact with the patient was obtained.

The racial makeup of both groups was identical (90% white, 10% black). The mean age of group 1 was 57.1 years (range, 34 to 78 years), and of

**Fig. 1.** Round ReliaVac drain (1) and flat ReliaVac drain (2).

group 2, the mean was 56.8 years (range, 37 to 81 years). The diagnosis of breast cancer was obtained at the Cleveland Clinic in 86% of group 1 patients and 68% of group 2 patients.

Following the diagnosis of breast cancer, the patient was admitted to the hospital for surgical treatment. Type of operations are listed in *Table 1*, type of drains in *Table 2*, and number of drains in *Table 3*.

The type of drains used were the ReliaVac round drain and flat drain (*Fig. 1*). Two types of evacuators were used: the bulb and the balloon-containing evacuator. Upon home discharge with their drain, patients were equipped with the bulb evacuator.

Patient instruction

Following the diagnosis of breast cancer, the surgeon reviewed with the patient the diagnosis and options of treatment. This discussion included the technique and preliminary instructions for early discharge with the drain in place. These instructions were completed with the nurse practitioner following admission and prior to discharge. In addition to verbal instruction, printed material was also provided (*Fig. 2*). On the morning of the first postoperative day, the patient was visited by the nurse practitioner and taught range-of-motion exercises and was shown how to empty the drain. If the patient decided to go home, she was provided with measuring cups

TO EMPTY DRAINAGE BOTTLE

- 1) GATHER SUPPLIES THAT YOU WILL NEED. THIS WILL BE THE MEASURING CUP AND THE RECORDING SHEET.
- 2) WASH AND DRY YOUR HANDS, USING REGULAR SOAP AND WATER
- 3) TAKE THE STOPPER OUT OF THE BOTTLE AND EMPTY FLUID INTO THE MEASURING CUP.
- 4) COMPRESS THE DRAINAGE BULB AND PUT THE STOPPER BACK IN PLACE.
- 5) RECORD THE AMOUNT OF DRAINAGE. EMPTY THE DRAIN THREE (3) TIMES IN A 24 HOUR TIME PERIOD. LATE MORNING, EARLY EVENING AND THEN WHEN YOU GET UP HAVE BEEN FOUND TO BE GOOD TIMES.
- 6) DISPOSE OF THE FLUID IN THE SINK OR TOILET AND PUT AWAY THE SUPPLIES.

THE AMOUNT OF FLUID OUT OVER A 24 HOUR PERIOD WILL GRADUALLY DECREASE AS THE DAYS PASS. THE FLUID WILL CHANGE COLORS--FROM CHERRY RED TO RED-YELLOW TO A STRAW COLOR. WHEN THE DRAINAGE IS LESS THAN 30 CC, OVER THE 24 HOUR PERIOD, THE DRAIN IS READY TO BE REMOVED.

YOU WILL BE SUPPLIED WITH SOME DRESSINGS, BUT YOU DO NOT HAVE TO CHANGE THE DRESSING UNLESS:

- 1) THE DRESSING COMES OFF
- 2) YOU HAVE SOME DRAINAGE ON THE DRESSING AND IT IS BOTHERSOME TO YOU.

YOU ARE ASKED TO CALL THE GENERAL SURGERY APPOINTMENT SECRETARY (216/444-6664) WHEN THE DRAINAGE IS LESS THAN 30CC OVER A 24 HOUR PERIOD.

YOU WILL BE GIVEN AN APPOINTMENT ON THE DOCTOR'S NEXT CLINIC DAY.

IF YOU SHOULD HAVE A QUESTION, PLEASE CALL THE CLEVELAND CLINIC AND SOMEONE THERE WILL ANSWER YOUR QUESTIONS.

- 1) IMA HARDESTY, R.N. (216/444-2200) AND THE OPERATOR WILL PAGE IMA. A SECOND NURSE, NANCIE DUHN, R.N. MAY ALSO BE PAGED IF IMA IS NOT THERE.
- 2) DR. ESSELSTYN'S OFFICE (216/444-6662). HIS SECRETARY WILL BE ABLE TO CONNECT YOU WITH SOMEONE TO ANSWER YOUR QUESTIONS.
- 3) AFTER 5:00 P.M. AND ON WEEKENDS, THERE IS A GENERAL SURGERY RESIDENT AT THE HOSPITAL 24 HOURS EACH DAY. USE THE SAME CLEVELAND CLINIC TELEPHONE NUMBER (216/444-2200) AND ASK THE OPERATOR TO PAGE THE RESIDENT WORKING WITH DR. ESSELSTYN.

SAMPLE RECORDING SYSTEMS

DAY 1	DATE	#1
		#2
		#3
	TOTAL	
DAY 2	DATE	#1
		#2
		#3
	TOTAL	

Fig. 2. Patient instructions regarding discharge with the drain in place.

(Fig. 3) and advised that when the drainage in a 24-hour period is less than 30 mL to come to the outpatient department for removal of the drain. Figure 4 shows the drain-emptying procedure. Figure 5 shows the drain on a patient. Approximately one month after surgery, the patients were interviewed regarding the practice of early discharge. The results are shown (Table 4).

Results

Morbidity

Morbidity included early (in hospital) and late

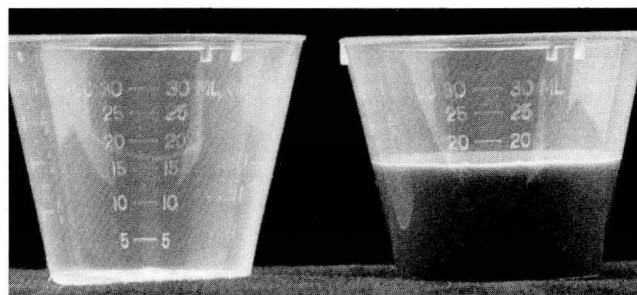
(after discharge) complications. Table 5 reviews the early and late postoperative complications.

Of the 6 patients that developed seromas in group 1, 3 had one drain and 3 had two drains; thus, the number of drains used had no effect on the development of the seroma.

Duration of hospital stay and time off from work

The postoperative hospital stay for group 1 ranged from three to eight days (mean, 5.5 days). For group 2, the postoperative hospital stay ranged from zero to five days (mean, 2.1 days).

Fig. 3. Small medication cups used to measure drainage per milliliter.



A, B



C

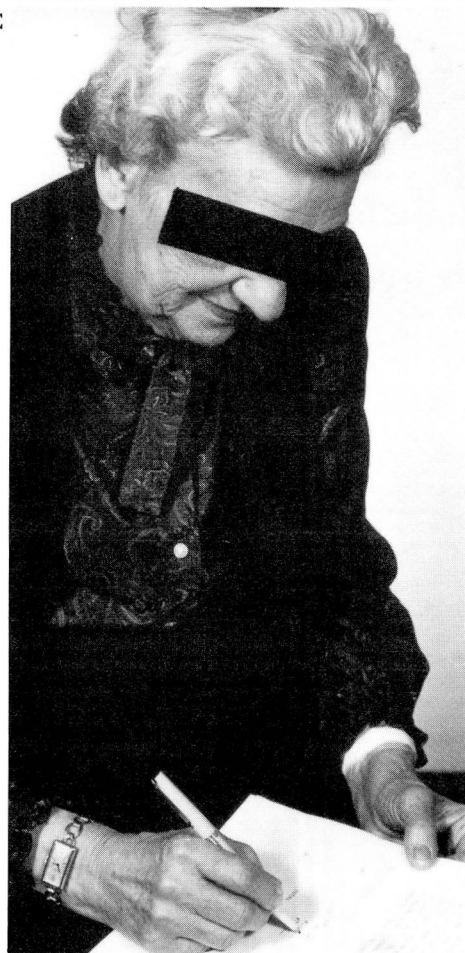


Fig. 4. A patient is shown emptying the drain (A), measuring the drainage (B), and recording the drainage (C).



Fig. 5. A and B. The drain is shown in place (A) and covered (B).

There was about a three-to-four-day difference in hospital stay for the two groups (Table 6). The patients in group 2 that were discharged on the

third postoperative day or later were patients who were physically able to go home, yet they could not be discharged as they were from out

Table 4. Results of questionnaire of patients discharged with drain in place (group 2 [22 patients])

Variable	Yes	No
Problems emptying the drain	0 (0%)	22 (100%)
Problems recording the drainage	0 (0%)	22 (100%)
Problems wearing regular clothing	7 (32%)	15 (68%)
Drainage around the catheter	8 (36.4%)	14 (63.6%)
Adequate instructions	22 (100%)	0 (0%)
Problems with getting an appointment for removal of drain	0 (0%)	22 (100%)
Problems with questions	1 (4%)	21 (96%)
Physical and mental ability for discharge	22 (100%)	0 (0%)
Degree of satisfaction		
Not satisfied	1 (5%)	
Satisfied	2 (9%)	
Very satisfied	19 (86%)	

Table 5. Early and late postoperative complications

	Group 1		Group 2	
	Early	Late	Early	Late
Seroma	—	6 (28.6%)	—	1 (4.6%)
Wound infection	1 (4.8%)	—	—	—
Minor flap necrosis	1 (4.8%)	—	—	—

Table 6. Hospital stay (days)

	Group	Range	Mean	S.D.	N
Postoperative	1	3–8	5.5	1.7	21
	2	0–5	2.1	1.1	22

Student *t* test, $P < 0.001$.

Table 7. Employment status

	Group	Employed	Housewives
In hospital	1	8 (38%)	13 (62%)
Early discharge	2	12 (55%)	10 (45%)

χ^2 test, $P = 0.28$.

Table 8. Time off work (days)

Group	Range	Mean	S.D.	N
1	17-34	25.3	7.3	7
2	1*-28	14.3	7.8	11

Student *t* test, *P* = 0.01.

* One patient underwent operation on Friday and went to work the following Monday.

of town and lacked transportation. *Tables 7 and 8* list employment status and time off from work; the differences were statistically significant.

Discussion

We were unable to find in the literature any large reported series of patients discharged after mastectomy with a drain in place. Becker et al,⁵ discussing the complications of drainage system for modified radical mastectomy, mentioned that their patient was sent home on postoperative day 15 with a drain in place. Peterson⁶ advised removal of the drain on the fourth postoperative day irrespective of drainage and the dressing on the fifth postoperative day and concluded that there is no need for the patient to go home with anything more than a well-healed incision.

We believe that the procedure of early discharge following mastectomy with a drain in place is safe, simple, and accepted by the patients. The postoperative hospital stay is decreased by three to four days. If this saving is multiplied by the number of operations performed for breast

cancer nationally (100,000–125,000/yr) with a mean hospital stay cost of \$250 per day, this will account for an annual saving of approximately \$100 million. A considerable amount of time off from work will be saved nationwide as less days are spent on sick leave. Since this study, an additional 71 patients have been discharged with their drain in place with excellent results; a mean postoperative hospital stay of 1.3 days signifies that the practice of delaying discharge following mastectomy until the drain is removed is often unnecessary.

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