

ORIGINAL ARTICLE

Patients' perspective on early discharge with drain in situ after breast cancer surgery

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ABSTRACT

Due to the increasing number of breast cancer (BC) cases in Oman and the impact of the novel coronavirus disease 2019 (COVID-19) on bed situation in the hospital, a policy of early discharge (ED) with drain after BC surgery was initiated at one of the tertiary hospitals in Oman. The uniqueness of this policy is no home visit follow-up conducted after discharge and the main mode of communication was through social media account (Instagram media). This policy then was evaluated by conducting a quasi-experimental study using a survey with ten open and closed-ended questions, five questions to explore patient experience using a five-point Likert scale. A total of 41 female patients responded to the survey. Almost 96% of the participants stated being well informed about drain care pre- and post-surgery at home. 9% of the participants developed early sign of infection and was managed at out-patient clinics. Participants with bilateral drains expressed more pain than those with single drain. 90% stated satisfied being discharged with breast drain whereas 10% preferred to stay in the hospital until the drains were removed. This study found that the policy of ED with a drain after breast cancer (BC) surgery is practical and well-accepted by most patients. The role of breast nurse and presence of family and institutional support enhanced the success of the policy implementation. To optimize patient care, conducting a training program by breast nurse for nurses at local health centres about care management of patients with drain could improve care and enhance patient satisfaction.

Key Words: Breast cancer, Surgery, Early discharge, Surgical drain

1. INTRODUCTION

Globally, breast cancer (BC) is the most commonly diagnosed cancer in women, including Oman with a total of 23% of all cancer cases in female patients.^[1] Recently, overall survival rates for BC have been significantly improved by increased awareness of breast screening programs, early diagnosis, and development in adjuvant treatment protocols.^[2]

The population of Oman is approximately five million and there are only two oncology care centres. Our cancer centre is a tertiary centre which is European Society of Medical Oncology accredited in 2013. The centre provides compre-

hensive services for patients all over the sultanate including treatment and palliative care, and screening program for some common cancers.^[3]

Generally, BC surgery is one of the modalities of BC treatment.^[4] Patients undergoing BC surgery require admission because of the procedures and their complications such as surgical trauma causing pain and hematoma. Also, a surgical drain after BC surgery is inserted in an attempt to reduce excessive seroma and hematoma formation and prevent surgical-site infection.^[5,6] The drain is kept between 5-10 days or more according to the type of surgery. It is essen-

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tial to monitor the drain function and manage the undesired surgery outcomes before discharging the patient. Hence, this could lead to an increased length of hospital stay.^[7] However, it is a standard practice in some countries including Oman that patient remains in the hospital after breast surgery (post-operatively) for up to 12 days until drains are removed.^[8]

In some breast centres, patient could be discharged on the 3rd or 4th postoperative day after a low-risk surgery such as simple mastectomy when no drain is inserted, yet this practice remains highly variable and not yet adopted in Oman.^[9] However, no drain or early drain removal for discharging patients can lead to one of the most invalidating issues after BC surgery, which is seroma formation which varies from 3% to 85%.^[10] This could enhance discomfort or infection on the surgery site leading to readmission for treatment, which consequently could delay the other remaining treatment such as chemotherapy or radiotherapy treatment.^[11,12]

Therefore, in the center the surgical procedure of drain insertion is vital in most of the BC surgeries to avoid undesired outcomes or delays in BC treatment regardless of the time of drain removal. Although patients undergoing BC surgery require admission, they are considered as suitable candidates for a planned early discharge (ED) with the drain because post-operative recovery is usually rapid, with fewer complications including wound infection.^[13]

The impact of the novel coronavirus disease 2019 (COVID-19), was highly noticed in widespread changes in bed availability and usage in the hospital. Many admission cases had been postponed due to bed shortage.^[14] Therefore, the fast-track surgery concept was adopted in our center, which

includes ED with drain after BC. Other studies showed the outcomes of the planned ED with the drain concept, had no adverse effect on the patient's psychological or physiological well-being when compared with longer hospitalized patients.^[15,16]

The increased demand of bed during the pandemic as well as the increased number of BC cases in Oman requires early intervention to improve care integration, hospital cost, and patient satisfaction. Therefore, the fast-track surgery concept and a new policy were initiated by the Breast Unit in order of discharging the patients early with a drain in situ after breast surgery. This policy was initiated to overcome the delay in BC surgeries during the pandemic period. However, the acceptability of this policy in Oman has still not been evaluated. Patients with low risk surgeries accepted to be early discharged with drain as a hospital policy only.

Although the research supports the safety and cost-effectiveness of ED with drains in situ after BC surgery, the level of acceptability of patients of this policy has not thoroughly been evaluated. Therefore, this study aims to assess the effectiveness of newly implemented protocol of early discharge with breast drain among BC patients in Oman and the secondary aim is to assess breast care nurse role in successful implementation of this policy.

2. METHODS

2.1 Study setting

The study was conducted at a tertiary hospital in Oman which is the main tertiary cancer centre for BC surgeries in the country.

Table 1. The inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
1. Preoperative assessment by breast nurse specialist to ensure a satisfactory home environment and availability of health care centre within accessible distance.	1. Patients with inadequate home support/ no accessible health centre in the area.
2. Confidently follow breast nurse instruction.	2. Patients who experienced difficulty in communication.
3. Admitted only for breast surgery.	3. Admitted for more than one surgery.
4. Can read and write (caregiver help is accepted).	4. Cannot follow the instruction properly.

2.2 Study design and population

A total of 41 female patients who were treated at the hospital were eligible participants for the study. The participants were recruited in the day of drain removal by the breast nurse. The inclusion criteria were preoperative assessment by breast nurse specialist to ensure a satisfactory home environment and availability of health care centre nearby home, can read and confidently follow breast nurse instruction (see Table 1).

Educational materials were provided in three forms: verbal, visual, and written to all patients pre-and post-operatively. Information provided was on how to manage the drain at home, a sheet to record the daily fluid output, and possible signs and symptoms of infection which need to be reported immediately to the nurse. Also, a social media account in the Instagram was created with uploaded videos and information on drain management at home, signs, and symptoms of the

early sign of infection, and to clarify the patient's concerns and doubts. In Oman the most popular social media platform dedicated for posting videos, pictures, and communication is Instagram.^[17] Moreover, as a new policy in health care system. Staff in health care centres were not trained yet to manage the surgical drain issues, therefore, the unit decided to create a private account in Instagram to upload all the videos and pictures related to the breast surgery, sign of early infection for following patients closely after discharge. Breast nurse was the key holder for this account.

Patients with no Instagram account was discharge with full written information package. Oncology outpatient department phone number given in case of any doubts.

In these surgeries the type of drain used was the Jackson-Pratt drain, which is a closed-suction device, patient-friendly, in-built one-way regulator, and is well suited and easily carried by patients for ED. Eight patients (19%) were discharged with two drains in situ.

On the first postoperative day, the breast nurse demonstrated how to empty the drain and how to apply the positive pressure. After that, the patients were asked to re-demonstrate the techniques to evaluate their confidence to do it at home and to minimize their anxiety and confusion. In this process caregiver were invited as a support for the patient specially for elderly patients. Patients were encouraged to contact the breast nurse for advice through the social media account (Instagram). Referral letters to ER or nearest health centres were provided in advance to participants in case of high fever, accidental removal of drain, and leaking from the drain insertion site. No home visit was carried by the community or breast nurse specialist after discharge. As Moreover, participants were instructed that drains need to be removed in the 6th- 10th post-operatively at out-patient visit once the total amount of drain is less than 50ml over 24 hours.^[18]

Patients with mastectomy and axillary dissection (AD) as well as with wide local excision (WLE) and AD surgery were discharged post-operatively at 48 hours with drains in situ, while patients with implant-based breast reconstruction stayed up to 5 days post-operatively with the drain in situ to manage any early sign of infection or implant rejection. The data was collected between October 2020 and December 2020.

2.3 Study tool

Initially, a literature review was done through databases, close and open-ended interviews, and surveys on early discharge with a drain after BC surgery were used to search for the tool. Accordingly, a survey in Arabic was developed.

A pilot study was conducted to validate the survey in terms of readability. Content and face validity were assessed by providing the tool to the hospital research nurse and eight patients with a BC diagnosis who had been discharged previously with a drain to give their feedback on the clarity of the survey. At this stage, the survey was modified to its final version based on comments provided. The tool consists of 15 questions with ten open and closed-ended questions and five questions on a five-point Likert scale. The five-point Likert scale was used to assess the level of satisfaction with several positive and negative statements about early discharge with drain, breast nurse specialist support, and perception about the conducting home visit in the future.

2.4 Statistical analysis

Descriptive analysis was performed using excel software.

2.5 Data collection

Patients were approached for this study on the day of drain removal by the breast nurse specialist. The survey was given to each participant. Only one patient requested to remove the drain at their local health center due to transport issues. The survey was filled out after four weeks from the surgery date.

2.6 Ethical considerations

Ethical approval was obtained from the research ethics committee at the Royal Hospital under approval number CSR 56/2020. The participants were informed about the aim of the study and voluntary participants were explained before handing the survey. In addition, patient privacy was maintained through the study where no additional information concerning identity was obtained. The private social media account was deleted after finishing the study. Written consents were obtained during the drain removal day from participants.

3. RESULTS

3.1 Demographic characteristics

In this study all participants were female. Participants' age was ranging from 31 to 65 years. Out of 41 participants, 28 (68%) had a secondary or higher-level education, 17 participants (41%) were unemployed. The study included 24 patients (58%) who had mastectomy and AD, 11 patients (26%) who had WLE and AD, and 6 patients (14%) who had implant-based breast reconstruction.

No drain was accidentally dislodged from the insertion site during the study period. One patient from the mastectomy group (4%) required re-admission due to infection at the surgical site which was due to drain bulb dysfunction.

Table 2. The demographic characteristics of participants

	Variable	Frequency in percentage
Age group	31-48	32 (78%)
	49-65	9 (21%)
Gender	Female	41 (100%)
Educational level	Higher education	28 (68%)
	Secondary	8 (19%)
	Illiterate	5 (12%)
Type of breast surgery	Mastectomy + AD	24 (58%)
	WLE+AD	11 (26%)
	Implant-based breast reconstruction	6 (14%)

Table 3. Challenges experienced by the patients

Question	Response	Total (%)
How many breast drains have you been discharged with?	One drain	33 (80%)
	Two drains	8 (20%)
	More than 2	0 (0 %)
In your opinion what was the main hinder for ED with drain?	Pain incision site	21 (51%)
	2 drains	8 (19%)
	No home follow-up	12 (29%)
I got family and psychological support after being discharge with drain at home.	Yes	40 (97%)
	No	1 (2%)
I have many issues in attending the hospital successfully.	Yes	4 (9%)
	No	37 (90%)
	Specify	-
Got re-admitted to hospital after discharging due to drain issues?	Yes, infection drain site	1 (2%)
	No	40 (98%)

Moreover, four patients (9%) developed an early sign of infection, including redness and swelling at the incision site, and were managed in out-patient settings. One (12%) out of eight patients with implant-based breast reconstruction developed superficial skin necrosis, which was managed in the out-patient clinic (see Table 2).

3.2 Challenges experienced by the patients

Few participants (n = 6, 14%) with bilateral drains expressed they were not very confident in drain self-care management in the first few days after operation. Pain at incision site while moving their hand and care of 2 drains impacted their care level. Moreover, the emotional status after mastectomy subsequently affected the participants level of care; though, they successfully managed to empty drain and managed with no incidence of infection.

Nonetheless, those participants of older age group (51-65 years, n = 4, 9%) and participants with bilateral drains (n = 8, 19%) experienced more pain, than the patients with single drain. Among all participants, only one with bilateral drains returned back to the hospital three days after discharging due

to anxiety and leaking of drain at incision site. However, this participant's issue was managed as outpatient setting.

Regardless the anxiety and pain at incision site, n = 37 (90%) of the sample felt satisfied with the new policy of going home early with drain. However, 4 (9%) of participants from older age group (51-65 years) preferred to stay in the hospital until the drains are out. Adding to excessive family burden, lack of self-confident, and transportation issue in case of emergency was also highlighted by this group (51-65 years) (see Table 3).

3.3 Patients' perception of breast care nurse performance

The majority of the participants (n = 40, 97%) stated being well informed by the breast nurse for ED with the drain and teaching drain care, emptying, and applying negative pressure by breast nurse was excellent. Nearly 8% (n = 35) of the participants were confident in drain care from the second post-op day owing to information and videos shared by the breast nurse concerning drain care. On the other hand, 9% (n = 4) participants were not fully confident while dealing with

many drains. Moreover, almost 95% (n = 39) appreciated the distance follow-up by the breast nurse through social media account (Instagram). One patient (2%) was discharged before being seen by the breast nurse, however, information on

drain care was given by the nurse in the surgical ward. Later on, the package was sent through the Instagram account and followed closely (see Table 4).

Table 4. Patient’s view in breast care nurse performance

Question	Response	Total (%)
Breast Nurse well informed me about ED with drain before the surgery.	Agree	40 (97%)
	Neutral	0 (0%)
	Disagree	1 (2%)
Breast nurse specialist was well prepared and qualified in drain management at home.	Agree	40 (97%)
	Neutral	1 (2%)
	Disagree	0 (0%)
The amount of information given by breast nurse pre- and post-surgery was adequate to confidently handle drain at home.	Agree	35 (85%)
	Neutral	4 (9%)
	Disagree	2 (4%)
In your opinion distance follow up with breast nurse through social media account helped you to manage concerns and drain issues?	Yes	39 (95%)
	1. Solved transport issues	
	2. Reduces un-necessary visits to hospital	
	No	2 (4%)

Table 5. Initiation of home visit service for breast drain care

Questions	Response	Total (%)
Do you agree on starting home visit service in the future for drain care by a qualified nurse?	Agree	41 (100%)
	Neutral	0 (0%)
	Disagree	0 (0%)
Are you satisfied with ED with drain policy?	Agree	37 (90%)
	Neutral	0 (0%)
	Disagree	4 (9%)

3.4 Patient’s perception on initiating home visit

Regarding patient perception on initiating home visit service for drain care in the future, all the participants (100%) agreed on starting the home visit service by a qualified nurse to follow up with their condition at home. Interestingly noted that almost 71% (n = 29) of participants who agreed on this service, did not encounter any issues with the drain keeping them to seek medical advice (see Table 5).

4. DISCUSSION AND CONCLUSION

This study found that the ED with a drain after BC surgery is practical and well-accepted by most patients. 90% (n = 37) of the participants were satisfied with the new policy of going home early with drain. No accidental trauma due to drain was noticed among the participants. Only one patient was re-admitted due to an infection at drain site. Previous studies demonstrated similar results in terms of patient satisfaction and feasibility.^[19,20]

Initially, there was concern that some patients may not be able to manage the drain issues properly at home despite the information given by the breast nurse. Further, the uniqueness of this study is that no home visit was conducted by the community or breast nurse which increased our concerns. Because the policy of ministry of health is that community nurses accept patients with referrals from the health centers or hospitals for home care for patients with disabilities.^[21] Therefore, visiting ambulatory patients for drain care still not included under their umbrella as these patients can attend health care or hospital service with no care compromised or delay. However, these fears were overcome later with satisfactory results (n = 37, 90%) of the patients enrolled in this study. Hospital policy has been adjusted by creating Walk-In visits in breast surgery clinic to accommodate those patients who need early attention with the drain complication. In the future, this new policy could be developed, and home visit could be included in response to change in health care settings, cost-saving, and consumer demands.

This study confirms the findings of^[20,22] which showed that pain incision drain site and total number of drains in situ might increase the discomfort level postoperatively. 51% (n = 21) expressed that pain while moving their arm was the main hinder for early discharge with drain. Eight patients (19%) were discharged with bilateral drains repeatedly expressed pain and discomfort on incision sites resulting in restricted arm mobilization and proper drain care. The psychological morbidity should be evaluated in this group because they already have emotional distresses impacting their quality of life owing to the type of surgery.^[23] However, this issue was not examined in this study.

Moreover, the study found that the elderly patients were not satisfied compared with younger patients with the ED with drain though they accepted to go home as an institutional policy. This was related to the concern of confidence level in dealing with the drain and discomfort surgical site. This result is consistent with Park.^[23] In Oman, most patients above 51 years with BC are cared for by a family member, who may/may not be prepared for the new challenges including schedule transportation for treatment, and supervising medication.^[19] More frequently the decision-making is a shared decision with the relatives who are direct responsible for taking care of patient at home. This could contribute dissatisfaction toward the policy and their confidence level in dealing with the drain. These results are consistent with previous studies.^[24-26] Patients aged between 51 to 65 years stated that it would be better to stay at the hospital for pain management until drains were removed after the surgery. Although they valued the opportunity to be at home with their families. Factors that contributed to ED with the drain in this study were the dislike of the hospital environment and uncomfortable sleep due to noises.^[27]

The incidences of wound infection observed in this study were generally lower than expected in all the groups and in agreement with the previous studies' results.^[25,28] It could be due to ongoing breast nurse follow-up, and detection of the early sign of wound infection in out-patient settings without delay. However, in this study only one patient after mastectomy was re-admitted due to drain bulb dysfunction inducing infection drain site, later patient was treated with anti-biotics and discharged successfully. This is in accordance with the findings of a number of studies that surgical drain could increase the risk of infection.^[29-31]

In this study certain factors were the key to the successful implementation of this policy. First was systematic breast nurses' pre-and post-operative patient education and distance support.^[32,33] Second, the breast nurse used the different bundles of educational information (verbal, written, and shared

videos) to enhance the safe discharge pathway.^[24]

In addition, due to pandemic COVID-19 situation and critical bed situation, the fast-track surgery model was modified to fit our available health resources and be a safe way to initiate this policy. The modification included patients who were discharged after 48hours, rather than the 24-hour model practiced in some developed countries.^[34] This led to reduction in the number of days admissions and creation of bed availability in the unit. Moreover, this enabled the breast nurse to follow the patients closely for wound management and psychosocial support in the outpatient clinic.^[33]

Although in this study there was no home visit follow-up conducted by the breast or community nurses, the satisfaction level and infection incidence were almost similar to studies that provided nursing drainage care at home and used telephonic counselling.^[24,33] This could be due close breast nurse follow-up even after working hours via the social media account (Instagram). On the other hand, other studies shared the positive impact of telephonic follow-up by the breast nurse in reducing hospital re-admission, anxiety levels and reducing the burden of distance travel.^[34,35]

Additionally, the social media account (Instagram) is used to clarify doubts and provide immediate advice and distance support. 95% (n = 39) for patients expressed that Instagram account helped them in managing their concern and avoid unnecessary visit to hospital during the pandemic COVID-19 time. Though some participants (n = 2) didn't know how to use the application, a telephone number given to clarify their doubt along with written information booklets. The Instagram mode was helpful for patients to clarify their concerns while being at home without the burden of attending the clinics during the pandemic. Our study confirms the finding^[36,37] that social media is an effective tool in patient education, follow-up, and distance support, therefore, it is recommended that the majority of post-discharge education, counselling, and support can be provided through social media and telephone call without the need of distance travel and burden of transportation to the hospital. The telephonic mode of communication can be included as a primary mode of distance follow-up in coming studies.

4.1 Recommendation

The ED with drain policy can be upgraded by including the nurses in the primary health care for drain care management and removal. This practice can enhance patient satisfaction while attending the nearest care centre to their home. Future work could include the impact of ED with the drain on the hospital budget.

4.2 Limitation

This study is limited by the number of eligible participants. Researcher recommends further research over longer period of time to evaluate the effectiveness, challenges encountered by patients being discharged early.

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The authors declare they have no conflicts of interest.

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