

## What are the Barriers to Achieving Day Case Mastectomies?

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### Abstract

Breast cancer occurs in 1 in 8 women in their lifetime making it the most common cancer in women in UK and the most leading cancer related death world-wide [1,2]. Mastectomy is offered where cancer size is large in proportion to breast size, where there is a high risk of local recurrence or radiotherapy is contraindicated. Patient preference also plays a key role in surgical treatment of breast cancer. Recently, the British Association of Day Case Surgery (BADs) has recommended that mastectomies are performed on a day case surgery list. In the UK surgery is referred to as a day case if it is planned procedure and the patient is discharged on the same calendar day. If a patient is admitted as an inpatient, or the stay is 23 hours this is not included as a day surgery case. Generally speaking day case procedures mean the patient stay is 4-6 hours [3]. Several guidelines from BADs, the Association of Anaesthetists of Great Britain and Ireland (AAGBI) and the Royal College of Anaesthetists (RCOA) have provided guidance on the promotion and safe selection of patients for day surgery and the service that should be provided [4].

### Aim

The aim of this study is to look at the length of stay for mastectomies done in our hospital under all breast surgeons and to identify various factors which improved the day case rate. It also aimed to identify the key factors, which would help to change the technique for future mastectomies and allow early discharge.

### Patient and Method

Retrospective data was collected for all patients who underwent mastectomies in the hospital from November 2016 till October 2017. All simple mastectomies with or without axillary procedures were included in the study. Skin sparing mastectomies were excluded from the study. Patients were broadly classified into 2 groups; day case mastectomy group and same day admission group. Type of pain control provided in the form of ultrasound guided pectoral block prior, which was given prior to mastectomy and injection of local anaesthetics into the flaps after completion of the procedure was also evaluated to see if it influenced the day case rate. Further breakdown of groups was performed based on the operative techniques i.e. quilting versus no quilting and insertion of drain versus no drain.

Patient undergoing pectoral block underwent ultrasound of the pectoral area with infiltration of 40 mls of 0.25% Chirocaine in the space between the Pectoral major and minor to reach the lateral and medial pectoral nerve. Some patients who did not undergo Pectoral block would get local anaesthetic injected into the flaps depending on the size of the wound in the form of 20-40 mls of 0.25-0.5% chirocaine. Some patients had neither of these given.

A standard mastectomy involved an elliptical incision including nipple areola complex. Flaps were raised, and breast tissue was removed as far as the pectoralis major muscle. For those who underwent quilting procedure, mastectomy flaps were secured to the pectoralis major muscle using multiple interrupted 2/0 vicryl to approximate the dermis of the flap with the chest wall to obliterate the dead space. A 14F suction drain was placed prior to skin closure in some cases with or without quilting of the flap and drain was removed the following day. All patients who had drains inserted stayed overnight. Patients were followed up by the breast nurse in the first week for wound check-up and then as many times as required to drain the seroma formed. Details of volume and number of aspirations were documented in the nursing notes.

## Results

There were 107 mastectomies performed. 69% were planned same day admissions, 27% were planned day cases and 4% were failed day cases. There were 33 patients who underwent quilting of the mastectomy flaps. Drains were left in 24 of these patients. No quilting of the flap was performed in 74 cases. Of these patients 6.06% developed a seroma. In the non-quilting group 45.9% developed post-operative seroma. Further break up of results in the quilting versus non-quilting group is shown in (Tables 1,2).

	No. Of mastectomies	Pectoral Block	Seroma	Length of stay
Quilting with drain	20	19	1	SDA 23/33 69.60%
Quilting without drain	12		0	Day case Jul-33 21.20%
Quilting but drain unclear	4	0	1	SDA Apr-33 12.10%
Total no. of cases	33	19	2	

**Table 1:** Quilting group (33 cases).

Drain	32	43.2%
No drain	42	56.7%
PECS block	8	10.0%
Post op seroma	34	45.9%
LA infiltration	39	52.7%
Unplanned admissions	4	5.4%
Day case	22	29.7%
Same day admission	41	55.4%
Unknown admission status	1	1.35%

**Table 2:** Non-quilting group (74 cases).

## Discussion

Day case surgery has many advantages over inpatient procedures. Key positives include a reduced hospital stay and earlier mobilisation thereby promoting faster recovery [4]. There are also benefits to hospitals as a whole by decreasing inpatient stay, lower costs and thereby increased effectiveness of available staff [5]. The British Association of Day Surgery outlined a ‘Best

Practice Tariff’ in 2009 which mean that a financial incentive was provided per case that was performed on a day-case basis. In terms of breast surgery, they outlined that excision of breast, simple mastectomy, axillary clearance and sentinel node biopsy were all recommended to be performed on a day case basis [6].

There are several well recognised criteria for patients to be on a day case pathway including social, medical and surgical factors. In terms of social health- this relies on the patient having adequate support at home following the procedure as well as a responsible adult to take the patient home and supervise them in the 24 hours following the procedure [7]. Another factor to keep in mind is that the patient needs for post-operative pain, are to be managed adequately if the patient is discharged on the same day. For patients experiencing high levels of postoperative analgesia implementing day case targets may be a challenge for the surgical team. For all patients being considered for the day-case list the team must consider whether admitting the patient provides any benefits that cannot be managed at home [4]. Our study shows that in the quilting group when pectoral block was given, patients were still discharged as planned. Quilting did not delay the discharge and the main reason for patients to stay overnight was the drain in situ.

From our cohort of patients, we are meeting a day case rate of approximately 25% with the majority of the remainder being planned same day admissions. In further studies it would be interesting to see the reason behind each of these planned admissions. One of the limitations was not having the reasoning behind these admissions to see if they could potentially be preventable in future. Seroma formation is quite common after mastectomy and ladies require regular drainage of this to relieve symptoms. Multiple methods have been tried to reduce the dead space after mastectomy including glues, sutures and closed suction drains. As demonstrated from our results, women who underwent quilting during surgery experienced a lower proportion of seroma formation. Delay et al noted that quilting sutures of the donor site drastically reduced seroma formation after autologous latissimus dorsi reconstruction flap without a breast implant [8].

A large double blind randomised control trial has been commenced to compare techniques for reduction of Seroma After Mastectomy (SAM) trial. A total of 336 patients will be randomized to look at flap fixation with tissue glue, with sutures and a conventional wound closure. All the three groups will have a low suction drain inserted [9]. Ouldamer, et al. [10,11] carried out a large study of 119 patients in which 59 patients underwent a quilting suture technique to reduce dead space and 60 patients underwent conventional closure. The overall seroma rate was 15% in the quilting group and 51.7% in the conventional group. Persistent pain was less frequent in the quilting group than in the conventional group [10]. In our study, 6% of cases who underwent

quilting developed post-operative seroma compared to 45.9% of those who had no quilting performed. In a large review of 14 studies Lee, et al. [12] noted that fibrin alone failed to reduce seroma formation, but fibrin installation combined with quilting halved the risk of seroma formation and significantly reduced drainage volume.

Research into techniques in breast surgery have clearly identified that quilting and drain insertion are associated with a lower rate of seroma formation [13]. A lower seroma rate leads to improved wound healing, reduction in potential return to theatre and less hospital time for the patient. Leading on from this, another factor to be considered is that of the patients who had a drain in place were more likely to be admitted as a same day admission. 89% of patients with a drain were admitted suggesting that having a drain in place means admission to hospital is more likely. As we know drain insertion reduces the incidence of seroma formation, but could this also be a reason preventing day case admission of these patients?

Change in practice: After the reduction in post-operative seroma noted in the quilting group with drains, the surgeon performed quilting without drain to improve the day case rate. These were true day cases as once discharged after surgery, patients were sent away for further treatment if required, after the results given out to the patients.

## Limitations and Further Studies

As noted one of the limitations in this cohort of patients was that the reasoning behind the same day admission was not recorded and therefore difficult to assess whether these could have possibly been day case admissions.

## Conclusion

The review of the literature shows that there is still a variable practice in how mastectomies are performed in terms of the surgical technique and the use of drains post-operatively. One of the key reasons day case rates may not significantly improve in the short term is due to the contributory factors most often being social issues and co-morbidities. As demonstrated, quilting technique is associated with a reduced seroma formation and higher day case rates in our patient group and more studies on a larger scale are required to confirm this.

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