

Day Surgery for Breast Cancer: A series from Greece and literature review

IE Katsoulis, A Ioakeimidis, I Misitzis, E Filopoulos

Abstract

Introduction: Ambulatory definitive breast cancer surgery has been evolving over the last two decades. The experience of treating such patients in a dedicated day case surgical unit is presented here.

Method: The records of 173 consecutive patients with invasive breast cancer, who received definitive surgical treatment in the Day Surgery Unit (DSU) of our Institution, were retrospectively reviewed.

Results: The mean age of patients was 51.5 years (range 30 – 76). Only one of them stayed in hospital overnight due to postoperative cardiac arrhythmia. All the patients who underwent either a mastectomy or

Authors' address: Day Surgery Unit, Department of Breast Surgery, Hellenic Anticancer Institute, Saint Savvas Hospital, 171 Alexandra's Avenue, Athens GR 11522, Greece.

an axillary clearance were discharged with their drains which were removed in the outpatient clinic at a mean time of 5 days (range 1-8). There were no readmissions. Likewise, the wound complications which ensued in 16 patients were successfully treated in the outpatient clinic. In cases of axillary clearance the mean number of the harvested lymph nodes was 15 (range 10-28).

Conclusion: Day surgery for breast cancer, is safe and effective in appropriately selected patients.

Introduction

Ambulatory surgery for breast cancer is not a new concept. Since the beginning of the 1990's several studies have highlighted the advantages of outpatient definitive breast cancer surgery [1,2,3,4,5]. In the United States, the proportions of patients with breast cancer receiving day surgery, increased from 3.2% to 19.4% for mastectomy and from 48.9% to 77.8% for breast conserving surgery from 1993 to 2002 [6]. This practice has been shown to be safe and effective with equivalent complication rates and high psychological satisfaction when compared to in-patient hospital care [7,8,9,10,11,12,13]. Our experience of treating such patients in a dedicated day case surgical unit is presented here.

Methods

Patients with invasive breast cancer, who received definitive surgical treatment in the Day Surgery Unit (DSU) of our Institution, were retrospectively reviewed. Only patients who were treated in the DSU following a preoperative diagnosis of breast cancer were included in the study. The demographics, the criteria for selection of a patient to be managed as a day case, the type of surgery and anaesthesia were recorded. The full spectrum of operative procedures for invasive breast cancer was performed. Axillary sentinel lymph node biopsy (SLNB) was performed using either blue dye technique or filtered technetium-labeled sulfur colloid (Tc^{99} scintigraphy). On several occasions, the combination of both mapping techniques was used to increase the accuracy of the identification of the sentinel node. In cases where insertion of drains was considered necessary, e.g. mastectomies and axillary procedures, the patient was discharged with the drain and reviewed as an outpatient two days later. The prerequisite for performing surgery on breast cancer patients was the preoperative assessment of their physical, mental, psychological and social suitability. The vast majority of patients were operated under general anaesthesia. Infiltration of the brachial plexus and the intercostal nerves with ropivacaine was applied following mastectomy and/or axillary dissection. The complications and their management, cancellations of discharge and readmissions, were noted.

Results

The records of 173 consecutive patients with a mean age of 51.5 years (range 30–76) were reviewed. The operative procedures are presented in Table 1. Only one patient stayed in hospital overnight due to postoperative cardiac arrhythmia following breast wide local excision and sentinel lymph node dissection. All patients who underwent mastectomy or axillary clearance were discharged with their drains. The drains were removed in the outpatient clinic at a mean time of 5 days (range 1–8). There were no readmissions. Likewise, the wound complications which ensued in 16 patients were successfully treated in the outpatient clinic. In cases of axillary clearance the mean number of the harvested lymph nodes was 15 (range 10–28).

Table 1 Operative procedures of the present study.

Local excision and SLNB	72
Local excision and axillary clearance	49
Mastectomy and SLNB	17
Modified radical mastectomy	35
Total	173

Discussion

The performance of breast cancer surgery as an outpatient procedure is an evolving surgical practice. Initially, the indication was minimal procedures such as simple lumpectomy and breast conserving surgery (BCS). However, it has been shown that the full range of surgery for breast cancer can be safely performed on an outpatient basis, providing that patient's physical, mental, psychological and social suitability have been assessed. [7–15]

The facility of a dedicated DSU enables and encourages surgeons to practice outpatient surgery for breast cancer. The DSU of our Institution was established in 2006 having adopted all the guidelines and international standards for ambulatory surgery. Recently, the Unit has been ISO 9000 certified. To the best of our knowledge, this is the

first study in Greece to evaluate the safety and efficacy of ambulatory surgery for breast cancer.

The performance of axillary procedures has been reported to be an independent factor for prolongation of hospital stay. Nevertheless, in the DSU setting the patients can be discharged home with the axillary drain and be reviewed on an outpatient basis. Athey N et al. suggested that axillary drains can be avoided and reported a series of day case breast cancer axillary surgery without drains. However, they also reported 22% symptomatic post-operative seromas and 10% of patients with wound infections .

Margolese and Lasry [9], compared an outpatient group and an inpatient group with similar characteristics, both of which underwent routine axillary lymph node dissection, combined with breast surgery for most of them. Discharge of patients on the same day was found to be possible while the drains were still in place, without significant consequences. Both groups were interviewed and reported similar levels of pain, fear, anxiety, health assessment, and quality of life. Outpatients had a significantly better emotional adjustment and fewer psychological distress symptoms. Inpatients reported that it took an average of 27 days to feel that they had recovered from surgery, about 10 days longer than outpatients. Inpatients' return to usual activities was also about 11 days later.

The type of anaesthesia is an important consideration for the efficacy of ambulatory breast surgery. The performance of thoracic paravertebral block instead of general anaesthesia seems to be associated with less postoperative pain, less postoperative nausea and vomiting, favouring early discharge from hospital. In our series, the majority of patients were operated under general anaesthesia. Intercostal block with ropivacaine was applied following mastectomy and/or axillary dissection.

An increase in day case mastectomy may result in lower rates of postmastectomy reconstruction. Mastectomy with immediate breast reconstruction, as it involves more extended surgical dissection, is more prone to complications and most surgeons would not perform it on a day case basis.

An argument exists that some complications could be diagnosed and managed earlier in hospitalized patients. However, most delayed

complications are minor and can timely treated if written information is given to the patients along with easy access to hospital after discharge.

The psychological advantages of the same day discharge after breast cancer surgery have been highlighted. Recovery from surgery is faster and the patient tends to play down the seriousness of the operation and to have a better mental attitude to neoplastic disease. Moreover, when performing BCS with SLNB in day surgery, fewer than 50% of breast cancer patients require another surgical treatment, completing the surgery in a single session. [14]

Marla and Stalard [13] in their systematic review of day surgery for breast cancer included only observational studies since no randomised controlled trials had been published at the time of their review. The rate of discharge after day surgery was universally high with very low acute readmission rates. PONV, patient anxiety and pain control were the main reasons for failed discharge. Patient satisfaction with day surgery was high and psychological recovery was faster. Finally, the hospital costs were lower for day surgery. The authors suggested that further trials with validated questionnaires are required to confirm patient satisfaction and psychological well-being. Tables 2 (below) and 3 (overleaf) summarize the failures of discharge and readmission rates in various series of ambulatory surgery for breast cancer including our present study. Our results are comparable and we believe reflect the meticulous application of patients' selection criteria as well as the excellent team work in our DSU.

The financial benefits of omitting unnecessary hospital stay are apparent especially nowadays that health care costs are under review worldwide. Ambulatory surgery in dedicated DSUs can reduce waiting lists and limit costs. These benefits are important particularly in a country like Greece with its severe economic crisis. Adopting such a program can lead to significant savings without compromising the quality of care. [5]

As the popularity of outpatient breast cancer surgery continues to grow, more evidence-based analyses related to quality and outcomes of day surgery for breast cancer among various populations are needed.[6]

In conclusion, day surgery for breast cancer, is safe and effective in appropriately selected patients.

Table 2 Number of patients and reasons of discharge failure in various series of ambulatory surgery for breast cancer

Study	n	Discharge failure (%)	Vomiting/ Nausea	Anxiety/ Patient's choice	Pain	Wound complications	Medical complications	Overrunning theatre lists
Goodman et al ¹	223	0	-	-	-	-	-	-
McManus et al ²	118	3 (2.5)	1	-	-	1	1	-
Seltzer et al ³	133	0	-	-	-	-	-	-
Dooley et al ⁷	92	1 (1.1)	-	1	-	-	-	-
Dravet et al ⁸	418	52 (12.4)	19	11	5	11	3	3
Friedman et al ¹⁰	181	2 (1.1)	-	2	-	-	-	-
Athey et al ¹⁷	165	16 (1)	2	-	-	1	2	11
Marchal et al ¹¹	274	38 (13.8)	16	14	6	2	-	-
Carcano et al ¹²	32	0	-	-	-	-	-	-
Marrazzo et al ¹⁴	100	4 (4)	-	4	-	-	-	-
Present study	173	1 (0.6)	-	-	-	-	1	-

Table 3 Readmission rates in various series of ambulatory surgery for breast cancer.

Study	Readmissions (%)
Goodman et al ¹	0
Dooley et al ⁷	0
Dravet et al ⁸	25 (7%)
Friedman et al ¹⁰	0
Athey et al ¹⁷	0
Marchal et al ¹¹	0
Carcano et al ¹²	3 (8%)
Marrazzo et al ¹⁴	0
Present study	0

References

1. Goodman AA, Mendez AL. Definitive surgery for breast cancer performed on an outpatient basis. *Arch Surg.* 1993; **128(10)**:1149–52.
2. McManus SA, Topp DA, Hopkins C. Advantages of outpatient breast surgery. *Am Surg.* 1994; **60(12)**:967–70.
3. Seltzer MH. Partial mastectomy and limited axillary dissection performed as a same day surgical procedure in the treatment of breast cancer. *Int Surg.* 1995; **80(1)**:79–81.
4. Kambouris A. Physical, psychological, and economic advantages of accelerated discharge after surgical treatment for breast cancer. *Am Surg.* 1996; **62(2)**:123–7.
5. Tan LR, Guenther JM. Outpatient definitive breast cancer surgery. *Am Surg.* 1997; **63(10)**:865–7.
6. Bian J, Halpern MT. Trends in outpatient breast cancer surgery among Medicare fee-for-service patients in the United States from 1993 to 2002. *Chin J Cancer.* 2011; **30(3)**:197–203.
7. Dooley WC. Ambulatory breast cancer surgery. *Ann Surg Oncol.* 2000; **7(3)**:174–5.
8. Dravet F, Belloin J, Dupré PF, François T, Robard S, Theard JL, Classe JM. [Role of outpatient surgery in breast surgery. Prospective feasibility study]. *Ann Chir.* 2000; **125(7)**:668–76.
9. Margolese RG, Lasry JC. Ambulatory surgery for breast cancer patients. *Ann Surg Oncol.* 2000; **7(3)**:181–7.
10. Friedman D, Gianetta E, Giaminardi E, Aicardi M, Bachi V. [Definitive breast cancer surgery as an outpatient: rationale and our experience]. *Ann Ital Chir.* 2004; **75(5)**:525–8; discussion 529.
11. Marchal F, Dravet F, Classe JM, Campion L, François T, Labbe D, Robard S, Théard JL, Pioud R. Post-operative care and patient satisfaction after ambulatory surgery for breast cancer patients. *Eur J Surg Oncol.* 2005; **31(5)**:495–9.
12. Carcano G, Uccella L, Ferrari A, Rovera F, Dionigi G, Limonta G et al. Breast Cancer surgery as an outpatient in Italy: is it possible? *Chirurgia.* 2005; **18**: 323–5.
13. Marla S, Stallard S. Systematic review of day surgery for breast cancer. *Int J Surg.* 200; **7(4)**:318–23.
14. Marrazzo A, Taormina P, David M, Riili I, Lo Gerfo D, Casà L, Noto A, Mercadante S. Surgical treatment of early breast cancer in day surgery. *Chir Ital.* 2007; **59(5)**:687–91.
15. Rovera F, Ferrari A, Marelli M, Bellani M, Limonta G, Corben AD, Dionigi G, Boni L, Uccella L, Carcano G, Dionigi R. Breast cancer surgery in an ambulatory setting. *Int J Surg.* 2008; **6 Suppl 1**:S116–8.
16. Marla S, McMillan DC, Stallard S. Factors influencing postoperative length of hospital stay after breast cancer surgery. *Breast.* 2012.
17. Athey N, Gilliam AD, Sinha P, Kurup VJ, Hennessey C, Leaper DJ. Day-case breast cancer axillary surgery. *Ann R Coll Surg Engl.* 2005; **87(2)**:96–8.
18. Tahiri Y, Tran de QH, Bouteaud J, Xu L, Lalonde D, Luc M, Nikolis A. General anaesthesia versus thoracic paravertebral block for breast surgery: a meta-analysis. *J Plast Reconstr Aesthet Surg.* 2011; **64(10)**:1261–9.
19. Kitowski NJ, Landercasper J, Gundrum JD, De Maiffe BM, Chestnut DH, Bottcher ML, Johnson JM, Johnson RL. Local and paravertebral block anesthesia for outpatient elective breast cancer surgery. *Arch Surg.* 2010; **145(6)**:592–4.
20. Albi-Feldzer A, Mouret-Fourme E E, Hamouda S, Motamed C, Dubois PY, Jouanneau L, Jayr C. A double-blind randomized trial of wound and intercostal space infiltration with ropivacaine during breast cancer surgery: effects on chronic postoperative pain. *Anesthesiology.* 2013; **118(2)**:318–26.
21. Kruper L, Xu XX, Henderson K, Bernstein L, Chen SL. Utilization of Mastectomy and Reconstruction in the Outpatient Setting. *Ann Surg Oncol.* 2013; **20(3)**:828–35.
22. Bian J, Krontiras H, Allison J. Outpatient mastectomy and breast reconstructive surgery. *Ann Surg Oncol.* 2008; **15(4)**:1032–9.