

Surgical Treatment of Early Breast Cancer Under Local Anesthesia

Erken Evre Meme Kanserinin Lokal Anestezi Altında Cerrahi Tedavisi

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ÖZET

GİRİŞ ve AMAÇ: Meme koruyucu cerrahinin lokal anestezi altında yapılabileceğini göstermek. **YÖNTEM ve GEREÇLER:** Ardışık 60 meme kanseri hastasına lokal anestezi altında meme koruyucu cerrahi uygulandı. Bütün hastalara lumpektomi ve sentinel lenf nodu biyopsisi uygulandı. Palpe edilemeyen lezyonlar tel ile işaretlendi. Yapılan işlem detaylı bir şekilde açıklandı.

BULGULAR: Eksizyonel biyopsi ve sentinel lenf nodu biyopsisi arası ortalama süre 27,1±3 gündü. 24 (%40) hastada telle işaretli biyopsi gerekli oldu. 51 (%85) hastada cerrahi lokal anestezi altında tamamlandı. 9 (%15) hastada sentinel lenf nodu biyopsisi tümör-pozitif. Bu hastalara genel anestezi altında aksilla diseksiyonu yapıldı. Hiçbir hastanın lokal anesteziye intoleransı olmadı.

TARTIŞMA ve SONUÇ: Lokal anestezi altında bariz bir şekilde hasta konforu sağladı. Bu sayede hastalar gününbirlik cerrahide tedavi oldular ve genel anestezinin yan etkilerinden ve ekstra maliyetten kaçınılmış oldu. Bizim sonuçlarımız tekniğin yapılabilirliğinin güzel bir göstergesidir.

Anahtar Kelimeler: Meme kanseri, meme koruyucu cerrahi, lokal anestezi, sentinel lenf nodu

ABSTRACT

INTRODUCTION: To show the viability of breast-conserving surgery under local anesthesia.

MATERIAL and METHODS: 60 consecutive breast cancer patients treated with breast-conserving surgery under local anesthesia are reported in this study. Wide excisional biopsy and sentinel lymph node biopsy were performed in all patients. Wire-guided biopsy method was used in non-palpable lesions. Techniques used are described in detail.

RESULTS: Average time between excisional biopsy and sentinel lymph node biopsy was 27.1±3 days. Wire-guided excisional biopsy was the method of choice in 24 (40%) patients. In 51 of 60 (85%) patients, surgery was completed under local anesthesia. 9 (15%) patients' sentinel lymph node biopsy result was tumour-positive. These patients required axillary dissection under general anesthesia. None of the patients showed intolerance to surgery under local anesthesia.

DISCUSSION AND CONCLUSION: Surgery under local anesthesia provides significantly better patient comfort as the patients can be handled in the outpatient clinic. Local anesthesia is free of side effects and extra costs of general anesthesia are avoided. Our report is a good addition to the literature supporting the viability of the technique.

Keywords: Breast cancer, breast conserving surgery, local anesthesia, sentinel lymph node

INTRODUCTION

Surgical treatment of breast cancer has evolved rapidly from radical mastectomies of early 20th century to much more conservative approaches. Today, breast-conserving surgery is widely considered as the preferred treatment for the majority of breast cancer cases (1, 2).

Therefore, technical improvements in the management of this operation are of paramount importance. Breast-conserving surgery is commonly performed under general anesthesia and adverse effects of general anesthetics and higher costs due to unavoidable hospitalization are the major disadvantages of the method. One of the major problems regarding breast cancer surgery is the well-known

immunosuppressive effect of general anesthesia and the adverse effect of immunosuppression on cancer progression (3-5). We are presenting our retrospective series of breast cancer patients treated under local anesthesia in the hope of alleviating some of these issues.

PATIENT CHARACTERISTICS

Sixty consecutive breast cancer patients treated with local anesthesia between May 2012 and December 2017 were enrolled in the study. Patients with mastectomy and axillary dissection plan were excluded. Patients with inflammatory breast cancer (T4d), clinically N2 disease, prior axillary surgery and pregnancy were excluded as there is no indication for sentinel lymph node biopsy in these patients.

Wide excisional biopsy and sentinel lymph node biopsy was performed in all patients. Wire-guided biopsy was performed for non-palpable lesions. Simultaneous diagnosis and treatment was the intention so all lesions were tried to be excised with clear surgical margins. Patients who had excisional biopsy/ wide excision, waited for the pathology result. Patients with malign pathology results and clear surgical margins had sentinel lymph node biopsy on a later date. Patients whose excisional biopsy results have tumor-positive surgical borders were not included in the study. For patient comfort, re-excision and sentinel lymph node biopsy were not performed during the same session.

All excisional biopsies were performed under local anesthesia. 5-10 cc Prilocaine 2% enjectable solution was administered subcutaneously for local anesthesia. At a later date, sentinel lymph node biopsy was performed under local anesthesia with the same agent in patients diagnosed with breast cancer. Combined method of lymphoscintigraphy and 1% methyleneblue dye was used for sentinel lymph node biopsy. Methylene blue was injected to biopsy site and periareolar region intradermally. Injection site was massaged for 5 minutes and sentinel lymph node biopsy was performed under local anesthesia. Gamma probe counter was used to find the appropriate position for sentinel lymph node biopsy incision. Sentinel lymph nodes

were evaluated with frozen section. Patients with tumour-positive sentinel lymph nodes underwent axillary dissection under general anesthesia. Wong-Baker Faces Pain Rating Scale was used to evaluate post-operative pain status after 2 hours (6).

A sample case is shown in Figure 1 and 2. Figure 1 shows preoperative assessment before application of local anesthetic. Figure 2 shows the end result.

Demographic information and pathology results of the patients were also evaluated. The Statistical Package for Social Sciences (IBM SPSS Statistics, USA) was used for data analysis. Descriptive statistical analysis was sufficient for this study.

RESULTS

Mean age of the patients was 54.1 ± 2.41 (36-75). Excisional biopsy took 12.1 ± 2.78 (7-19) minutes and sentinel lymph node biopsy took 15.5 ± 3.73 (10-23) minutes after local anesthesia was applied. Average time between excisional biopsy and sentinel lymph node biopsy was 27.1 ± 3 days. 24 (40%) breast lesions were non-palpable and required wire-guided biopsy. Mean tumour size was 1.48 ± 0.15 cm (0.5-3) among all patients (Table 1).

45 (75%) patients were diagnosed as invasive ductal carcinoma and 6 as tubular carcinoma histopathologically. The other 9 (15%) patients had invasive lobular carcinoma, invasive micropapillary carcinoma and mixed invasive ductal carcinoma.

Six (10%) patients had triple negative disease. Patients were given adjuvant chemotherapy and hormonal therapy according to their pathology results. All patients received radiotherapy.

Sentinel lymph node biopsy results were tumour-positive in nine (15%) patients in whom axillary dissection was required and performed under general anesthesia.

After all, 51 of 60 patients' treatments were managed with local anesthesia successfully. None of the patients had intolerance to local anesthesia such as nausea or vomiting, which are commonly seen after general anesthesia. None of the patients required re-exploration due to hemorrhage. Two patients (3.3%) had surgical site infection

after operation. Both cases were successfully treated with antibiotics and did not require percutaneous intervention.

Wong-Baker Faces Pain Rating Scale was set to 0-5. Eighteen patients (30%) scored 0, which means no pain after operation. 39 patients (65%) scored 1, 3 patients (5%) scored 2. None of the patients scored above 3.

DISCUSSION

The core concept of breast cancer treatment has moved from maximum tolerable operation to minimally effective one while once radical mastectomy was the golden standard of treatment. For today breast conservation and sentinel lymph node biopsy are the standard managements and besides this, there are large scale studies which suggest the limitation of axillary dissection even in the pathologically positive axilla (7).

Breast cancer screening is performed routinely all around the globe. Routine screening allows early diagnosis of breast cancer which usually presents itself as radiologically visible masses. Fine needle biopsy and true-cut biopsy are preferred methods for diagnosis despite their costs and time consuming results. In our series we used wide excisional biopsy instead of these methods. This method allows for simultaneous diagnosis and treatment and saves time for the benefit of the patient.

Treatment of breast cancer with local anesthesia has been described before by others (8-10). Although performing surgery under local anesthesia is theoretically better because of the immunosuppressive effect of general anesthesia, there are still some reports that show survival rates and local control to be similar (11, 12).

Opioids and volatile anesthetics have been implicated with negative potential effect on tumour pathophysiology. The role of opioids in tumour promotion is largely based on their stimulating effect on angiogenesis and has been shown both in vivo and in vitro environments (13). Volatile anesthetics have been associated with immunosuppression through different mechanisms such as HIF-1 α activation (14), inhibition of TNF induced apoptosis (15) and inhibition of antiapoptotic Bcl-2 down regulation (16).

On the other hand, local anesthesia is associated with inhibition on tumour progression. This effect is mainly based on blockage of voltage-gated sodium channels in excitable cells, since a variety of malignancies show increased activity of voltage-gated sodium channels (3).

All this information calls for a need to perform oncologic operations under local anesthesia. Besides potential oncologic advantages, local anesthesia is definitely less hazardous and in skilled hands, comfortable for the patient and is associated with better recuperation period. We are reporting our case series of 60 consecutive patients who were treated with local anesthesia. Our report is a good addition to the literature supporting the viability of the technique. We sent the sentinel lymph node biopsy to frozen section. 9 patients' lymph node biopsy was tumor-positive and we performed axillary dissection. Paravertebral block is an established method of anesthesia for breast cancer and we would have preferred to use it for axillary dissection (17, 18). However, we had to perform general anesthesia due to technical problems. Local anesthesia would also provide technical advantages to patients whose sentinel lymph node won't be sent to frozen section whether because of lack of frozen section in the hospital or studies such as ACOSOG Z0011(7).

It is well established that surgery under local anesthesia is just as effective and safe as general anesthesia (9, 19). Groeltelaers et al reported 5 year follow-up results of 356 breast cancer patients treated with local anesthesia. 254 patients' sentinel lymph node biopsy was tumor-negative and only 10 patients showed recurrent disease (19). Kongdan et al reported the comparison of 37 patients treated with local anesthesia and 94 patients treated with general anesthesia, which shows local anesthesia as a reliable alternative treatment method. Aubard et al reported their 78 patient series, who were followed over a period of 20 months, which also supported the use of local anesthesia (10).

While results seem similar, it is certain that local anesthesia provides significantly better patient comfort. It is more cost effective and free of the side effects of general anesthetics. Even though there are no clear

long term benefits, local anesthesia is still preferable in this regard. Despite numerous studies suggesting the use local anesthesia, it is still underused and general anesthesia is still preferred over local anesthesia. We would like

to add our experience and series for the favor of usage of local anesthesia.

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Fig 1. Patient before application of local anesthetic.



Fig 2. Skin closure and the end result.

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