

Correlation Between the Number of Removed Lymph Nodes and Ratio of Lymph Node Metastasis in Stage IB-IIA Cervical Cancer

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OBJECTIVE: Understanding the relation between the numbers of removed lymph node and getting positive lymph node.

STUDY DESIGN: Medical records of 250 patients diagnosed as stage IB-IIA cervical cancer and treated with type III radical hysterectomy plus systematic pelvic and para-aortic lymphadenectomy in between January 1993 and December 2007 were evaluated. Clinical stage IB1 tumor was present in 171 patients, IB2 in 30 patients and IIA in 49 patients.

RESULTS: The mean age of patients was 53.9 years. The metastatic node was determined in 34% of patients. The median number of removed nodes was 52 (13-160). It was removed 20 or less lymph nodes in 3.6% of patients, 21-30 lymph nodes removed in 11.6% of patients, 31-40 lymph nodes in 18.4% of patients, 41-50 lymph nodes in 14.4% of patients, 51- 60 lymph nodes in 15.6% of patients, 61-70 lymph nodes in 15.6% of patients, 71- 80 lymph nodes in 10% of patients and more than 80 in 10.8% of patients. The positive lymph node incidence was at minimum (11.1 %) in the ≤ 20 lymph nodes removed group and incidence was at maximum (60.4%) was observed in 31-40 lymph nodes removed group. However, there was no significant relationship between the number of removed nodes and getting positive lymph nodes.

CONCLUSION: There was no relationship between number of lymph nodes removed and the chance of finding metastasis. However, the percentage of positive lymph nodes was lowest in the group where lowest number of nodes was removed.

Key Words: Cervical cancer, Lymph node count, Lymph node metastasis

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Introduction

Cervical cancer spreads primarily by lymphatic system. In early stage cervix cancer the incidence of metastatic lymph node was reported as 20-35%.¹⁻³ Many authors suggest systematic lymph node dissection and many others suggest only metastatic or bulky lymph node dissection.⁴⁻⁶ The importance of removing positive lymph node is clear but the relation be-

tween the number of removed lymph node and the incidence of metastatic lymph node in early stage cervix cancer is unclear.⁷

In our study we aimed that is there any relation between the number of removed lymph node and metastasis positive lymph node determination.

Material and Method

Medical records of patients diagnosed as stage IB-IIA cervical cancer and treated with type III radical hysterectomy, bilateral salphingo-oophorectomy and systematic pelvic and para-aortic lymphadenectomy in between January 1993 and December 2007 were evaluated retrospectively. 250 patients with complete pathologic examination data were included. The patients were staged by using FIGO staging system.

Chi-square and Anova Table tests were used to analyze the differences between mean values and percentages. Statistical analyses were performed using SPSS version 12.0. Statistical significance was considered at $p < 0.05$.

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Results

Mean age of the patients was 53.9 years (range:31-80). Clinical stage IB1 tumor was present in 171 patients, IB2 in 30 patients and IIA in 49 patients.

The thirty-four percent of patients had metastatic lymph nodes. The median number of removed lymph node was 52 (13-160, mean: 53.4). We removed 20 or less lymph nodes in 9 patients (3.6%), 21-30 lymph nodes in 29 patients (11.6%), 31- 40 lymph nodes in 46 patients (18.4%), 41-50 lymph nodes in 36 patients (14.4%), 51-60 lymph nodes in 39 patients (15.6%), 61- 70 lymph nodes in 39 patients (15.6%), 71- 80 lymph nodes in 25 patients (10%) and more than 80 in 27 patients (10.8%). There was no statistically significant effect of the number of removed lymph node on determination of metastatic lymph node. The mean number of removed lymph node in the group which have lymphatic metastasis was 53.9 (13-160, median:53), the mean number of removed lymph node in the group which have not lymphatic metastasis was 52.5 (16-112, median 50) ($p=0.643$).

No relation was determined between the number of removed lymph node and metastasis positive lymph node determination (Table 1). However, metastasis positive lymph node incidence was at minimum rate (11.1 %) in the lowest lymph nodes removed group (20 or less, n:9). Maximum incidence of metastasis positive lymph node (60.4%) was observed in 31-40 lymph nodes removed group. The more then 80 lymph nodes removed group had 25.9% metastasis positive lymph node.

Table 1: The relation between the number of removed lymph node and getting positive lymphnode

Number of removed lymph node	Lymph node metastasis		p
	Negative	Positive	
≤20	8 (88.9%)	1 (11.1%)	0.467
21-30	17 (58.6%)	12 (41.4%)	
31-40	32 (69.6%)	14 (60.4%)	
41-50	20 (55.6%)	16 (44.4%)	
51-60	25 (64.1%)	14 (35.9%)	
61-70	28 (71.8%)	11 (28.2%)	
71-80	15 (60%)	10 (40%)	
>80	20 (74.1%)	7 (25.9%)	

Discussion

Cervical cancer mainly spread via lymphatic routes. Metastatic nodes are the main prognostic factor in this disease.⁸ Indeed, for any stage, when lymph nodes are found positive, 5-year survival will drop 30-70%.⁹⁻¹¹ Because of therapeutic potential of lymphadenectomy, with exclusion of cases with metastatic lymph node and extended parametrectomy, radical

hysterectomy plus systematic lymphadenectomy is considered standard treatment for patients affected by early stage cervical carcinoma.

The incidence of metastatic pelvic lymph node in early stage cervix cancer is reported 20-35% in literature.¹⁻³ Benedetti-Panici et al. reported that the incidence of metastatic pelvic lymph node is 36%.³ In our study which systematic bilateral pelvic and aortic lymph node dissection was performed and median number of removed lymph node was 52, the incidence of metastatic lymph node is 34%.

Pieterse et al. did not find a correlation between the number of removed lymph node and the cancer specific survival or disease free survival. But in the same study they concluded that metastatic lymph nodes have unfavorable effect on survival.¹² Another study from Mc Donald et al. was shown that the number of removed lymph nodes has not any effect on prognosis but positive lymph nodes have unfavorable effect on survival.¹³ In Gynecologic Oncology Group study, Stehman et al. were unable to show that groin failure after superficial lymphadenectomy was a result of low lymph node count in vulvar cancer.¹⁴ However, Lutman et al. reported that women with endometrial cancer have significantly improved survival when a larger number (<12 vs ≥12) of pelvic lymph nodes are removed.¹⁵ Likewise, Altorki et al. found that number of removed lymph node was relation to improved survival in esophageal cancer.¹⁶ This result supported by other studies.^{17,18}

Many studies present that lymphatic metastasis, especially aortic metastasis; have unfavorable effect on survival in cervical cancer.¹⁹⁻²¹ Frozen section studies not always satisfactory for show the wideness of spread of malign cells. Hence, optimal systematic lymph node dissection seems an effective method. International Union Against Cancer (UICC) and American Joint Committee on Cancer (AJCC) proposed that at least 6 lymph nodes should be removed during resection of esophageal cancer for an accurate staging. It was showed that total number of lymph node removed during surgery is less than 6, the occult positive regional lymph node might be missed, resulting incorrect staging in esophageal cancer.²² However, in this study there was no relation between the number of removed lymph node and getting positive lymph nodes in cervical cancer. However positive lymph node incidence was at minimum rate in the lowest lymph nodes dissected group.

In conclusion, at the time of the primary surgery, lesser procedure such as lymph node biopsy should be discouraged. The surgeon should approach with optimal dissection to each patient with early stage cervical cancer and the surgeon does not overlook the potentially therapeutic effect of lymphadenectomy.

Evre IB-IIA Serviks Kanserinde Çıkarılan Lenf Nodu Sayısı ve Lenf Nodu Metastaz Oranı Arasındaki Korelasyon

AMAÇ: Bu çalışmada çıkartılan lenf nodu sayısı ile lenf nodu pozitifliği arasındaki ilişki araştırıldı.

GEREÇ VE YÖNTEM: 1993-2007 arasında tanısı konup tip III radikal histerektomi ve sistematik pelvik ve para-aortik lenfadenektomi yapılan 250 hastanın verileri incelendi. Hastaların 171'i IB1, 30'u IB2 ve 49'u IIA'ydı.

BULGULAR: Hastaların yaş ortalaması 53.9'du. Hastaların %34'ünde lenf nodu pozitifliği saptandı. Çıkarılan lenf nodu sayısı median 52'ydi (13-160). Hastaların 9'unda 20 ve altında lenf nodu çıkartılmışken, 29'unda 21-30 arasında, 46'sında 31-40 arasında, 36'sında 41-50 arasında, 39'unda 51-60 arasında, 39'unda 61-70 arasında, 25'inde 71-80 arasında ve 27'sinde 80'in üzerinde lenf nodunun çıkartıldığı belirlendi. En düşük lenf nodu pozitifliği lenf nodunun en az çıkarıldığı grupta (%11.1), en yüksek lenf nodu pozitifliği (%60.4) 31-40 arasında lenf nodu çıkarılan grupta gözlemlendi. Ancak, çıkarılan lenf nodu sayısı ile metastatik lenf nodunu saptayabilme arasında ilişki bulunmadı.

SONUÇ: Çıkarılan lenf nodu sayısı ile lenf nodu metastazını saptayabilme arasında ilişki olmadığı görüldü. Ancak, en düşük lenf nodu pozitifliği en az lenf nodu çıkarılan gruptaydı.

Anahtar Kelimeler: Serviks kanseri, lenf nodu sayısı, Lenf nodu metastazi

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