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Research Article

**SQUAMOUS CELL CARCINOMA IN THE NECK AND HEAD  
REGION WITH LYMPHATIC METASTASIS**<sup>1</sup>Dr Rosheena Khan, <sup>2</sup>Dr Umair Altaf, <sup>3</sup>Dr Khurram Hafeez<sup>1</sup>DHQ Hospital Khanewal, <sup>2</sup>Rural Health Centre Rangpur Muzaffargarh, <sup>3</sup>DHQ Hospital Vehari.**Article Received:** August 2019**Accepted:** September 2019**Published:** October 2019**Abstract:**

**Objective:** SCC (Squamous Cell Carcinoma) is very frequent malignancy in the regions of head and neck with lymphatic metastasis. This research work aimed to assess the identification of this very metastasis from lymphatic channels in the region of the tumor or from the recent formed lymphatic in that very tumor.

**Methodology:** There were 20 patients in this research work with SCC in the head & neck region. The evaluation of these patients carried out for the lymph angiogenesis with the utilization of the Vascular Endothelial Growth Factor-3 & K-I67 immuno-histochemical identifiers and after that the correlation of the collected information carried out with the clinical pathological standards.

**Results:** Huge amount of peritumoral & intratumoral lymphatic densities were present with strongly related with the adverse differentiation on histology. We found no relationship between the intratumoral lymphatic & peritumoral lymphatic densities and the availability of the metastasis of the lymph node, tumor location, age of the patient and gender. We found a strong relationship between both these densities according to Fisher-exact test.

**Conclusions:** This research work shows the availability of the intratumoral & peritumoral lymphatic densities, but there was no association of lymphatic with the metastasis of the lymph node of the SCC in the region of neck & head.

**Keywords:** Lymph Angiogenesis, Immuno-Histochemical, Metastasis, Peritumoral, Fisher, Malignancy, Squamous Cell Carcinoma.

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**INTRODUCTION:**

SCC in the neck & head region is malignant neoplasm of epithelium and it is one of the most frequent malignancies of neck & head. The dissemination of tumor is often because of an invasion to the lymphatic vessels. SCC in the head & neck region is much common in the persons having middle age and it increases with the increase of the age in last decades of life. The occurrence of this disease is more common in male gender. The most common feature which can have an impact on the therapy & prognosis of the complication is to identify the stage of the tumor and metastasis of the nodes is the main integral part of this staging. In spite of the location of the primary tumor, availability of the lymph node in either contra-lateral or ipsilateral side of the region of neck decreases the survival of five years by fifty percent. The invasion of the local tissue can spread the tumor.

LM (Lymphatic Metastasis) is very frequent pathway in the spread of the SCC in the head and neck region it is also the most important factor of prognosis. Despite the elaborate information in the field, there are many questions which are not answered about the spread of this very complication. Is this spread being because of the creation of lymphatic vessels within the tumor or already available vessels outside the tumor. This is much controversial issue in this particular subject. The identification of this phenomenon is possible with the VEGFR-3 & K-I67 markers, which have the ability to distinguish the

Pathologist examined the slide after staining without knowing any medical data. After that the counting of lymphatic density carried out with the use of  $\times 40$  magnification/hpf. The counting carried out inside the region of tumor (ILD: Intratumoral Lymphatic Density) & and inside the region 500im from the

vessels of blood from tumors. This research work carried out to assess the proportion of the lymph angiogenesis in patients suffering from SCC in the head & neck region. We further investigated its association after its investigation.

**METHODOLOGY:**

Total 20 patients suffering from Squamous Cell Carcinoma in head and neck region were the part of this research work. The range of the age of the patients was 36 to 81 years. Seventy percent patients were male and thirty percent patients were females. Thirty-five percent patients were present with the metastasis of the lymph nodes at the diagnosis time. Ten percent patients were present with cancers categorized as low, ninety percent as high clinical grade. Tumors were present in fifty percent patients with well-differentiation, forty-five percent tumors were present with the moderate level differentiation and there were only five percent poorly differentiated tumors.

The collected samples were obtained from resection of the tissues around the tumor. For the identification of the lymph angiogenesis, we used the VEGFR-3 to show the lymphatic vessels & monoclonal antibody K-I67 was in use for the identification of the propagating endothelial cells in tissues. We performed the double staining for the VEGFR-3 or K-I67 in all the collected samples of tissues with the application of the STREPAVIDIN\_BIOTIN method (Figure-1).

border of the tumor (PLD: Peritumoral Lymphatic Density). We calculated the mean values for the statistical analysis of the collected information. We followed all the steps provided by Kyzas. SPSS V.11

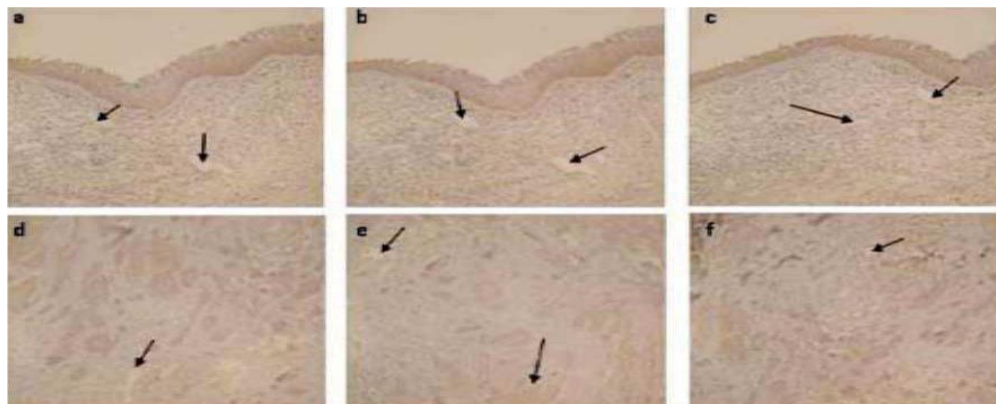


Figure 1

was in use for the statistical analysis of the collected information. Fisher Exact test was in use for the comparison of the values of Peritumoral Lymphatic Density & Intratumoral Lymphatic Density.

### RESULTS:

The average Intratumoral Lymphatic Density in this research work was 17 having a range from 1 to 50. Total fifty percent patients were the part of the group with high level Intratumoral Lymphatic Density and fifty percent patients were part of the group with low level Intratumoral Lymphatic Density. The average Peritumoral Lymphatic Density was 3.50 having a

range from 2 to 10. Very similar to the Intratumoral Lymphatic Density, fifty percent patients were in the group with high level Peritumoral Lymphatic Density & fifty percent were patients in the group of the low level Peritumoral Lymphatic Density. There was a correlation between high Intratumoral Lymphatic Density & Peritumoral Lymphatic Density with very adverse histological differentiation. We found no important association between Intratumoral Lymphatic Density & Peritumoral Lymphatic Density on one side and the availability of the metastasis of the lymph node on the other side at the time of the identification.

<b>Gender</b>	<b>No</b>	<b>Percentage</b>
Male	14	70
Female	6	30

Also, we found no correlation between Peritumoral Lymphatic Density & Intratumoral Lymphatic Density on one side and tumor location, age and gender of the patient on other hand. The greater clinical stage was present with the high Peritumoral Lymphatic Density & Intratumoral Lymphatic Density but it failed to attain much significance statistically. There was an important association between Peritumoral Lymphatic Density & Intratumoral Lymphatic Density according to Fisher-exact test. There were no emboli inside the PLD & Intratumoral Lymphatic Density.

### DISCUSSION:

Squamous Cell Carcinoma is one of the important reasons of high rate of morbidity as well as mortality. The treatment of many patients is possible with resection until there is limitation of the neoplasm to the original location. But unluckily most of the cancers are the cause of metastasis to the other parts of the human body which can cause the death of the patient. There are many ways of the spread of cells with cancer as local invasion, Hematogenous etc. Tumor cells causes the infiltration of the lymphatic vessels present around the available tumors and the lymphatic system is main organ acts like the spreading paths for the cells with tumor. The presence of the lymphatic vessels at diagnosis is main prognostic feature in the patients suffering from Squamous Cell Carcinoma in the head and neck regions; this has the ability to affect the options for treatment. So, specifications are much significant for the prediction of the metastasis of the nodes in the original tumor. In one research work conducted in the

past detected the lymphatic propagation with the utilization of the double staining method with K-I67/LYVE-1. But there is availability of the LYVE-1 in the endothelium of the vessels of the blood. In one other research work, the marker for the lymphatic endothelium was the podoplanin.

Some of the research work of the past showed that VEGFR-3 as marker can be present in the new small vessels of blood in the cells of tumor. But some research work showed it as staining specific. The presence of the cells of blood supported us to differentiate the vessels of blood from lymphatic vessels. We also used the double staining in this very research work. Some recent research works have displayed that intratumoral lymphatic can have influence the metastasis of nodes and it is a significant marker for the adverse prognosis. This current research work very similar to the study of Beasley did not identify any cell of tumor in the lymphatic vessels; the research work of Kyzas displayed some tumoral cells in the new lymphatic having association with the metastasis of the nodes. There can be some limitation in the description of this very phenomenon. In opposition with some other research works, we were unable to discover any important association among metastasis of nodes & lymph angiogenesis outside and within the tumor. In some other research works as well as in this current research work, Squamous Cell Carcinoma in the head and neck region were lymphangiogenic but they were present with the variation in capacity to invade the lymphatic.

**CONCLUSION:**

In this current research work, there was a strong correlation between Peritumoral Lymphatic Density & Intratumoral Lymphatic Density and our findings propose that although propagating lymphatic can occur in the Squamous Cell Carcinoma in the head and neck region, they are not responsible for the metastasis of the lymph nodes in all the patients. There is need of further investigation on various factors accountable for the increase of the lymphatic invasion & permeability.

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