

# Spindle Cell Carcinoma in Head and Neck Region

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## ABSTRACT

**Objective:** The aim of this study was to evaluate clinicopathological characteristics, treatment and outcomes of spindle cell carcinoma.

**Study Design:** Retrospective study

**Place and Duration:** Multi-centric (MMDC, Multan and Dow university of Health Sciences, Karachi) Nov 2020-July 2021.

**Methods:** There were 40 patients of both genders were presented in this study, patients were aged between 20-70 years. Patients detailed demographics were recorded after taking informed written consent. Patients with primary tongue disease comprised 17 of 40, 13 had primary paranasal sinus disease, 5 had primary hypopharynx disease, 3 had basic vocal cord disease and 2 had primary soft palate and floor of mouth disease. At least 28 people were treated with the goal of becoming entirely repaired (19 patients required surgery only and eight were treated with combined modality). The remaining 12 patients were given palliative care as a last resort.

**Results:** Mean age of the patients was 27.77±4.49 years with mean BMI 25.19±7.64 kg/m<sup>2</sup>. Male predominance was seen, with a male to female ratio of 4:1. The oral cavity is the most commonly affected region, followed by the oropharynx. Surgery is the first line of treatment, followed by adjuvant radiotherapy, depending on the indications for treatment. The shortest follow-up period was 11 months, while the longest was 31 months. Only five patients were presented with a recurrence of their condition.

**Conclusion:** The diagnosis of spindle cell carcinoma is difficult, and histology in conjunction with immunohistochemistry is required for an accurate diagnosis to be made. The oral cavity appears to be the most common place in the younger age group in the current study, which is consistent with findings from prior studies. It is necessary to do additional research to determine the geographic diversity in clinicopathological characteristics, as well as the optimal treatment regimen for this rather rare entity.

**Keywords:** Spindle Cell Carcinoma, Head and Neck, Young age, Treatment, Outcomes

## INTRODUCTION

SpCCs of the head and neck represent less than 3% of all head and neck cancers of epithelial origin. With a nearly 7:1 male-to-female ratio, it is more common in men than women<sup>3,4</sup>. Smoking, drinking, and radiation exposure are all risk factors<sup>3,4</sup>.

For example, morphological and immunohistochemical characteristics are frequently discussed in the literature<sup>5,6,7</sup>. SpCC are epithelial cells that are elongated (spindle-shaped) and constitute a unique kind of poorly differentiated SCC<sup>8</sup>.

The glottis and hypopharynx are the most prevalent sites of origin in the head and neck region. Extra-laryngeal origin is rare, however SpCC has been seen in all head and neck regions. Our study discovered that in six of these patients, the disease originated in the mucosa of the mouth. Compared to SCC, laryngeal SpCC appears to present sooner in the disease process. Both entities appear to have similar metastatic potential<sup>10</sup>.

Surgical therapy of squamous cell carcinoma (SCC) is widely accepted. Ballo et al suggested in 1998 that radiation had a positive influence on survival; however, more recent investigations have not confirmed this<sup>11,2</sup>. Cellular cytotoxic chemotherapy has not been studied thoroughly enough<sup>12</sup>. Because of the rarity of this disease and the lack of high-level evidence, it is difficult to

determine the best treatment for SpCC of the head and neck region.

Outside of the larynx, SpCC of the head and neck is relatively uncommon<sup>3,13</sup>. The present study was conducted aimed to evaluate clinicopathological characteristics, treatment and outcomes of spindle cell carcinoma.

## MATERIAL AND METHODS

This retrospective study was conducted at MMDC, Multan and Dow university of Health Sciences, Karachi, and comprised of 40 patients of both genders. Demographically detailed of enrolled cases were recorded after taking informed written consent. Patients did not give any written consent were excluded from this study.

When the grossly visible tumour had been completely removed and the margins had been thoroughly examined, a complete resection (R0) had been achieved. Microscopically impacted resection margins (R1) or grossly remaining disease (R2) were defined as incomplete resections (R2). Cases were reviewed in MDT meetings following surgery to determine which patients should receive adjuvant treatment. Based on the final pathological stage, the extent of excision, and the patient's ability to undergo additional therapy, the decisions were made. The linear accelerator-based intensity modulated radiation was used to administer external beam radiotherapy (IMRT). Patients with primary tongue disease comprised 17 of 40,

13 had primary paranasal sinus disease, 5 had primary hypopharynx disease, 3 had basic vocal cord disease and 2 had primary soft palate and floor of mouth disease. At least 28 people were treated with the goal of becoming entirely repaired (19 patients required surgery only and eight were treated with combined modality). The remaining 12 patients were given palliative care as a last resort. Complete data was analyzed by SPSS 24.0 version.

## RESULTS

Mean age of the patients was  $27.77 \pm 4.49$  years with mean BMI  $25.19 \pm 7.64$  kg/m<sup>2</sup>. Male predominance was seen, with a male to female ratio of 4:1. Alcohol and tobacco was the most common cause of spindle cell carcinoma. (table 1)

Table 1: Detailed demographics of enrolled cases

Variables	Frequency	%age
Mean age (years)	27.77±4.49	
Mean BMI (kgm <sup>2</sup> )	25.19±7.64	
<b>Gender</b>		
Male	36	90
Female	4	10
<b>Causes</b>		
Alcohol	17	42.5
Tobacco	15	37.5
Others	8	20

The oral cavity is the most commonly affected region, followed by the oropharynx. Patients with primary tongue disease comprised 17 of 40, 13 had primary paranasal sinus disease, 5 had primary hypopharynx disease, 3 had basic vocal cord disease and 2 had primary soft palate and floor of mouth disease. (table 2)

Table 2: Prevalence of spindle cell carcinoma among regions

Variables	Frequency	%age
<b>Sites of Disease</b>		
Tongue disease	17	42.5
Paranasal sinus disease	13	32.5
hypopharynx disease	5	12.5
Vocal cord disease	3	7.5
Soft palate and floor of mouth disease	2	5
<b>Total</b>	<b>40</b>	<b>100</b>

Surgery is the first line of treatment, followed by adjuvant radiotherapy, depending on the indications for treatment. The shortest follow-up period was 11 months, while the longest was 31 months. (table 3)

Table 3: Treatment provided to enrolled cases

Variables	Frequency	%age
<b>Surgery</b>		
Yes	28	70
No	12	30
<b>Adjuvant radiotherapy</b>		
Yes	22	55
No	18	45

Only five patients were presented with a recurrence of their condition and 35 patients were successfully recovered. (table 4)

Table 4: Post-treatment outcomes among cases

Variables	Frequency	%age
<b>Recovered</b>		
Yes	35	87.5
No	5	12.5
<b>Recurrence</b>		
Yes	5	12.5
No	35	87.5

## DISCUSSION

Spontaneous (mesenchymal) differentiation from an epithelial tumor is the case with spindle cell carcinoma, an extremely rare form of head and neck cancer. Tobacco and alcohol use have been found to be positively associated with the development of malignant tumors in males in their fifth and sixth decades, which is consistent with prior studies. Many patients in our study had previously undergone radiation treatment for cancers of the head and neck, as well as other malignancies or illnesses. Regular recurrence and distant metastasis occur in the same frequency as or somewhat more frequently than in conventional squamous cell carcinoma<sup>14,15</sup>

In this retrospective study total 40 patients had spindle cell carcinoma of head neck were presented. Mean age of the patients was  $27.77 \pm 4.49$  years with mean BMI  $25.19 \pm 7.64$  kg/m<sup>2</sup>. Male predominance was seen, with a male to female ratio of 4:1. In previous studies different researches showed resemblance to our study<sup>16,17</sup> Tobacco and alcohol were the most common factors in the development of spindle cell carcinoma, according to our research. One of the most common types of skin cancer, spindle cell carcinoma, has been found to be constituted of both squamous cell and spindle cell carcinoma. The sarcomatous component of SpCC is formed from squamous epithelium and has divergent mesenchymal differentiation, making it a monoclonal epithelial neoplasm<sup>15</sup>. Smoking and alcoholism have been shown to increase the risk of developing SpCC, but the exact cause has yet to be determined. Radiation exposure may also have a role in the development of SpCC, although the precise risk of radiation exposure may be difficult to estimate due to the dose and length of exposure<sup>17</sup> There is a 12:1 male-to-female ratio for SpCC, but it is becoming more frequent among females, and it usually appears in the sixth and seventh decades of life<sup>18</sup>.

The oral cavity is the most commonly affected region, followed by the oropharynx. Patients with primary tongue disease comprised 17 of 40, 13 had primary paranasal sinus disease, 5 had primary hypopharynx disease, 3 had basic vocal cord disease and 2 had primary soft palate and floor of mouth disease. Surgery is the first line of treatment, followed by adjuvant radiotherapy, depending on the indications for treatment. The shortest follow-up period was 11 months, while the longest was 31 months. When it comes to SpCC, only two cases have been documented so far. In all cases, the cancer had progressed to the point of requiring drastic surgery followed by adjuvant chemoradiotherapy, and the patients were treated as a group. Patient 1 had lung metastases five months after surgery, while patient 2 had been disease-free for two months following surgery<sup>19</sup>. 187 cases of laryngeal SpCC were studied by Thompson et al. The larynx was previously

irradiated in 17 patients (9%). Surgery was used to treat all of the patients (excisional biopsy only in 24 patients, excisional biopsy followed by radical surgery in 66 patients and surgery followed by adjuvant radiotherapy in 97 patients)<sup>6</sup>

## CONCLUSION

The diagnosis of spindle cell carcinoma is difficult, and histology in conjunction with immunohistochemistry is required for an accurate diagnosis to be made. The oral cavity appears to be the most common place in the younger age group in the current study, which is consistent with findings from prior studies. It is necessary to do additional research to determine the geographic diversity in clinicopathological characteristics, as well as the optimal treatment regimen for this rather rare entity

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