

# Cytodiagnosis of Spindle Cell Squamous Cell Carcinoma Presenting as a Metastatic Lesion to Chest Wall: A Case Report

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## ABSTRACT

Spindle cell carcinoma is a rare biphasic tumour composed of squamous cell epithelial and spindle cell mesenchymal components. This variant of squamous cell carcinoma masquerades as sarcoma with a high-risk of recurrence and metastasis. Metastatic lesions to the chest wall of squamous cell carcinoma from a distant primary are rare. The most common sites for metastasis from head and neck cancers are usually seen in the lungs, liver, bone, and brain. In this present case, the patient presented with complaints of an ulcerated mass on the left buccal mucosa with limited mouth opening. Despite wide excision of the mass and postoperative radiation, it resulted in distant metastases to the chest wall after a disease-free survival of four months. The metastasis of the chest wall appearing as red, inflamed, small, multiple, subcutaneous nodules is even rarer. The diagnosis of subcutaneous metastatic nodules of squamous cell carcinoma on Fine Needle Aspiration Cytology (FNAC) appearing in the literature is infrequent. The primary in this case was oral squamous cell carcinoma, which in follow-up after wide local excision of the mass with marginal mandibulectomy, presented as multiple inflamed appearing nodules on the chest wall. The primary site of the tumour showing classical squamous cell carcinoma and its metastatic lesion appearing on morphology as the spindle cell variant of squamous cell carcinoma are also infrequently reported in the literature. Herein, one such unusual case of subcutaneous metastasis on the chest wall cytodiagnosed on FNAC is reported.

**Keywords:** Epithelial-mesenchymal transition, Neoplasms, Sarcomatoid

## CASE REPORT

In September 2022, a 45-year-old man attended the Outpatient Department (OPD) of Ear, Nose and Throat (ENT) with complaints of an ulcerated mass on the left buccal mucosa with limited mouth opening for the past three months [Table/Fig-1]. The examination revealed a tumour mass of ulceroproliferative type located on the left lower gingivobuccal sulcus measuring 2.1×2×1 cm. Biopsy from the mass lesion showed histomorphology of well-differentiated squamous cell carcinoma. The patient underwent excision of the mass with marginal mandibulectomy.



[Table/Fig-1]: Shows ulceroproliferative growth over the left buccal mucosa.

The final histopathological diagnosis confirmed invasive well-differentiated squamous cell carcinoma showing dermal nests of cells with prominent keratinisation, potentially forming pearl-like structures with mild nuclear pleomorphism and occasional mitotic figures. The pathological staging of the disease at the excision of the mass was pT2N2bM0. The patient underwent an adjuvant CRTT regimen, i.e., radiotherapy with concurrent chemotherapy (cisplatin weekly at 40 mg/m<sup>2</sup>) as recommended. During the 4<sup>th</sup> follow-up visit after four months, the patient complained of three

red-coloured swellings over the left chest wall and diffuse swelling in the axilla. Clinically, these swellings appeared inflamed and red in colour and were firm to palpate [Table/Fig-2].



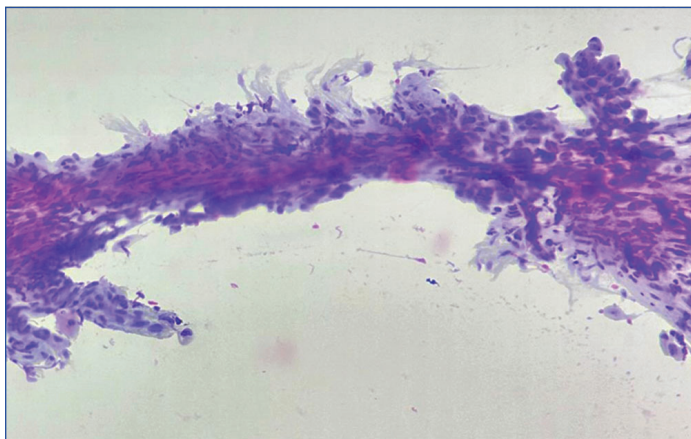
[Table/Fig-2]: Clinical photograph: The chest wall shows three distinct inflamed appearing subcutaneous nodules.

The swellings measured 3×2 cm, 3×2 cm, and 2×1 cm, respectively. They were partly fixed to the chest wall and appeared to be located in the subcutaneous plane. The swellings were progressive in character and lacked fluctuation, remaining firm. The patient was advised to undergo FNAC under Ultrasound Sonography (USG) guidance to confirm their nature.

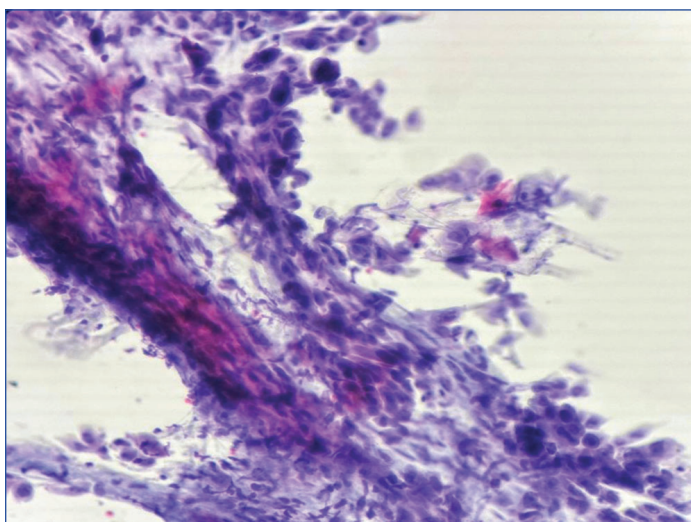
The FNAC was performed following standard steps on the three chest wall nodular swellings. The aspirated material was blood-mixed and smeared. The dry smears were stained with May Grunwald Giemsa (MGG) stain, and wet fixed smears were stained with Papanicolaou and Haematoxylin and Eosin (H&E) stains.

Microscopically, common cytomorphologic features were observed from the three swellings on the left-sided chest wall. The smear

showed cell sheets displaying nuclear streaming and spindling, with nuclei exhibiting hyperchromasia and uneven chromatin. Bird's eye-appearing cell groups made of two to three cells, along with isolated spindle tadpole cells, fibre cells, and fusiform-shaped squamous epithelial cells, were also observed. Rare small cell whorls were noticed, and the background showed cell debris, cells with ink dot nuclei, cytoplasmic plaques, macrophages, a few polymorphs, and crenated red blood cells [Table/Fig-3,4].



**[Table/Fig-3]:** Spindle cell variant of squamous cell carcinoma- the smear shows a sheet of spindle nuclear squamous cells with nuclear malignant character. Cytoplasm showed partial keratinisation. (FNAC, 10x Pap stain).



**[Table/Fig-4]:** Spindle cell variant of squamous cell carcinoma- the smear shows spindle nuclear squamous cells in sheets with nuclear streaming and atypia, rare dissociated spindle nuclear squamous cells are also seen. (FNAC, 40x Pap stain).

The cytodiagnosis of chest wall metastasis of spindle cell squamous cell carcinoma with cystic necrosis was performed. One of the three swellings underwent a trucut needle biopsy, revealing the underlying pathology of spindle cell squamous cell carcinoma. FNAC from the diffuse axillary swelling was also conducted; however, the cytological examination of the aspirate revealed adipose tissue. The patient later attended the institutional tumour board for the management of the newly detected chest wall lesions. After a month of follow-up following the chest wall lesion diagnosis, the patient complained of progressive dyspnoea even without physical activity. A chest X-ray was performed, revealing the presence of pleural fluid on the left-side. The cytological examination of the pleural fluid showed an infiltrate of spindle squamous carcinoma cells. Subsequently, the patient underwent two pleurodeses. Postprocedure intercostal chest drain was monitored serially. The chest drain was then removed after seven days, and the patient was discharged to palliative care with no recurrent effusion.

## DISCUSSION

Spindle cell squamous cell carcinoma is an unusual histological variant of squamous cell carcinoma, constituting <1% of cancers

occurring in the head and neck region [1]. It is considered a cancer of poorly differentiated grade, with a high potential for local recurrence and metastasis [2]. The unique histomorphology of spindle cell squamous cell carcinoma involves sarcomatous morphological features where squamous cells take on spindle shapes resembling sarcoma [2]. Reports of spindle cell squamous cell carcinoma in the buccal mucosa are infrequent, with metastasis to level IV cervical lymph nodes at the time of diagnosis has also been reported in the literature [3,4].

However, instances of spindle cell squamous cell carcinoma metastasising to the infraclavicular region affecting the chest wall and axilla are rarely reported in the literature [5]. Metastatic chest wall masses from spindle cell squamous cell carcinoma often mimic primary chest wall tumours, making differentiation challenging [5]. FNAC is invaluable in distinguishing primary chest wall malignant lesions from metastatic lesions of spindle cell squamous cell carcinoma [4]. Common primary tumours of the chest wall are typically malignant round cell tumours or spindle mesenchymal cell tumours, occasionally including osteochondral tumours. The metastasis of primary gingivobuccal squamous cell carcinoma to the chest wall is a rare occurrence, as indicated by published data [5-7]. Reports of cytodiagnosis through FNAC of metastatic spindle cell variants of squamous cell carcinoma in cases with a history of primary oral (buccal) squamous cell carcinoma are rarely found in the literature.

Oral squamous cell carcinoma is one of the common malignancies in the head and neck region, with common metastasis to level IV cervical lymph nodes. However, the presence of a well-differentiated squamous cell carcinoma displaying the morphology of spindle cell squamous cell carcinoma at a metastatic site is unusual. Reports by Dennis J et al., Iqbal MS et al., Lee E-T, Palla B et al., and Bavle RM et al., describe spindle cell squamous cell carcinoma occurrences in the oral cavity and head and neck regions [2,3,8-10]. The histomorphology described at the metastatic site by the aforementioned authors was that of spindle cell squamous cell carcinoma. None of these authors reported a change in morphology from the primary site to the metastatic site in well-differentiated oral squamous cell carcinoma to exhibit a spindle cell variant of squamous cell carcinoma.

The presently reported case was unique. The metastasis was of a different histological type than the primary tumour. The primary tumour in this case was a well-differentiated squamous cell carcinoma of the buccal mucosa, while the metastasis was a spindle cell variant of squamous cell carcinoma in the chest wall nodules. Such a morphological change to a spindle cell (sarcomatoid) squamous cell carcinoma suggests aggressive biological behaviour of the tumour. The aggressiveness of the spindle cell variant of squamous cell carcinoma has been described in a few studies [9-11]. There are rare reports in the literature describing squamous cell carcinoma of the buccal mucosa metastasising to the chest wall. One such report was published by Singh JS and Sharma AD [5]. Studies by Sharma P et al., and Mohapatra M et al., reported a few cases of cutaneous metastatic lesions diagnosed via FNAC from both known and unknown primaries [6,7]. In most cases diagnosed via FNAC from chest wall cutaneous metastasis, the carcinoma was other than metastasis of oral squamous cell carcinoma. Singh J and Sharma AD reported four cases of metastatic cutaneous lesions on the chest wall of squamous cell carcinoma diagnosed via FNAC [5]. The primary of one was in the lung and the primaries in other two cases were unknown. This report describes buccal squamous cell carcinoma showing distant single metastasis presenting as multiple subcutaneous chest wall nodules. The FNAC of chest wall nodules suggested metastatic spindle cell squamous cell carcinoma. The role of FNAC in the diagnosis of metastatic oral squamous cell carcinoma in lymph nodes and other sites is well established [5]. Therefore, postoperative cases of oral squamous cell carcinoma

suspected of recurrence or metastasis undergo FNAC to confirm or exclude malignant squamous cell pathology.

## CONCLUSION(S)

The clinical presentation of this case, as described in the report, was highly unique. The FNAC in the present case provided the diagnosis of multiple subcutaneous metastatic nodules of the spindle cell variant of squamous cell carcinoma. Reports of the occurrence of multiple metastatic nodules in the chest wall in operated cases of oral squamous cell carcinoma have not been reported in the literature, especially their diagnosis via FNAC. This study depicts the clinicocytopathological features of metastatic lesions as well as highlights the utility of FNAC in diagnosing these lesions. Since spindle squamous cell carcinoma is an extremely aggressive and poorly differentiated variant with a poor prognosis, prompt diagnosis and early treatment are necessary.

## REFERENCES

- [1] Liao Y-T, Tseng H-D, Chang P, Chu P-Y, Kuo Y-J, Liu C-Y. Second primary spindle cell carcinoma of oral cavity and oropharynx: A case report and literature review. *Reports*. 2018;1(2):16. Doi: 10.3390/reports1020016.
- [2] Dennis J, Jayalekshmi B, Mathew AS, Mathew SS. Spindle cell squamous cell carcinoma with unique presentation in a middle aged Indian man: A case report. *East African Scholars J Med Sci*. 2019;2(12):697-99. Doi: 10.36349/EASMS.2019.v02i12.006.
- [3] Iqbal MS, Paleri V, Brown J, Greystoke A, Dobrowsky W, Kelly C, et al. Spindle cell carcinoma of the head and neck region: Treatment and outcomes of 15 patients. *Ecancermedicalscience*. 2015;9:594. Doi: 10.3332/ecancer.2015.594.
- [4] Rani D, Rastogi K, Gupta A. Cytomorphological study of mesenchymal spindle cell lesions of soft tissues by fine needle aspiration cytology. *Indian J Pathol Oncol*. 2020;5(4):542-47. Doi: 10.18231/2394-6792.2018.0105.
- [5] Singh J, Sharma AD. Chest wall metastasis in squamous cell carcinoma of buccal mucosa. *J Cancer Metastasis Treat*. 2017;3(4):78-81. Doi: 10.20517/2394-4722.2017.08.
- [6] Sharma P, Gupta R, Bhardwaj S. Fine needle aspiration cytology of cutaneous metastatic nodules: An institution based study. *JK Science*. 2022;24(3):156-61.
- [7] Mohapatra M, Satyanarayana S, SatyaPrakash T, Venkatachalam V. Fine needle aspiration cytology of cutaneous metastatic lesions: A clinico-cytopathological perspective in a tertiary hospital. *Ann Pathol Laboratory Med* 2018;5(8). Doi: 10.21276/apalm.1895.
- [8] Lee ET. A spindle cell squamous cell carcinoma on the cheek presenting with in-transit metastases and a satellite lesion. *Arch Craniofac Surg*. 2020;21(1):58-63. Doi: 10.7181/acfs.2019.00654.
- [9] Palla B, Suhaym O, Majeed N, Garzon S, Callahan N. Spindle cell variant squamous cell carcinoma of the oral cavity: Case presentation and review of literature. *Oral Maxillofac Surg Cases*. 2020;6(3):100174. Doi:10.1016/j.omsc.2020.100174.
- [10] Bavle RM, Govinda G, Venkataramanaiah PG, Muniswamappa S, Venugopal R. Fallacious carcinoma- Spindle cell variant of squamous cell carcinoma. *J Clin Diagn Res*. 2016;10(7):ZD05-ZD08. Doi:10.7860/jcdr/2016/16400.8099.
- [11] Sarma A, Das R, Sharma JD, Katak AC. Spindle cell carcinoma of the head and neck: A Clinicopathological and immunohistochemical study of 40 cases. *J Cancer Therapy*. 2012;3(6):1055-59. Doi: 10.4236/jct.2012.36137.

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