IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 25, Issue 8 Ser. 1 (August. 2026), PP 07-10
www.iosrjournals.org

Spindle Cell Neoplasm Of Parotid Gland: A Rare Diagnostic Enigma.

Dr. Madarapu Tejasvi, Dr. Mala Dayanandam, Dr. Pushpanjali
(Senior Resident, Dept Of Oral Medicine And Radiology, Government Dental College And Hospital, Hyderabad, Telangana)
(Associate Professor, Dept Of Oral Medicine And Radiology, Government Dental College And Hospital, Hyderabad, Telangana)
(Associate Professor, Dept Of Dental Surgery, Government Medical College, Vikarabad, Telangana)

Abstract:
Spindle cell neoplasms arising in the parotid gland are rare and represent a diagnostically challenging group of salivary gland lesions. Owing to their overlapping morphological characteristics and broad differential diagnosis, definitive identification frequently relies on histopathological examination supplemented by immunohistochemical analysis. We report the case of a 35-year-old man who presented with a one-month history of progressive swelling in the left parotid region accompanied by trismus. Radiographic examination revealed an ill-defined osteolytic lesion involving the left mandible. Ultrasonography demonstrated a hypoechoic lesion within the left parotid gland, suggestive of a malignant neoplasm. An incisional biopsy was performed, and histopathological examination revealed a spindle cell neoplasm of salivary gland origin. Based on the diagnosis, the patient subsequently underwent left parotidectomy with cervical lymph node dissection. This case highlights the diagnostic challenges associated with spindle cell neoplasms of the parotid gland because of their rarity and overlapping clinicopathological features.

Key Word: *Spindle cell neoplasm, parotid gland, rare, histopathology, immunohistochemistry.*

Date of Submission: 26-07-2026 Date of Acceptance: 06-08-2026

I. Introduction

Salivary gland neoplasms comprise a heterogeneous group of tumors with diverse histopathological features and account for approximately 3–6% of all head and neck neoplasms.[1] The parotid gland is the most commonly affected major salivary gland, accounting for nearly 70–80% of all salivary gland tumors.[2] Spindle cell neoplasms arising in the parotid gland are exceedingly rare and include a wide spectrum of benign and malignant lesions, such as myoepithelioma, myoepithelial carcinoma, spindle cell (sarcomatoid) carcinoma, solitary fibrous tumor, schwannoma, and other mesenchymal tumors.[3] Their rarity and overlapping clinical and histopathological features often make accurate diagnosis challenging.[4] Consequently, histopathological examination supplemented by immunohistochemistry is indispensable for establishing the correct diagnosis.[5]

Clinically, spindle cell neoplasms of the parotid gland usually present as a painless, slowly enlarging mass, although pain, trismus, facial nerve involvement, and mandibular invasion may occur in aggressive lesions.[6] Imaging modalities, including orthopantamograph, ultrasonography, cone beam computed tomography,MRI are valuable for assessing tumor extent but lack specificity for definitive diagnosis.[5] Complete surgical excision remains the mainstay of treatment, while the prognosis depends on the histological subtype, tumor stage, and adequacy of surgical resection.[1] Reporting such rare cases contributes to the existing literature and enhances understanding of their clinicopathological characteristics and diagnostic challenges.

II. Case Summary

A 35 year old male patient visited our department with a chief complaint of progessive swelling on left pre auricular region since one month.Patient gives history of occasional radiating pain associated with swelling which reduced on taking over the counter medication.History revealed tambaku chewing habit since 5 years.On clinical extraoral examination,there was trismus and a solitary well defined swelling noticed in left parotid region of size approx.3*4 sqcm extending anteroposteriorly extending from 3cm away from left nasolabial fold to left tragus , superioinferiorly from tragus to 1.5 cm below the inferior border of mandible in angle region. No visible pulsations ,no sinus tract seen. On palpation, Swelling is tender, Firm in consistency , and skin overlying is pinchable. On intraoral examination, vestibular obliteration irt 26,27,28,36,37,38. tenderness on percussion irt 26,27,28,35,36,37,38 , Grossly decayed 28 , Gingival recession 28,36,37.Reduced salivary secretion. **(FIGURE 1)**

Orthopanatmograph(OPG) revealed a osteolytic lesion in the left ramus region with complete destruction of posterior border of ramus, coronoid process , sigmoid notch , inferior cortical border in the angle region , only 2 cm length of condylar head can be seen. root stump irt 28. Vertical boneloss irt 46,47,36,37,38. Interradicular boneloss of 37.**(FIGURE 2a)** CBCT revealed an complete loss of ramus, coronoid process and sigmoid notch , buccal and palatal cortical plate irt 26,27,28 and medial and lateral pterygoid plates**(FIGURE 2b)** . Provisional diagnosis of intraosseous carcinoma was given with differential diagnosis of malignant ameloblastoma, carcinoma ex pleomorphic adenoma, central mucoepidermoid carcinoma , metastatic tumors were considered.

USG revelaed hypoechoic mass lesion in parotid gland with malignant etiology.USG guided FNAC revealed myxoid stroma.MRI revealed well defined lobulated T1 hypointense , T2 STIR hyperintense lesion with few cystic areas arising from the left parotid gland inferiorly till angle of the mandible medially into the ramus of the mandible and also involving the left medial and lateral pterygoid muscle and superiorly it is seen to erode left petrous bone and extends into the intracranial component but not involving the brain.**(FIGURE 2c)**

Histopathological report reveals tumor tissue with spindle shaped cells arranged in sheets and cells show indistinct cytoplasmic borders and elongated hyperchromatic nuclei suggestive of spindle cell neoplasm.**(FIGURE 3)** The immunohistochemistry report showed a positive reaction of the cells of the tumor to Cytokeratins specificllay for 34BE12, **Vimentin**, **Smooth muscle actin**, **Low-molecular weight keratin.**

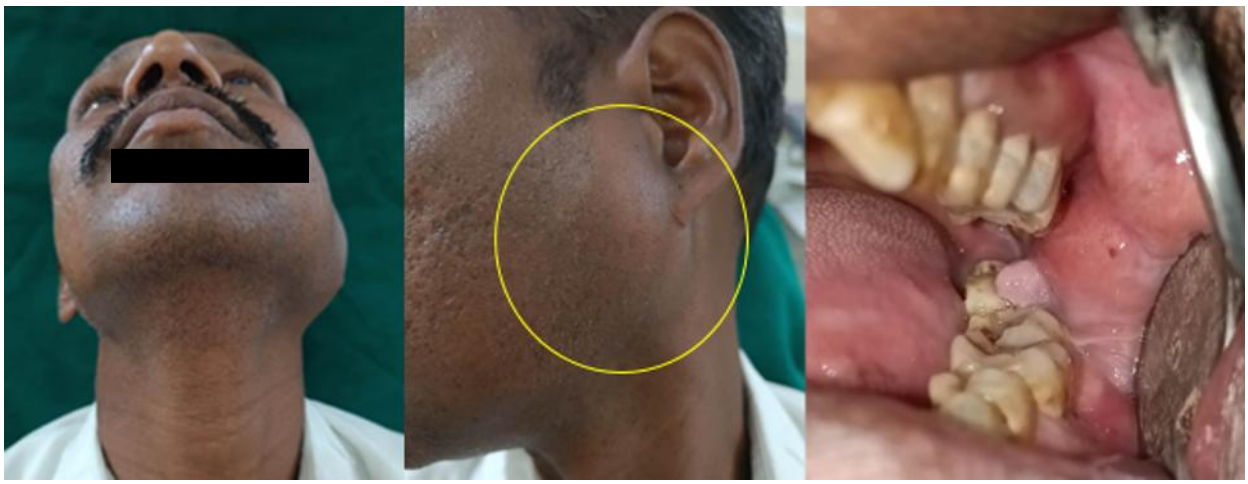

FIGURE 1: extraoral and intraoral clinical presentation

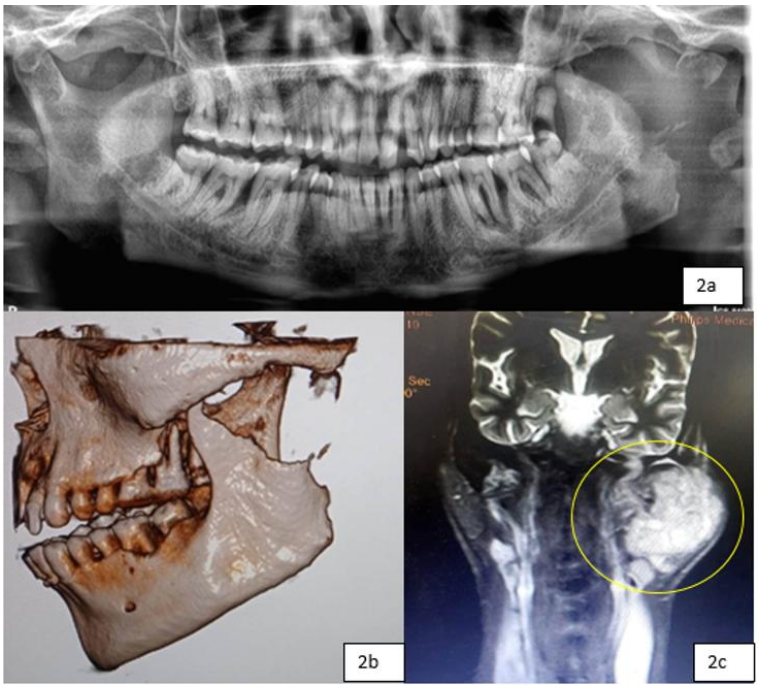

FIGURE 2a: OPG showing osteolytic lesion on left ramus, FIG 2b: 3d reconstructed view of CBCT, FIG 2c : MRI involving intracranial component

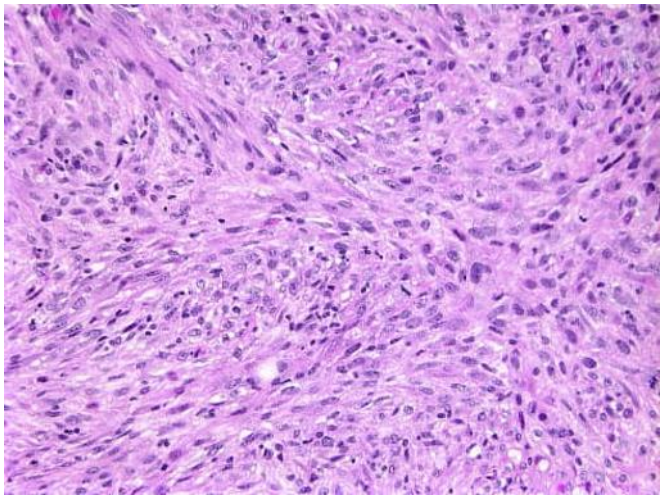

FIGURE 3: spindle shaped cells arranged in sheets

III. Discussion:

Spindle cell carcinoma is a very uncommon malignancy. They can be benign or malignant tumors, as well as reactive lesions. [7, 8] Neural, fibroblastic, myofibroblastic, myogenic, epithelial, and vascular tumors are all included in this diverse collection of lesions. They make up fewer than 1% of all oral tumors and 3% of salivary gland tumors, making them extremely uncommon in the oral cavity. [9]

This biphasic tumor has both epithelial and mesenchymal components. [10] They mostly involve the parotid glands followed by submandibular glands and the hard palate.[11] Usually seen in the 6 th and 7th decades of life with a male to female ratio of 12:1. [12]

The three primary pathogenetic theories proposed for Spindle Cell carcinoma are a squamous cell carcinoma with an atypical reactive stroma (pseudosarcoma), a "collision tumor" (carcinosarcoma), or an epithelial origin with "dedifferentiation," or transformation to a spindle cell morphology (sarcomatoid carcinoma). The third concept is now supported by numerous studies. [13] A faulty intercellular adhesion complex termed cadherin catenin, which permits a more diffuse and infiltrative growth pattern, is assumed to be the cause of the morphological shift of cells from squamoid to spindled. The p53 gene mutation is believed to be the most common gene mutation discovered. The transitory cells that exhibit dual antigen-positivity of epithelial and mesenchymal markers suggest that these lesions may be a sarcomatous metaplasia of squamous cell carcinoma. [14] showing diffuse Ki-67 reactivity . [15.]

Malignant spindle cell tumors within salivary glands are a diagnostic challenge. The differential diagnosis include carcinoma, malignant melanoma, fibrosarcoma, leiomyosarcoma, osteosarcoma, liposarcoma and rhabdomyosarcoma.[16] Immunohistochemistry is instrumental in narrowing the differential diagnosis.[17] spindle cell carcinomas are positive for Cytokeratin, vimentin, SMA, muscle actin, Desmin [17] which is correlating with our case , hence the final diagnosis of the said was considered.

Surgery has historically been seen as the primary treatment for SpCC. This fact can be explained by the disease's natural history and location. For early carcinomas , surgery alone has excellent results. Treatment with adjuvant radiation is necessary for more advanced illness. Radiation therapy was thought to have a limited function since SpCC were typically thought to be aggressive, radioresistant tumors. [18] There are reports of a 73.3% recurrence rate and a 33.3% metastatic rate. [13.]

IV. Conclusion:

Spindle cell carcinoma of the parotid gland is an exceptionally rare and diagnostically challenging biphasic malignancy. Accurate diagnosis requires meticulous histopathological evaluation supported by immunohistochemistry to demonstrate both epithelial and mesenchymal differentiation. Early recognition and complete surgical excision remain the cornerstone of management, while the role of adjuvant therapy should be individualized according to tumor stage, margin status, and nodal involvement. Owing to its aggressive biological behavior and potential for local recurrence and distant metastasis, long-term surveillance is essential. Reporting additional well-documented cases with comprehensive clinicopathological and immunohistochemical findings will enhance understanding of this uncommon entity and contribute to the development of evidence-based diagnostic and therapeutic strategies.

References:

[1]. Skálová A, Laco J, Thompson LDR, Et Al. Update From The 5th Edition Of The World Health Organization Classification Of Head And Neck Tumours: Salivary Glands. Head Neck Pathol. 2022;16(1):63-70.
[2]. Seethala RR, Stenman G. Update From The 4th Edition Of The World Health Organization Classification Of Head And Neck Tumours: Tumors Of The Salivary Gland. Head Neck Pathol. 2017;11(1):55-67.
[3]. Oh SJ, Moon D. Spindle Cell Myoepithelioma Of The Parotid Gland. Arch Craniofac Surg. 2019;20(5):336-40.
[4]. Hwang I, Kim JH, Et Al. Solitary Fibrous Tumour Of The Parotid Gland: A Case Report And 15-Year Literature Review. AME Case Rep. 2019;3:20.
[5]. Nagao T, Sato E, Inoue R, Et Al. Immunohistochemical Analysis Of Salivary Gland Spindle Cell Lesions: Diagnostic Utility And Differential Diagnosis. Hum Pathol. 2011;42(7):1020-8.
[6]. Ishibashi T, Hojo H. Spindle Cell Carcinoma Of The Parotid Gland. J Laryngol Otol. 1995;109(7):683-6.
[7]. Lewis JS Jr. Spindle Cell Lesions—Neoplastic Or Non-Neoplastic? Spindle Cell Carcinoma And Other Atypical Spindle Cell Lesions Of The Head And Neck. Head Neck Pathol. 2008;2(2):103-10.
[8]. Jordan RC, Regezi JA. Oral Spindle Cell Neoplasms: A Review Of 307 Cases. Oral Surg Oral Med Oral Pathol Oral Radiol Endod. 2003;95(6):717-24.
[9]. Chan JKC. Vascular Tumours With A Prominent Spindle Cell Component. Curr Diagn Pathol. 1997;4:76-90.
[10]. Mukherji S, Chauhan YS, Bakshi NS. A Giant Undifferentiated Sarcoma Of The Parotid Gland: A Case Report And Review Of Literature. Int J Head Neck Surg. 2014;5(1):31-4.
[11]. Volker HU, Scheich M, Holler H. Differential Diagnosis Of Laryngeal Spindle Cell Carcinoma And Inflammatory Myofibroblastic Tumor: Report Of Two Cases With Similar Morphology. Diagn Pathol. 2007;2(1):1-12.
[12]. Akhtar K, Warsi S, Talat F, Talha M. Spindle Cell Carcinoma Of The Parotid: A Rare Case Entity With Review. [Journal Name, Year, Volume, Issue, And Page Numbers Required.]
[13]. Sarma A, Das R, Sharma JD, Kataki AC. Spindle Cell Carcinoma Of The Head And Neck: A Clinicopathological And Immunohistochemical Study Of 40 Cases. J Cancer Ther. 2012;3:1055-9.
[14]. Rizzardi C, Frezzini C, Maglione M, Tirelli G, Melato M. A Look At The Biology Of Spindle Cell Squamous Carcinoma Of The Oral Cavity: Report Of A Case. J Oral Maxillofac Surg. 2003;61:264-8.
[15]. Hunt JL. Immunohistochemistry Of Head And Neck Neoplasms. In: Diagnostic Immunohistochemistry: Therapeutic And Genomic Applications. Philadelphia: WB Saunders; 2010. [Edition And Page Numbers Required.]
[16]. Dickson BC. An Update On Mesenchymal Tumors Of The Head And Neck. Diagn Histopathol. 2014;20(8):308-15.
[17]. Otley CC, Zitelli JA, Brodland DG. Mohs Micrographic Surgery For The Treatment Of Spindle Cell Tumors Of The Skin. J Am Acad Dermatol. 2001;44(2):256-9.
[18]. Ampil FL. The Controversial Role Of Radiotherapy In Spindle Cell Carcinoma (Pseudosarcoma) Of The Head And Neck. Radiat Med. 1985;3(4):225-9.