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Oropharyngeal Angiomyoma: A Rare Case Treated with Transoral Robotic Surgery (TORS)

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Abstract | **Case Report**

Angiomyoma, also known as vascular leiomyoma, is a rare benign tumor composed of smooth muscle cells. While it is more commonly found in the extremities, its occurrence in the oral cavity, particularly on the tongue, is extremely uncommon. This study aims to highlight a rare case of angiomyoma on the tongue, detailing its clinical presentation, histopathological features, and management, which was excised by TORS. A comprehensive clinical examination was followed by imaging and subsequent robotic excision of the lesion utilizing the da Vinci Robotic system. The patient presented with a slow-growing, painless, well-circumscribed nodule on the base of the tongue. Histological examination revealed intersecting bundles of smooth muscle cells surrounding thick-walled blood vessels. Although rare, angiomyoma should be considered in the differential diagnosis of tongue masses. Surgical excision remains the treatment of choice, with a low risk of recurrence. Awareness of such rare entities can aid in timely diagnosis and appropriate management.

Keywords: Angiomyoma, Vascular Leiomyoma, Benign Tongue Tumor, Oropharynx, TORS.

INTRODUCTION

Angiomyoma, also known as vascular leiomyoma, is a rare benign tumor arising from smooth muscle cells associated with blood vessels (tunica media) [1, 2]. It occurs predominantly in the dermal or subcutaneous tissues of the extremities (89%) [2]. Among benign tumors of the head and neck, angioleiomyoma is exceedingly rare, representing approximately 0.2% of cases [3]. To the best of our knowledge, only nine cases of angioleiomyoma of the tongue base have been reported in the literature [2]. Etiology for angiomyoma includes trauma, venous stasis, and hormonal changes (estrogen and progesterone) [4]. Angiomyoma of the tongue typically presents as a slow-growing, painless, well-defined, firm mass [5].

This article discusses the clinical presentation, diagnosis, differential diagnosis, management, and recent research findings related to angiomyoma of the base of the tongue. The present report describes a case of Angiomyoma of the base of tongue that resulted in an excellent outcome.

CLINICAL PRESENTATION

A 24-year-old female, resident of Haridwar, Uttarakhand, India, presented with swelling over the left side of the tongue for 5 years with globus sensation. There was no difficulty in swallowing, change in voice, pain, or difficulty in breathing. Examination revealed a firm, nodular mass of 2cm x 3cm noted over the left base of the tongue, with regular margins and a smooth surface, which was non-tender and did not bleed on touch (fig. 1). Systemic examination was unremarkable. Magnetic resonance imaging (MRI) revealed a heterogeneously enhancing T2 hyperintense and T1 hypointense partially exophytic rounded lesion at the left base of the tongue measuring ~ 2.5 x 2 x 1.9 cm. The lesion extends deep into the intrinsic muscle of the tongue without any obvious extrinsic muscle involvement. Fat planes with the surrounding structures are relatively maintained, and nasopharynx, oropharynx, and laryngopharynx appear unremarkable (fig. 2). Due to well circumscribed and benign looking nature of the lesion excisional biopsy (TORS) was planned under general anaesthesia using da Vinci Xi Robot (Intuitive surgical, Sunnyvale, CA, USA). Patient intubated with nasotracheal intubation. Boyle Davis' mouth gag was used to depress the tongue

and to visualise the tumour. A 30-degree camera was used in the central arm, Maryland bipolar forceps on the left arm, and a permanent cautery spatula on the right arm (fig. 3). The Tumour was excised en bloc with a 5 mm margin. The robotic phase of our surgery lasted less than 30 minutes. The postoperative course was uneventful. Oral clear fluids started on postoperative day 1, followed by semisolids & solids on day 2. Patient was discharged on postoperative day 2. Histopathological examination shows a circumscribed hypocellular lesion composed of spindle-shaped cells with bland nuclei and prominent vascular channels with areas of hyalinization and collagenization suggestive of angiomyoma (fig. 4). Patient followed till 9 months post-surgery without recurrence.

Fig. 1: (a) Preoperative photograph showing the lesion over left base of tongue (green arrow) and (b) post-operative photograph

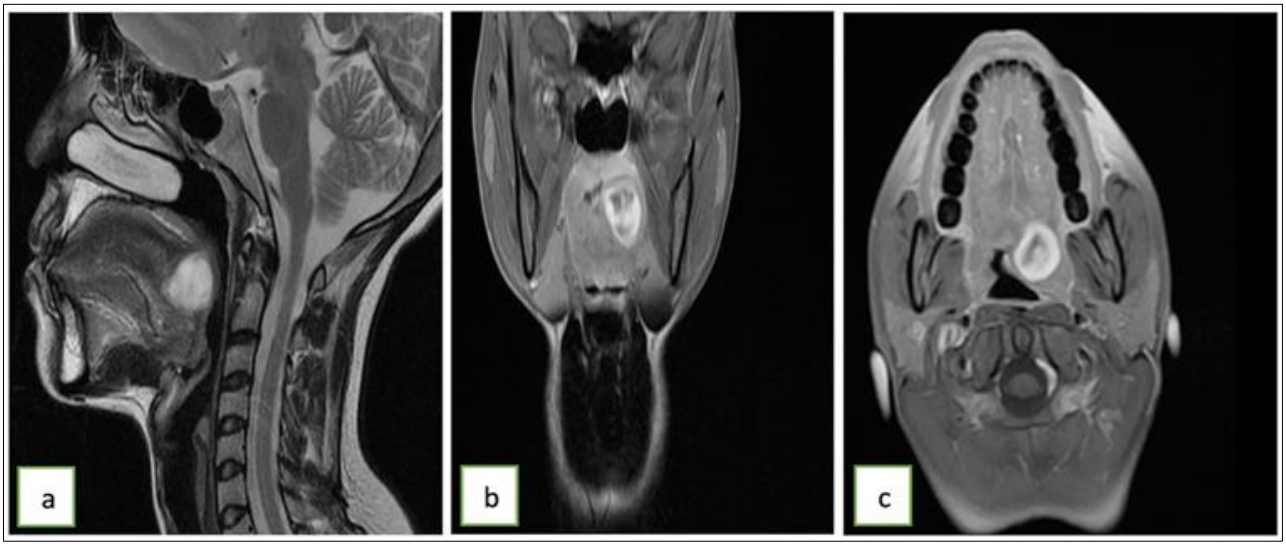

Fig. 2: Magnetic resonance imaging (MRI), revealed heterogeneously enhancing T2 hyperintense and T1 hypointense partially exophytic rounded lesion at left base of tongue measuring ~ 2.5 x 2 x 1.9 cm. (a) sagittal-T2 images (b) coronal-T1 Fat Suppressed (c) axial-T1 Fat Suppressed

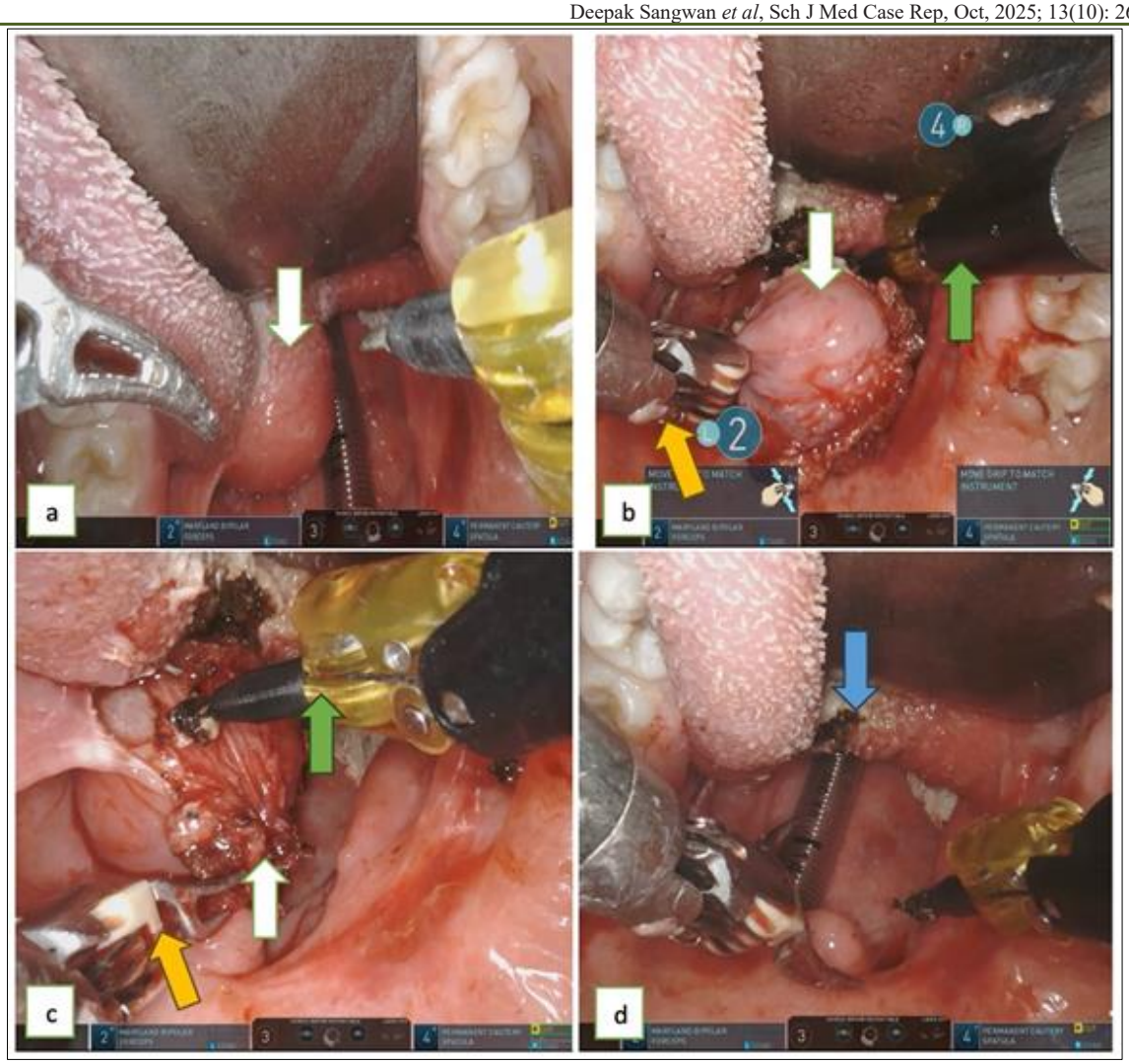

Fig. 3: (a) Intra-operative photograph of tumor (white arrow), (b), (c) resection was done using robotic da Vinci Xi system (Intuitive surgical, Sunnyvale, CA, USA) instruments, i.e., Maryland bipolar forceps (yellow arrow) and cautery spatula (green arrow) and (d) photograph showing post-operative bed (blue arrow)

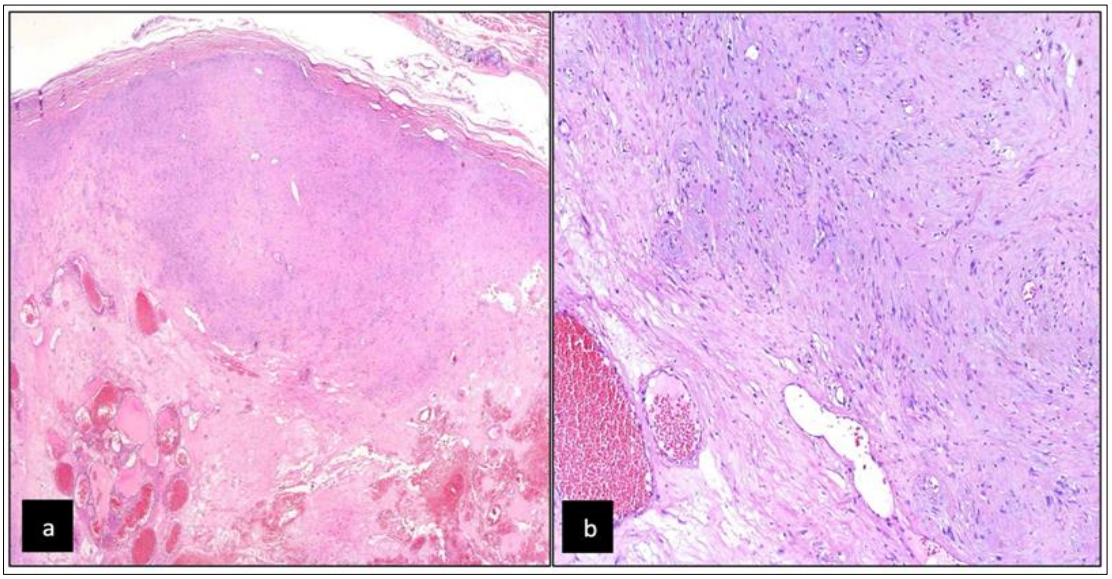

Fig. 4- Histopathology: (a) Picto-micrograph showing an encapsulated hypocellular lesion composed of spindle shaped cells along with dilated vascular channels and areas of hyalinization (H&E 4x), (b) lesion composed of spindle shaped cells with bland chromatin and eosinophilic cytoplasm along with dilated vascular channels (H&E 20x)

DISCUSSION

Studies have indicated that angiomyoma of the base of the tongue is exceedingly rare, with only a handful of case reports documented in medical literature. The tongue's dynamic and vascular nature, combined with the rarity of this tumor in this location, poses both diagnostic and therapeutic challenges.

Leiomyoma and its variants-solid leiomyoma, angiomyoma, and epithelioid leiomyoma-are benign soft tissue neoplasms originating from smooth muscle cells, often characterized by a prominent vascular component. Although typically arising in the subcutaneous tissues of the extremities, their occurrence in the head and neck region is uncommon, accounting for less than 10% of cases. Moreover, leiomyomas arising in the base of the tongue are particularly rare [2-6].

Clinically, angiomyoma present as slow-growing, painless, well-circumscribed submucosal nodules. Due to the rarity of angiomyoma in the tongue, it must be differentiated from other oral and soft tissue tumors, including [5-7]. Hemangioma: A benign vascular lesion, typically present from childhood. Leiomyoma: A smooth muscle tumor, often occurring in deeper tissues. Schwannoma: A nerve sheath tumor that may present as a firm, painless mass. Fibroma: A common benign lesion of the oral mucosa resulting from chronic irritation.

Although usually asymptomatic, occasional discomfort or tenderness may occur due to neural involvement or vascular congestion. Advances in imaging techniques, such as MRI, have improved the preoperative diagnostic accuracy.

Pure vascular lesions of the tongue (e.g., venous malformations, hemangiomas) may be treated with surgical excision, embolization, or intralesional sclerotherapy depending on lesion morphology and flow characteristics [8, 9]. In contrast, angiomyoma in the oral region are habitually managed by complete surgical excision, which is generally curative with minimal recurrence [10, 11].

TORS is increasingly used for both benign and malignant oropharyngeal lesions because it offers superior access, high-definition three-dimensional magnification, and a wide range of instrument angulation. Compared to traditional open approaches such as lateral pharyngotomy, mandibulotomy, and the transcervical approach, TORS achieves improved functional outcomes and lower morbidity, making it the preferred option for appropriately selected cases [12].

In our case, TORS facilitated complete excision with clear margins while ensuring excellent postoperative recovery. The patient was discharged on postoperative day two with resumption of a normal oral diet, demonstrating the minimal morbidity associated with this approach. At nine months of follow-up, no evidence of recurrence has been observed, highlighting the efficacy of TORS for managing benign tongue base lesions.

Given the rarity of angiomyoma in this location and the novel use of TORS in its management, this case highlights the therapeutic potential of robotic-assisted surgery in managing benign neoplasms of the oropharynx.

CONCLUSION

Angiomyoma of the base of the tongue is a rare benign neoplasm that can be effectively managed with surgical excision. Proper histopathological diagnosis is essential for distinguishing it from other vascular or smooth muscle tumors. Minimally invasive surgical techniques, robotic excision, are being explored for better cosmetic and functional outcomes. Long-term prognosis is excellent with minimal risk of recurrence.

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