



Letter to the editor

Malignant extrapleural solitary fibrous tumor arising in the sublingual gland: A case report and review of literature



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ABSTRACT

Solitary fibrous tumor is an uncommon neoplasm with unpredictable clinical behavior. Malignant solitary fibrous tumor is a rare morphological variant with more aggressive behavior and higher rates of local recurrences and distant metastasis, exceeding rare in oral cavity; our case occurred in the floor of the mouth in the sublingual gland.

Introduction

Extrapleural solitary fibrous tumor (ESFT) is an uncommon fibroblastic/myofibroblastic mesenchymal neoplasm with an intermediate biological behavior [1]. ESFT may occur at all ages but most of the cases occur in middle aged adults and both sexes are equally affected [2]. Clinically, ESFT presents as a slowly growing and painless nodular mass, which may cause symptoms due to compression of adjacent structures. Histologically, ESFT is characterized by a patternless neoplastic population within variable amount of collagen or myxoid stroma. The neoplastic cells are ovoid shaped with bland nuclei, scanty amphophilic cytoplasm and indistinct cell borders [1]. Recent discoveries in the pathogenesis of this neoplasm has demonstrated the primary role of an intrachromosomal rearrangement on chromosome 12q13 involving the neighboring genes STAT6 (signal transducer and activator of transcription 6) and NAB2 (NGFI-A-binding protein 2). This mutation causes the formation of an abnormal chimeric protein and its constitutive activation [3]. The prognosis of ESFT is substantially unpredictable but some clinical and morphological features have been correlated with clinical behavior. Indeed, extra-thoracic location, hypercellularity, nuclear atypias, infiltrative borders, presence of necrosis and mitotic count > 4/10 HPF (high power field) predicts higher risk of recurrence and metastasis [4]. Although the most common locations of ESFT include meninges, lower limbs, retroperitoneum and orbits, it has been reported in almost every anatomic site [5]. The occurrence of a ESFT in the oral pelvis is exceeding rare with the current literature consisting of few cases reports [6–10]. Herein we describe a case of solitary fibrous tumor of the sublingual salivary gland with malignant histological features (see Fig. 1).

Case presentation

A 42 year-old woman was referred to Maxillofacial Surgery Unit for the onset of an symptomless submucosal mass involving the sublingual

left oral pelvis. Intraoral examination revealed a firm nodule covered with normochromic mucosa measuring about 3 cm in diameter. A multiplanar MR scan was performed and confirmed a well-demarcated sublingual mass. The lesion showed homogeneous and isointense on T1 weighted images and heterogeneous and mildly hyperintense on T2; no evidence of bone invasion and enlarged cervical nodes were found. A fine needle cytology showed a scanty cellularity represented by spindle cells with plump nuclei with inconclusive diagnosis of mesenchymal proliferation. Therefore, the surgical excision of the lesion was performed. Intraoperative examination showed that the mass involved the sublingual gland. Gross examination showed a nodule with a diameter of 2.8 cm and a whitish, solid and vaguely multilobulated cut surface. Microscopically, the specimen was almost completely constituted by a neoplastic proliferation arranged in a multinodular pattern with alternation of hypocellular and hypercellular areas. The former showed oval to spindle shaped cells with undefined cellular borders and bland nuclear features, embedded in a fibrillar and myxoid stroma. The latter showed a densely closed cellular population with very scant stroma. In these fields the cells showed oval shape, scant cytoplasm, undefined cellular borders, a more irregular chromatinic pattern and a relevant mitotic activity (mitotic count was 5 mitoses per 10 high power fields). Peripherally, the neoplasm showed well-defined and capsulated borders. Immunohistochemistry was performed and included the following antibodies: CK (clone AE1/AE3), CD34 (clone QBEnd/10), CD99 (clone O13), bcl2 (clone 124), S100 (clone SP127), desmin (clone DE-R-11), ALDH1 (clone 44/ALDH1), STAT6 (clone EP325) (see Fig. 2).

The neoplasm showed positivity for CD34, CD99 and ALDH1 and focal positivity for bcl2. Interestingly, CD99 stained more intensely the hypercellular areas. Stains with STAT6, S100 and desmin were negative. A diagnosis of malignant extrapleural solitary fibrous tumor was finally rendered.

The postoperative combined multiparametric MR-PET confirmed the total removal of the tumor and showed no other location of the neoplasm, except thyroid concomitant goiter.

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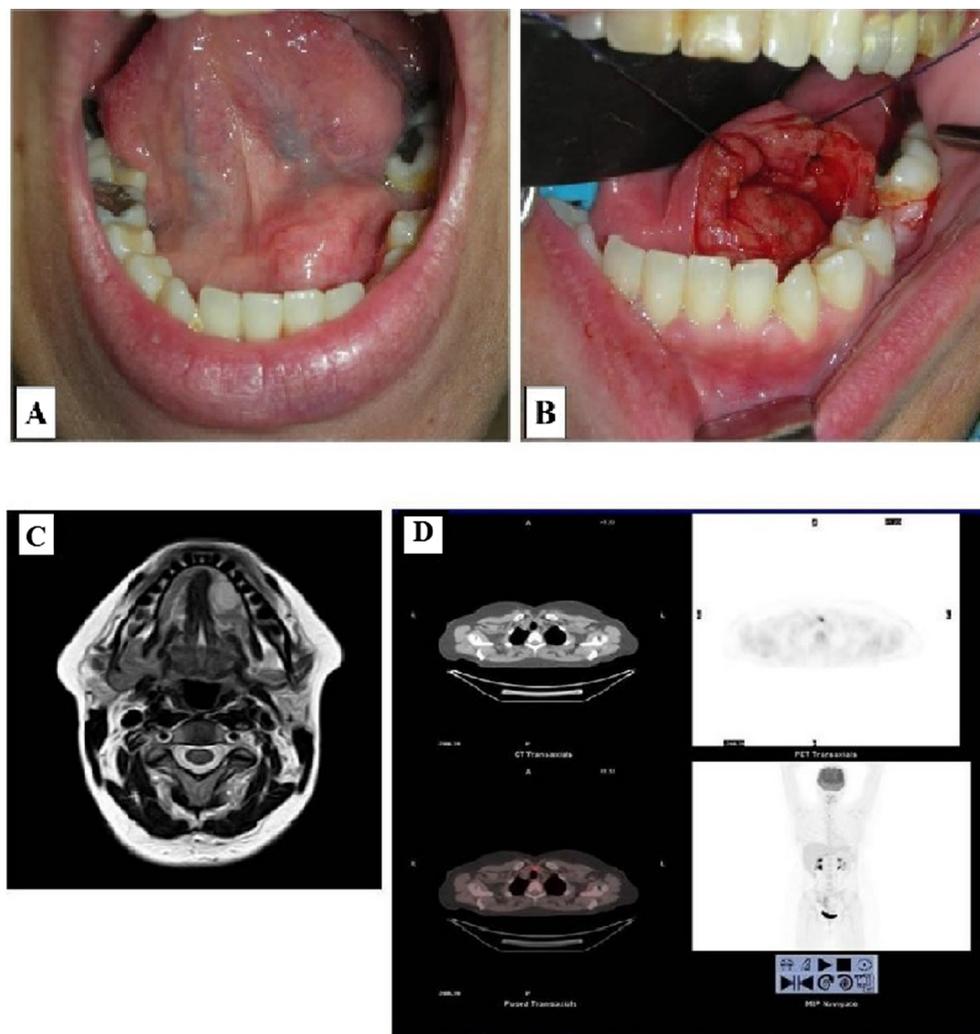


Fig. 1. A: Preoperative image. Sublingual mass in oral pelvis covered with normochromic mucosa. B: Intraoperative image. Sublingual mass inside left sublingual gland, oral pelvis is raised. C: Preoperative MR. The lesion appears isointense in T1 and mildly hyperintense in T2. D: Six months follow-up MR-PET. No evidence of disease in oral pelvis and cervical nodes.

Discussion

The most common locations of ESFT include meninges, lower limbs, retroperitoneum and orbits, while oral cavity is an uncommon site [2,11–12]. Buccal mucosa is the most common intraoral location of ESFT, including about 33% of cases, followed by tongue (16% of cases), palate (7% of cases) and alveolar mucosa (5% of cases) [13]. ESFT occurring in the floor of the mouth are exceeding rare representing about 3% of the reported intraoral cases [13]. Clinically, intraoral ESFT presents as a slow growing and relatively well circumscribed sub-mucosal nodule covered by normal appearing mucosa. Differential diagnosis is wide and includes mucocele, salivary gland tumors, lipoma, leiomyoma, GIST and vascular malformations. A definite diagnosis requires histological examination of the neoplasm.

Immunohistochemically, ESFT shows positivity for CD34, bcl2 and CD99 [1]. The recent discovery of the intrachromosomal rearrangement on chromosome 12q13 has led to the demonstration of nuclear expression of STAT6 protein in ESFT, which is actually the most specific marker for the diagnosis of the neoplasm [14]. However rare cases of ESFT are negative for STAT6, including our case, and the sensitivity of this marker is about 91% [15–16]. Recent studies have demonstrated the utility of immunohistochemical demonstration of ALDH1

expression in the diagnosis of 76% of ESFT [17–20].

ESFT is considered a neoplasm with intermediate biological behavior, with variable tendency to local recurrence and rarely metastasizing [1]. Although the biological behavior is substantially unpredictable, some morphological features are associated to a higher rate of local recurrence and more frequent distant metastasis [21]. These features include infiltrative margins, pleomorphism, hypercellularity, mitotic index greater than 4/10 high power fields and necrosis. If an ESFT share at least three of these morphological features is defined “malignant ESFT”. Our case showed hypercellularity, nuclear atypias and 5 mitoses per 10 high power fields. Malignant ESFT is exceeding rare in oral cavity and the current literature consists only of three case reports, at the best of our knowledge [22–24]. The neoplasms described in these reports were located in tongue, palate and sublingual gland. Multiparametric MR/PET offers an excellent contrast and sensitivity of soft tissue and reduced ionizing radiation, as compared to CT/PET [25] and analyzes functional features of MR combined to metabolic parameters of PET with minor time of resolution [26].

The treatment of ESFT requires surgical excision with tumor-free margins, and a close long-term follow-up is recommended even after radical excision due to the possibility of local recurrence [5].

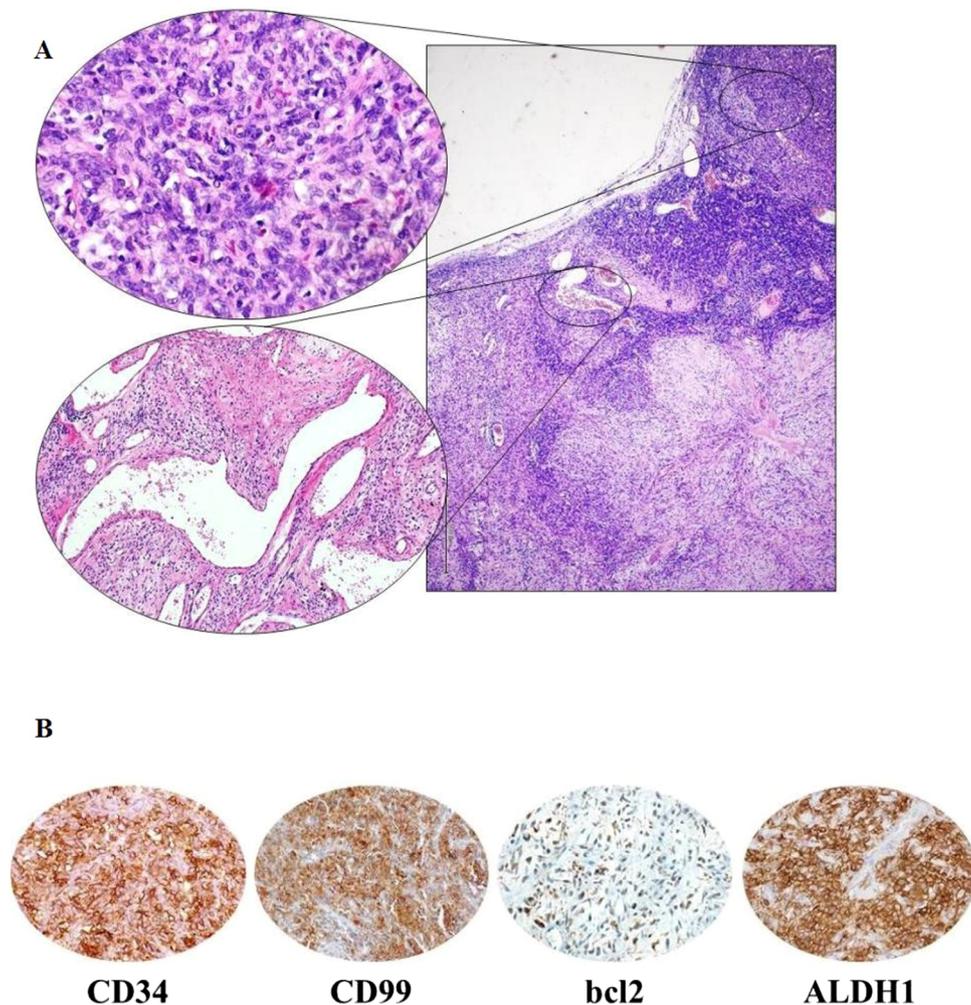


Fig. 2. A: Immunohistochemical features. On the right, the neoplasm shows well-defined and capsulated border and the coexistence of hypocellular and hypercellular areas (H&E 4x). In the upper insert, hypercellular area is composed of oval to spindle shaped cells with undefined cellular borders in a very scant stroma. Two mitoses are evident. (H&E 40x). In the lower insert, large irregular shaped thin walled vessels (H&E 10x). B: Immunohistochemical features.

Conflicts of interest

None.

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