Ear, Nose & Throat Journal
1–3

DOI: 10.1177/0145561320966068
journals.sagepub.com/home/ear
SAGE

Solitary Fibrous Tumor of the Deep Parotid Gland

Nicola Romano, MD[1], Alice Ferrari, MD[2], Michele Moroni, MD[3], Paolo Dessanti, MD[3], Alex Bardine, MD[4], Massimo D'Amato, MD[4], and Teseo Stefanini, MD[4]

A 50-year-old man presented to our attention complaining of a 15-day sore throat associated with a muffled ear sensation on the right. At clinical examination, a peritonsillar palpable non-painful mass that filled the rhinopharynx was found, with the preservation of mucosa layers at fibroendoscopy. Computed tomography confirmed the presence of an ovoidal lesion of 50 mm × 35 mm × 55 mm located in the right parapharyngeal space, characterized by sharp borders and causing fat obliteration with compression and narrowing of the rhino-oropharynx air column. The mass had a density similar to the parotid gland and little lower than muscles, showing a heterogenous early enhancement on postcontrast scans (Figure 1). On magnetic resonance imaging (MRI), the localization of the mass was better assessed: it compressed the pterygoid and masseter muscles, extending to the right choana and posteriorly to the oral cavity, with no signs of infiltration; in addition, a continuity with the deep lobe of the parotid gland was evident. The lesion was isointense to muscle on T1-weighted images (WIs), showing a variable signal on T2-WI with predominant zones of high signal. After gadolinium injection, a vivid enhancement was demonstrable, with the exception of some hypointense areas located in the medial side of the mass (Figure 2). The mandibular bone was normal, while the right mastoid cells were completely occupied by T2-hyperintense material, associated with obliteration of the Eustachian tube. A parotid pleomorphic adenoma was suspected and subsequently removed by local excision. The surgical specimen was examined and a well-defined mass with yellowish tan color and a firm consistency was demonstrated. Microscopic examination showed a patternless distribution of spindle cells between collagen fibers and in some areas epithelioid cells, with associated "staghorn" vascular structures. With immunohistochemical analysis, tumor cells were strongly positive for CD-34, BCL-2, STAT-6, and CD-99; they were negative for actin, desmin, and cytokeratin CAM 5.2. MIB-1 was 3% and mitotic figures were rare (2 mitosis/10 hpf); necrosis was absent (Figure 3). Features were compatible with the diagnosis of solitary fibrous tumor (SFT) of the parotid gland.

Solitary fibrous tumor is a rare spindle cell tumor. It was firstly described as a tumor of the pleura, with a mesothelial origin; later, a ubiquitous mesenchymal derivation was demonstrated, probably from adult mesenchymal stem cells. Solitary fibrous tumor is usually a benign entity but it might show malignant features, such as nuclear pleomorphism, atypical mitoses, and increased mitoses, but there are no definitive criteria to predict aggressive clinical behavior. The most common clinical presentation is that of a palpable, slow-growing, painless mass; rarely, larger tumors may present as paraneoplastic syndromes (eg, hypoglycemia due to the production of insulin-like growth factor). Benign SFTs are usually well-circumscribed masses showing no signs of invasion of adjacent structures; however, adjacent bone remodeling and/or destruction secondary to long-standing pressure effect have been described in both benign and malignant tumors.[1]

Solitary fibrous tumors of the head and neck region are uncommon (about 6%), and the involvement of the salivary glands is exceedingly rare, with only few cases described in the literature.[2] In particular, about 30 cases of parotid SFT are reported, even more rarely involving the deep lobe[2]; it occurs

[1] Department of Diagnostic and Interventional Neuroradiology, E.O. Ospedali Galliera, Genoa, Italy
[2] Department of Health Sciences (DISSAL), Radiology Section, University of Genoa, Genoa, Italy
[3] Department of Pathology, General Hospital Sant'Andrea, La Spezia, Italy
[4] Department of Radiology, General Hospital Sant'Andrea, La Spezia, Italy

Received: September 16, 2020; accepted: September 23, 2020

Corresponding Author:
Nicola Romano, MD, Department of Diagnostic and Interventional Neuroradiology, E.O. Ospedali Galliera, Mura delle Cappuccine 14-16128, Via Ilva 3/23-16128, Genoa, Italy.
Email: romano.nicola@live.it

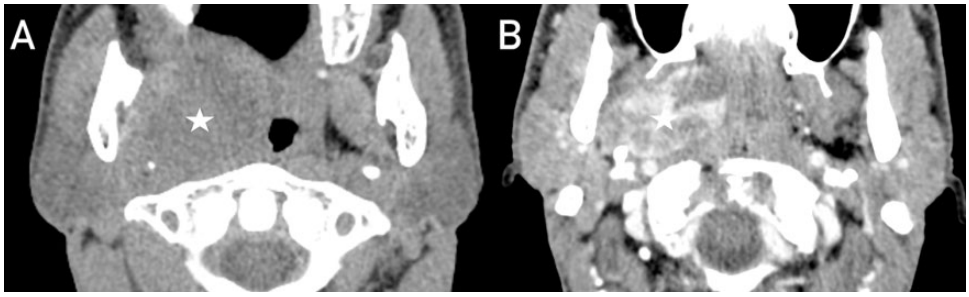

Figure 1. Computed tomography (CT), axial planes, pre- (A) and postcontrast (B) images showing an ovoidal mass (star) located in the right parapharyngeal space, characterized by sharp borders and causing fat obliteration with compression and narrowing of the rhino-oropharynx air column. The mass had a density similar to the parotid gland and little lower than muscles and was characterized by a heterogenous early enhancement on postcontrast scans (B).

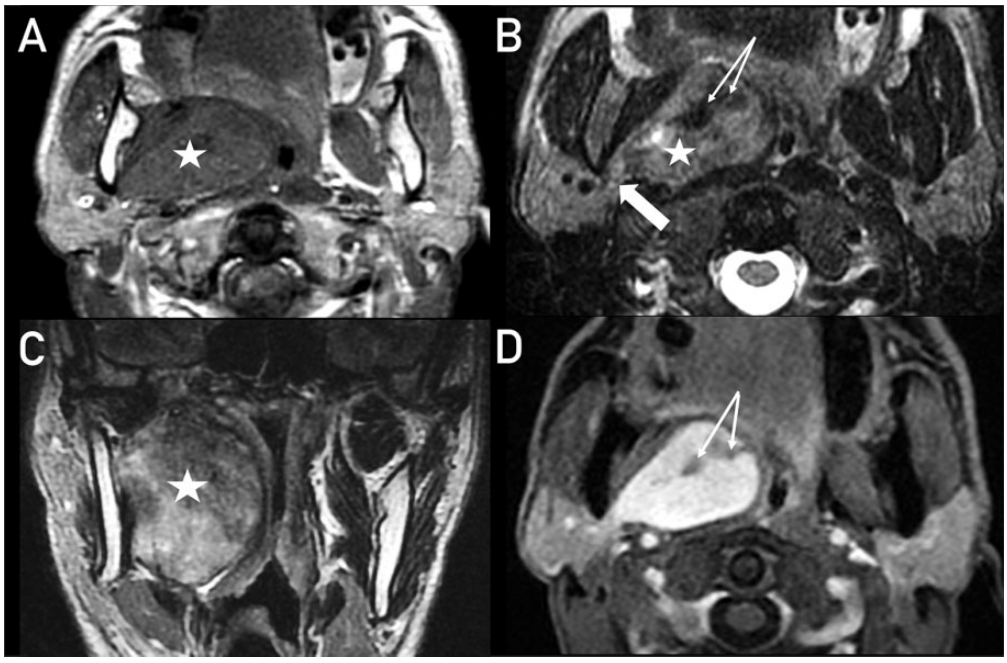

Figure 2. Magnetic resonance imaging (MRI), T1-weighted image (WI) axial planes (A), T2-WI axial (B) and coronal (C) planes, and post-gadolinium T1-WI axial plane (D). The lesion (star) was isointense to muscle on T1-WI, showing a variable signal on T2-WI with predominant zones of high signal. After gadolinium injection, a vivid enhancement was demonstrable. Note some areas of constant hypointensity (arrows). The continuity between the mass and the deep lobe of the parotid gland was evident in (B) (white arrow).

more frequently in middle-aged patients, with no gender predilection.[3] Imaging features are not specific: isointensity to hyperintensity on T2-WI, an intermediate signal on T1-WI, and marked contrast enhancement are described. Moreover, the presence of some low-signal areas, probably due to tumor degeneration and hypocellularity, is reported; the presence of vascular structures also may influence the heterogeneous signal on MRI.

Surgery is the treatment of choice. Tumors with malignant features and/or positive excision margins might benefit from postoperative radiation therapy or chemotherapy and might be at increased risk of local recurrence; however, because of the small number of described cases, further evidence is required to confirm the role of adjuvant therapy.[1,3]

Definitive diagnosis is essentially based on histology and immunohistochemistry; however, the radiologist should know the possible occurrence of this rare neoplasm in the parotid gland, adding SFT as a differential diagnosis in case of well-circumscribed mass characterized by intermediate signal on T1-WI, variable hyperintensity on T2-WI with some zones of constant low signal, and marked contrast enhancement.

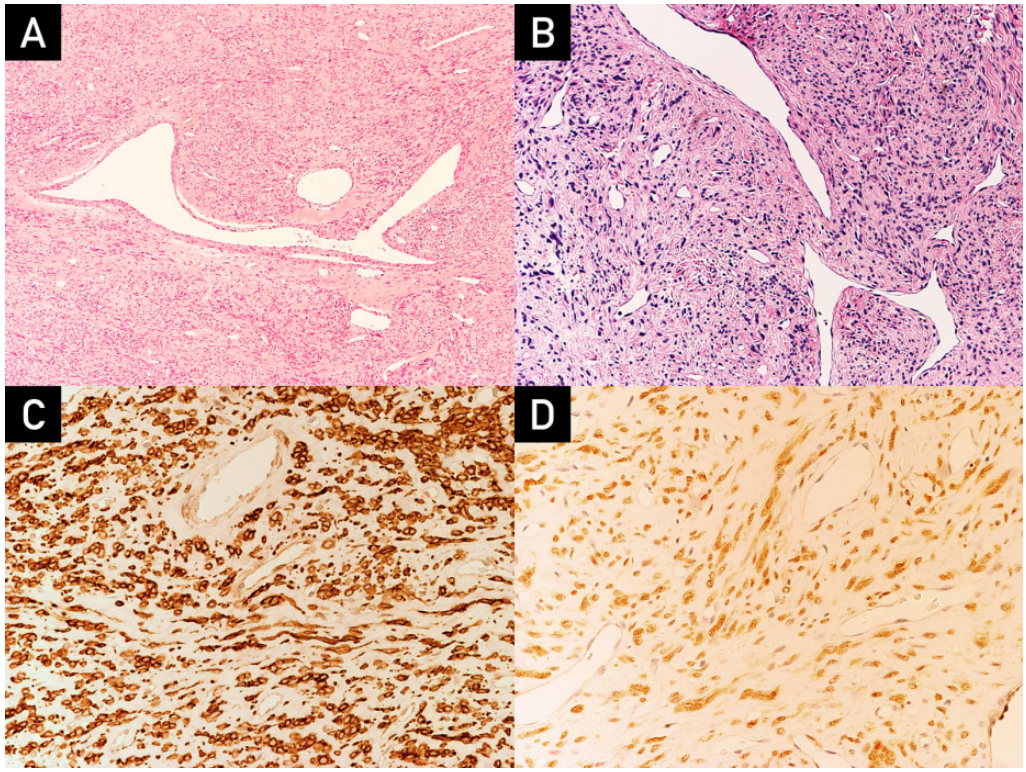

Figure 3. Photographs depicting the histopathological presentation of the mass, hematoxylin and eosin stain at ×100 (A) with typical "staghorn" vessels, and ×200 (B) magnifications with patternless architecture; immunohistochemical analysis at ×400 showing membrane/cytoplasmic positivity for BCL-2 (C) and nuclear positivity for STAT-6 (D).

Authors' Note

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Anonymity is maintained and the patient is not identifiable in the photographs, images, or text.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Nicola Romano https://orcid.org/0000-0002-3473-5473

References

1. Ganly I, Patel SG, Stambuk HE, et al. Solitary fibrous tumors of the head and neck: a clinicopathologic and radiologic review. *Arch Otolaryngol Head Neck Surg*. 2006;132(5):517-525.
2. Rais M, Kessab A, Sayad Z, et al. Solitary fibrous tumor occurring in the parotid gland: a case report. *BMC Clin Pathol*. 2017; 17(1):22.
3. Bauer JL, Miklos AZ, Thompson LD. Parotid gland solitary fibrous tumor: a case report and clinicopathologic review of 22 cases from the literature. *Head Neck Pathol*. 2012;6(1):21-31.