Synovial Sarcoma of Neck Origin: a case report

Tsung-Shuo Yen1  Michael Mu Huo Teng1,2  Wan-Yuo Guo1,2  Cheng-Yen Chang1,2  Shih-Hao Liu3

Department of Radiology1, Taipei Veterans General Hospital
School of Medicine2, National Yang Ming University
Department of Pathology3, Taipei Veterans General Hospital

Synovial sarcoma is a rare and aggressive soft tissue tumor with extensive metastatic potential. It accounts between 8 and 10% of all soft tissue malignancies. Involvement of the head and neck region is relatively rare. We report a case of synovial sarcoma of the neck involving the oropharynx in a 47-year-old male.

CASE REPORT

A 47 y/o male patient suffered from hoarseness for more than ten years. He had visited otolaryngologists for help but no specific diagnosis was made. He experienced swallowing difficulty and didn't pay attention to it until an imaging physical check up 6 months later.

Pre-operative MRI study of the head and neck before and after intravenous gadolinium injection was performed (Fig.1). A well-enhanced space-occupying lesion about 7 × 4.5 × 3 cm in size was found in the left parapharyngeal and prevertebral region, involving from the level of lower nasopharynx to the laryngopharynx, crossing the midline to the contralateral side. Bilateral enlarged cervical lymph nodes measured more than 2cm in size at level IIA of bilateral neck were also noted. The left longus colli muscle was displaced laterally and superior pharyngeal constrictor muscle was displaced anteriorly. Bony erosion or destruction of the C2 vertebral body was also considered to be present.

Under the impression of neurogenic tumor
or sarcoma, anterior cervical approach for tumor removal was performed by neurosurgeons. The tumor was soft and encapsulated but partially infiltrated into longus colli muscle. The tumor was removed without lymph node dissection.

The pathological diagnosis was biphasic synovial sarcoma, characterized by the presence of biphasic pattern with admixture of epithelial and spindle cell component (Fig. 2). The other immunostains such as cytokeratin, epithelial membrane antigen, vimentin and TLE1 stain were also suggestive for this diagnosis.

The post-operative MRI studies 9 months and one year later showed no residual or recurrent tumor.

**DISCUSSION**

The etiology of synovial sarcoma remains unknown. Despite its name, synovial sarcoma originates from multipotential stem cells that differentiate into mesenchymal or epithelial structures, not from synovium [4]. Clinically, a synovial sarcoma appears as deep-seated and slowly growing mass. Because of its prolonged symptoms, it usually gives a false impression of benign nature.

MRI is the optimal radiologic modality for assessing the extent and intrinsic characteristics of synovial sarcomas. On T1-weighted images, a synovial sarcoma typically presents as a heterogeneous multilobulated soft tissue mass with signal intensity similar to muscle [5]. On T2-weighted MR images, heterogeneous intensity is also a feature of these lesions. The signal intensity in T2-weighted images usually represents tumor necrosis (high signal intensity), the solid cellular elements (intermediate signal intensity), and calcified or fibrotic regions (low signal intensity), which has been described as triple sign by Jones and co-workers [6]. However, these radiographic characteristics of synovial sarcoma are by no means pathognomonic. Since surgical

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**Figure 1.** a. Axial T1-weighted MRI reveals a soft-tissue mass (arrows) at left retropharyngeal region with signal intensity similar to muscles. b. T2-weighted image shows a slightly heterogeneous soft-tissue mass (arrows). c. Postcontrast T1-weighted image shows slightly heterogeneous enhancement of the retropharyngeal prevertebral mass.

**Figure 2.** Histological photomicrograph of tumor (H & E stain, 100x original magnification) reveals a synovial sarcoma which is characterized by the presence of biphasic pattern with admixture of epithelial and spindle cell component.
intervention is the mainstay of the treatment, MRI gives surgeons good information of whether neurovascular or regional lymphatic involvement is present.

In this case, MRI revealed a multilobulated heterogeneous soft tissue mass compatible with a synovial sarcoma. However calcification could not be identified. The differential diagnoses of the MRI images in this case include malignant fibrous histiocytoma or other soft tissue tumors.

Despite the protracted course of synovial sarcoma, the overall prognosis is poor historically [7]. With advanced imaging demonstration and complete removal of the tumor, the prognosis is assumed to be improved.

CONCLUSION

Synovial sarcoma of the neck origin is relatively rare. The radiographic characteristics of synovial sarcoma are not pathognomonic, and there is no exception for our case. Histologic analysis of the involved tissue is mandatory for a definite diagnosis. However, we still rely on imaging studies to know the extent and involved structures of tumor, which are helpful for surgical planning.

REFERENCES

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滑液膜肉瘤：病例報告

嚴從碩 1  鄧木火 1,2  郭萬祐 1,2  張政彥 1,2  劉士豪 3

台北榮民總醫院  放射線部 1  病理部 3
國立陽明大學  醫學院 2

滑液膜肉瘤是一種少見、具侵襲性、且能夠發生遠處轉移的軟組織腫瘤，滑液膜肉瘤大約佔所有的軟組織惡性腫瘤的百分之八到百分之十。發生在頭頸部的滑液膜肉瘤在臨床上相當少見。我們所報告的是一位 47 歲的男性病例。