Case Report

Synovial sarcoma of the cricopharynx: A rare entity

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ABSTRACT

Synovial sarcomas are aggressive malignant soft-tissue tumors that often involve large joints of the lower extremities. Cricopharynx is a rare site for primary synovial sarcoma with no case reported until date. We report a case of a 45-year-old male presented with progressive dysphagia and hoarseness of voice. On examination by computed tomography revealed a soft-tissue mass in the cricopharyngeal region with involvement of posterior wall of the laryngeal framework. The endoscopic biopsy was suggestive of biphasic synovial sarcoma, which was confirmed by immunohistochemistry. The patient underwent surgery followed by radiotherapy and chemotherapy. Despite multimodality, management patient developed lung metastasis, and survived for 10 months only. There are no available guidelines for treatment of such rare tumors, and each case needs to be reported.

Key words: Cricopharynx, soft-tissue sarcoma, synovial sarcoma

INTRODUCTION

Synovial sarcoma is a misnomer; it does not arise from synovial membrane, but the histology resembles a synovial membrane.[1] The exact pathogenesis is not known, but they are thought to arise from multipotent mesenchymal stem cells.[2] Synovial sarcomas are an aggressive but rare form of soft-tissue sarcomas. They account for 10% of total cases of soft-tissue malignancies.[3] These tumors are usually located near large joints within the extremities.[2] Only 3% of cases of synovial sarcoma arise in the head and neck, and the most common site is the hypopharynx.[4] Cricopharynx is a very rare site for primary synovial sarcoma. We report a case of a 45-year-old male presented with progressive dysphagia and hoarseness of voice.

CASE REPORT

A 45-year-old male patient presented to our outpatient department with complaints of dysphagia to solids that was progressive over a period of 3 months. He also developed hoarseness of voice and throat pain for 1-month. He had been a chronic smoker for last 20 years. Past history was not significant. There was no family history of any malignancy. Barium swallow X-ray showed indentation in pharynx at the level of C5-C6 vertebra [Figure 1]. A computed tomography of neck and thorax was done reported as a soft-tissue mass of size 3.1 cm × 2.8 cm × 2.6 cm involving cricopharyngeal wall with narrowing of the lumen. There was an erosion of the thyroid cartilage. No cervical lymphadenopathy was noted. Pan-endoscopy was performed showing a narrowing in the cricopharyngeal region and sluggish movements of vocal cords. The endoscopic biopsy was obtained from the cricopharygeal wall. Hematoxylin and eosin staining of the specimen revealed spindle cell tumor with both epithelial and spindle cell components suggestive of biphasic sarcoma. The patient underwent total laryngectomy with excision of the tumor. The specimen was dark red in color irregular soft-tissue mass. On histopathological examination, the specimen showed a cluster of round cells with sheaths of cuboidal epithelial cells and few areas of necrosis suggestive of biphasic synovial cell sarcoma [Figure 2]. The diagnosis was confirmed on immune-histochemistry. Spindle cells

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Access this article online

Quick Response Code:

Website: www.ccij-online.org

DOI: 10.4103/2278-0513.165756

Cite this article as: Purohit R, Kapoor A, Paramanandhan M, Kumar R, Kumar HS. Synovial sarcoma of the cricopharynx: A rare entity. Clin Cancer Investig J 2015;4:762-5.

were positive for vimentin and CD-99 [Figure 3] whereas, epithelial cells were positive for cytokeratin. Epithelial membrane antigen was focally positive [Figure 4]. Ki-67 score was 46% indicating its aggressive nature. Fluorescent *in-situ* hybridization demonstrated a balanced translocation t(X;18)(p11.2;q11.2) confirming the diagnosis of synovial sarcoma. The patient received 2 cycles of chemotherapy in form of ifosfamide and adriamycin 3 weekly regimen followed by radiotherapy total dose of 46 Gy in 23 fractions. Despite aggressive multimodality management of this rare tumor, the patient developed bilateral lung metastases. The patient received 2 more cycles of ifosfamide and adriamycin. Later patient was kept on best supportive care. The patient died 10 months after the surgery.

DISCUSSION

A synovial sarcoma is one of the most rare forms of soft-tissue sarcoma representing about 10% of all soft-tissue sarcomas.[3] Only about 1–3 individuals out of a million people are diagnosed with synovial sarcoma each year.[5] It can occur at any age, but it is common in teenagers and young adults with a peak of incidence before a 30th birthday.[6] Synovial sarcoma seems to have a slightly higher incidence in males: females (ratio around 1.2:1).[6]

Synovial sarcoma is a misnomer; the term was coined because of its microscopic resemblance to the developing synovium.[7] However, it is ultrastructurally as well as immunophenotypically distinct from the normal synovium. Synovial sarcoma usually found in association with the para-articular regions of the extremities, with no relation to synovial structures. Primary synovial sarcomas found most common in the soft-tissue near the large joints of the upper and lower limbs but have been reported in most human tissues and organs, including the brain, prostate, and heart. Few cases have been reported in head and neck region including the hypopharynx (the most common site), the oropharynx, the larynx, and the soft tissues of the neck.[4] Cricopharynx is the rarest of them; this case is the first case ever reported in the literature.

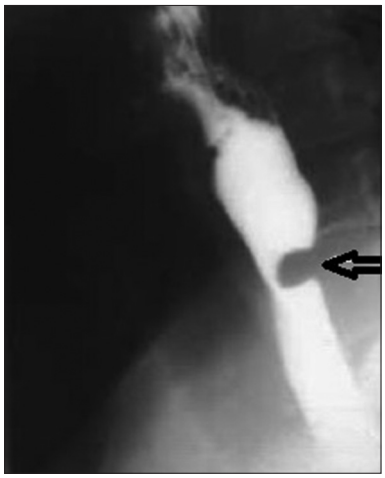

Figure 1: Barium swallow X-ray showed indentation in pharynx at the level of C5-C6 vertebra

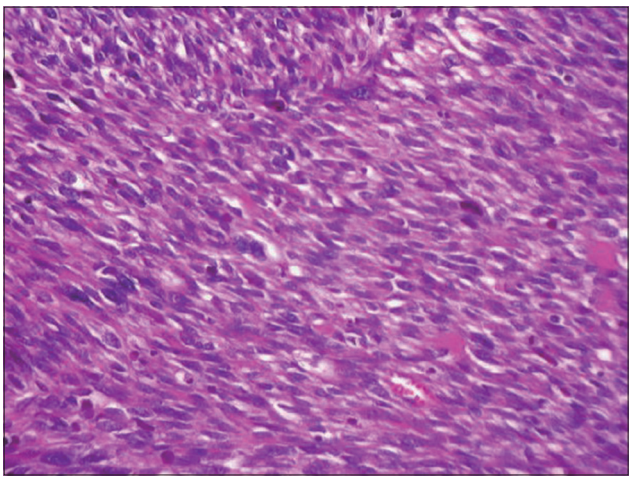

Figure 2: Photomicrograph showing spindle-shaped cells with undefined borders and atypical nuclei (H and E, ×100)

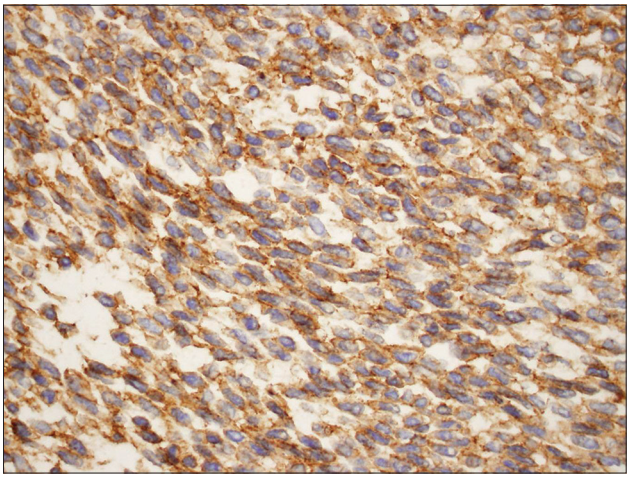

Figure 3: Photomicrograph showing positive staining for CD99, the product of the MIC2 gene

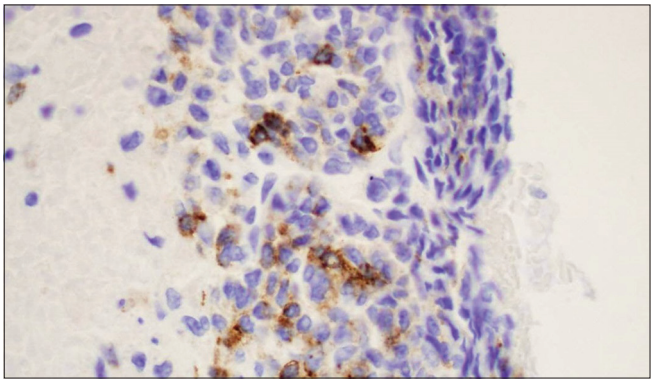

Figure 4: Photomicrograph showing focal positive staining for epithelial membrane antigen

Around 90% cases of synovial sarcoma have been associated with a reciprocal translocation t(x;18)(p11.2;q11.2).[8] The translocation between the SS18 gene (chromosome 18) and one of 3 SSX genes on chromosome X (SSX1, SSX2, and SSX4) results in the formation of a fusion gene SS18-SSX. The fusion protein brings together the transcriptional activating domain of SS18 and the transcriptional repressor domains of SSX. It also incorporates into the SWI/SNF chromatin remodeling complex, a well-known tumor suppressor. SS18-SSX via dysregulation of gene expression is thought to underlie the pathogenesis of synovial sarcoma.

Synovial sarcoma can mimic benign lesions clinically and histologically, which sometimes makes it difficult to diagnose.[9] A slow-growing painless mass is a common presentation. Microscopically, there are two cell types in synovial sarcoma. One fibrous type (spindle or sarcomatous cell) is small cells distributed uniformly in sheets. The other type is epithelial cells. Classical synovial sarcoma shows a biphasic appearance with both types identified in microscopic examination. A poorly differentiated form with neither of the cell types clearly identified, which makes it difficult to diagnose. A monophasic fibrous type consists only of sheets of spindle cells. An extremely rare monophasic epithelial form causes difficulty in differential diagnosis. The diagnosis of synovial sarcoma is typically based on histology but confirmed by the presence of t(X;18).[10]

At the time of diagnosis, fewer than 10% of patients present with detectable metastases. The lungs (49%) have been the most frequent site for distant metastases followed by skeleton (24%), liver (14%), and brain (11%).

The treatment approach is multimodal, involving surgery followed by chemotherapy and radiotherapy.[11] The primary treatment for synovial sarcoma being surgery aims at removing the entire tumor with a clear margin of healthy tissue whenever possible. Surgery appears to be curative in 20–70% of patients, depending on the primary site. However, in tumors of head and neck region, it becomes difficult for a surgeon to remove the tumor with adequate margins while preserving function. Hence, adjuvant treatment in the form of radiotherapy and/or chemotherapy becomes an essential part of the approach in synovial sarcomas of head and neck, to reduce the risk of leaving microscopic disease behind. Conventional chemotherapy (as doxorubicin and ifosfamide) for reducing the number of microscopic cancer cells remaining after surgery.[12] Chemotherapy is usually recommended in the treatment of advanced or metastatic synovial sarcoma. Radiotherapy has a role in reducing the chance of local recurrence.[11] However, the benefit of radiotherapy is less clear than for chemotherapy. Radiotherapy is used either before or after surgery. There is no established, consistent approach to the treatment of synovial sarcoma of the head and neck because of the rarity of this tumor. This makes reporting of each case important to attain a consensus over the approach a patient with synovial sarcoma of head and neck.

Prognostic factors in synovial sarcoma include the quality of surgery carried out and the presentation (including size of the tumor, local invasiveness, histopathological subtype, distant metastases, and lymph node metastasis).[11] Patients with small tumors which are completely removed with adequate margins have an excellent prognosis. The probability of developing distant metastases is greater for patients with tumor size more than 5 cm. Poorly-differentiated subtypes have a worse prognosis than other subtypes, and patients with unresectable metastases have a poor prognosis. Prognosis also determined by patient's age, site and size of the tumor, the degree of necrosis, level of mitotic activity, and neurovascular invasion. Proximal extremity or truncal tumors have a poor prognosis than distal extremity tumors do. The probability of local recurrence has been reported to range between 45%, with 33% probability of distant metastasis.[13] The onset of recurrences and distant metastasis may manifest even after a prolonged period. Therefore, regular long-term follow-up is essential. Survival at 5 years ranges from 23.5% to 45% and at 10 years from 11.2% to 30%.[13]

In this case, a multimodality approach with an aggressive intent was applied, and the overall survival was 10 months only. Further the quality of life achieved with such an approach is questionable. Should such cases be treated with a holistic approach with better quality of life as the main aim, remains unclear.

Acknowledgments

The authors would like to thank consultants in Department of Oncology Dr. Ajay Sharma, Dr. N. Sharma, Dr. S. L. Jakhar, Dr. H. S. Kumar and Dr. Surender Beniwal.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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