Case Report

Cytodiagnosis of biphasic synovial sarcoma of anterior chest wall: A rare case report

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ABSTRACT

Synovial sarcoma (SS) is a rare malignant neoplasm comprising 8% of mesenchymal tumors. Only few reports defining cytological findings in SS of anterior chest wall have been described in the literature. We hereby report a case of biphasic SS of anterior chest wall, which was diagnosed on fine-needle aspiration. Cytological smears revealed bimodal cell population comprising of spindle cells and epithelial cells. Spindle cells were arranged in dense clusters, having elongated nuclei, fine nuclear chromatin and scanty cytoplasm. Epithelial cells were arranged in a glandular pattern, with central to eccentric, round nuclei, fine nuclear chromatin and scanty cytoplasm. A possibility of biphasic SS was suggested, which was later confirmed on histopathology and immunohistochemistry. Prompt diagnosis and aggressive surgical resection is mandatory for primary SS of the chest wall because of its aggressive behavior.

Key words: Aggressive, spindle cells, synovial sarcoma

INTRODUCTION

Synovial sarcoma (SS) is a rare malignant mesenchymal tumor and it comprises 8% of all mesenchymal tumors.[1] Though fine-needle aspiration cytology is commonly used for the diagnosis of soft-tissue tumors, only few reports describing cytological findings of SS have been described in the literature.[2] We herein describe fine-needle aspiration (FNA) findings in a case of biphasic SS of anterior chest wall of a 50-year-old male that was confirmed on histopathology and immunohistochemistry (IHC).

CASE REPORT

The present case report is about a 50-year-old male patient presented with gradually progressive swelling in lower left side chest wall for 1 month. Clinical examination revealed a globular, mobile, firm lump of 11 × 10 cm, which was not attached to the overlying skin or underlying chest wall.

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Computed tomography scan revealed a heterogeneous multiloculated mass with areas of necrosis and calcification in the subcutaneous planes in the left side of the chest. FNA of the chest wall mass revealed a bimodal cell population comprising of spindle cells and epithelial cells. Spindle cells were arranged in dense clusters and had elongated nuclei, fine nuclear chromatin and scanty cytoplasm. Epithelial cells were arranged in a glandular pattern and were round with central to eccentric, round nuclei, fine nuclear chromatin and scanty cytoplasm [Figures 1 and 2]. Background revealed abundant stripped nuclei, scattered mast cells and abundant foamy macrophages. A possibility of biphasic SS was suggested and a wide excision biopsy was carried out. Histopathological examination revealed fascicles of monomorphic spindle cells and epithelial component in the form of glands, slit such as spaces and solid nests [Figure 3]. IHC revealed positivity for CK7 and vimentin. Thus, confirming the diagnosis of SS.

DISCUSSION

SS accounts for approximately 8% of all soft-tissue sarcomas. It typically presents in adolescents and young adults. The tumor most commonly involves the soft-tissues of the extremities, especially near large joints. However, cases have been reported in the head and neck, lung, heart, mediastinum and abdominal wall. But, their occurrence on the anterior chest wall has rarely been reported.[2]

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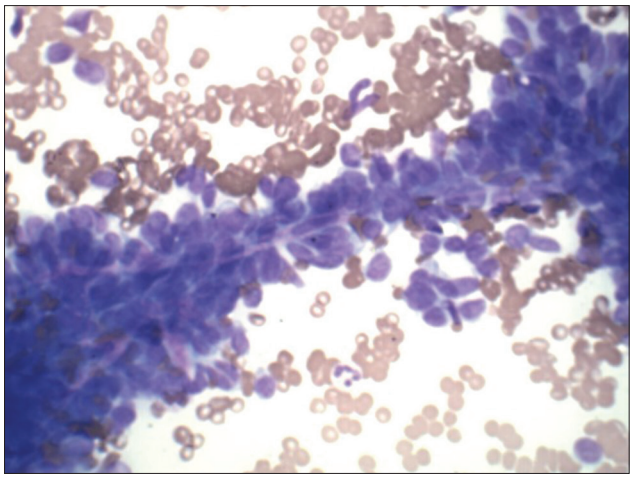

Figure 1: Biphasic synovial sarcoma revealing dense clusters of spindle cells and epithelial cells forming glands (Giemsa, ×10)

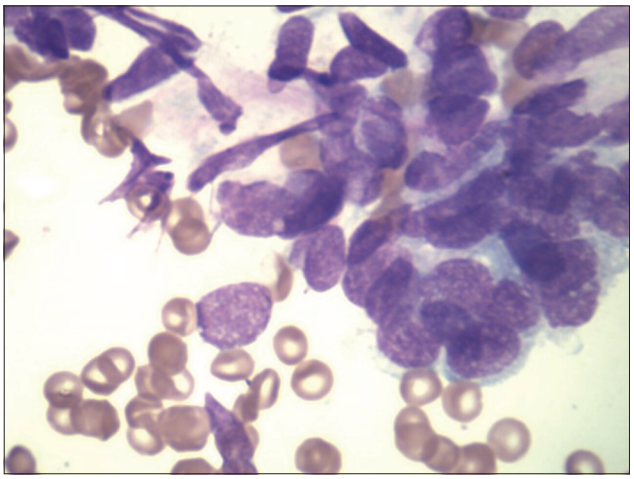

Figure 2: Spindle cells with elongated nuclei and scant cytoplasm and epithelial cells with round eccentric nucleus and abundant cytoplasm (Giemsa, ×40)

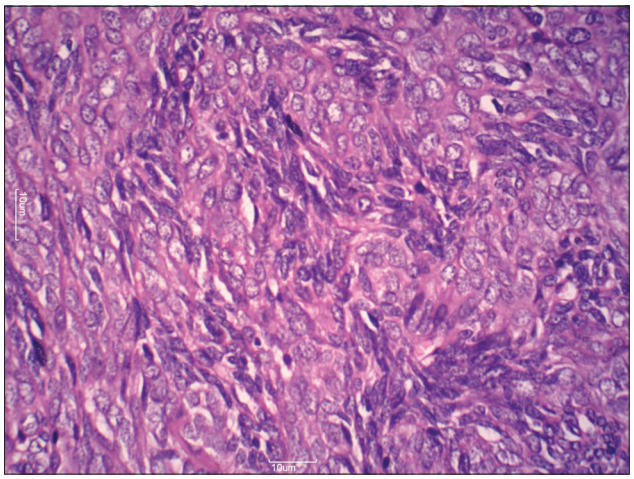

Figure 3: Histopathology sections revealing biphasic epithelial and spindle cell component (H and E, ×40)

SS typically manifests as painful, rapidly growing, large palpable mass.[3] SSs in general are divided into four histologic subtypes: Biphasic, monophasic fibrous, monophasic epithelial and poorly differentiated.[4] Klijanienko *et al*. reviewed the cytologic and the corresponding histologic material of 56 SSs from 36 patients. Classical patterns found in their cases were dispersed or small clusters of cells with bland nuclear chromatin, inconspicuous nucleoli, oval to the spindle-shaped cytoplasm, branching tumor tissue fragments along vessel stalks and acinar structures in scant mucinous background. These characteristic findings were seen in 53 (94.7%) cases. Epithelial cells, squamous cells, round cells, mast cells, necrosis, comma-like nuclei, marked nuclear atypia, secretory mucin and rosette-like structures were also occasionally observed in their cases.[5]

Khademi *et al*. in their study have reported a case of biphasic parapharyngeal SS and described cell-rich smears, poor stroma, striking uniformity, lack of nuclear pleomorphism, ovoid to rounded tumor cells with scant tapering cytoplasm, branching papillary-like tumor tissue fragments with vessel stalks, acinar-like structures and comma-like nuclei as characteristic cytological features of SS.[6]

A study by Kilpatrick *et al*. have suggested that the presence of epithelial cells is necessary for the diagnosis of SS,[7] a finding rarely present, as confirmed in later reports[5] Akerman *et al*.,[8] Kilpatrick *et al*.,[7] Viguer *et al*.,[9] Klijanienko *et al*.[5] and Ryan *et al*.[10] reported the presence of epithelial cells in only 1 of 25 cases, 2 of 13 cases, 1 of 12 cases, 3 of the 11 cases and 4 of 5 cases,[10] respectively. Whether the presence of an epithelial component is necessary for the accurate cytological diagnosis of SS is debatable. Our findings support previous studies when we found smears having a biphasic pattern comprising of spindle cells arranged in dense clusters and epithelial cells forming glands. SS is to be differentiated from hemangiopericytoma and fibrosarcoma. Hemangiopericytic pattern is more commonly seen in hemangiopericytoma than SS.[6] Immunohistochemically, SSs are nearly uniformly positive for cytokeratin, epithelial membrane antigen, bcl-2 and vimentin and negative for S-100, desmin, smooth muscle actin and vascular tumor markers.[1] Histology and IHC can be supplemented by cytogenetic analyses, which can confirm the diagnosis of SS. Cytogenetic studies of SSs have revealed the chromosomal translocation t (x; 18) (p11;q11).[1]

Prompt diagnosis and aggressive surgical resection is mandatory for primary SS of the chest wall because of its aggressive behavior.[2]

CONCLUSION

This case of SS is rare because of its uncommon involvement of anterior chest wall. Early diagnosis and treatment is essential due to its aggressive behavior.

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