ABSTRACT
Synovial sarcomas represent about 10% of all soft tissue sarcomas. Primary pleuropulmonary synovial sarcoma (SS) is a rare neoplasm. We report a case where lung mass was detected on imaging and was reported as synovial sarcoma on cytopathological, histopathological, immunohistochemical analysis and confirmed by cytogenetics.

Key-Words: Synovial Sarcoma (SS); Fine-Needle Aspiration Cytology (FNAC); Cytopathological

Introduction
Synovial sarcomas represent about 10% of all soft tissue sarcomas. Primary pleuropulmonary synovial sarcoma (SS) is a rare neoplasm. Very little literature in cytology is available about pleuropulmonary synovial sarcomas.

Case Report
60 year old male patient, known case of chronic obstructive pulmonary disease came with history of cough, breathlessness and chest pain since 2 years. Patient showed a mass lesion in right middle lobe of lung on imaging studies like ultrasound and computed tomography. We did Ultrasound guided Fine-needle aspiration cytology (FNAC) on right middle lobe of lung. Aspirate was whitish in colour grossly. Papanicoulou, Hematoxylin and Eosin and May Grunwald Giemsa staining was done. Microscopically the aspirate was cellular. The smears showed malignant cells scattered singly, arranged in dyscohesive groups and clusters with branching capillaries, cords and ill formed acini. Cells showed anisonucleosis. Cells were round/ovoid/spindle shaped with plump spindle/rond/ovoid nuclei, with high NC ratio, regular/irregular nuclear membrane, finely to coarsely granular chromatin, inconspicuous nucleoli and scanty amount of cytoplasm. Few cells showed moderate amount of fragile cytoplasm. Chunks of connective tissue matrix fragments were also seen. Two possibilities were reported, first was that of soft tissue sarcoma probably synovial sarcoma and second was spindle cell neuroendocrine tumour. Histopathological examination was advised. Later trucut lung biopsy was sent and diagnosis of synovial sarcoma was confirmed on histopathological and immunohistochemical evaluation. On further cytogenetic analysis, the t(X;18)(p11.2;q11.2) chromosomal translocation which is characteristic of synovial sarcoma was confirmed. The patient was further evaluated using imaging techniques like Computed Tomography and Magnetic Resonance Imaging and no other lesion was demonstrated. Hence, our case was primary synovial sarcoma of lung.

Discussion
Despite its name, synovial sarcoma is no longer thought to derive from synovial tissue. The name stems from early literature, as a result of frequent paraarticular location & microscopic resemblance
to developing synovium. Subsequent work on ultra-structural studies and immunohistochemistry, have instead identified the cells in synovial sarcoma as epithelial in origin.[2] Pulmonary sarcoma is very rare in comparison with carcinoma of the lung. The most frequent subtypes amongst pulmonary sarcomas that have been reported are malignant fibrous histiocytoma, fibrosarcoma and leiomyosarcoma. They may arise within the parenchyma, bronchial tree or the pulmonary artery. Morphologically, sarcomas arising in the lung resemble their soft tissue counterpart.[3] Before the advent of immunohistochemistry and electron microscopy, primary synovial sarcoma of the lung was considered extremely rare. In recent times, it has been recognized as one of the more common subtypes, accounting for a greater percentage of primary pulmonary sarcomas.[4] Cytopathologically, synovial sarcomas yield highly cellular aspirates showing mixture of tissue fragments and dispersed cells. Hemangioepicytoma like pattern with branching capillaries (staghorn pattern) is commonly seen in fragments. Cells are small to medium size with round/ovoid nuclei, finely granular bland chromatin and small inconspicuous nucleoli with intact cells showing unipolar or bipolar cytoplasm. Vague acini are seen at the periphery of tissue fragments.[5] Synovial sarcomas present typically as one of two histologic subtypes, monophasic or biphasic. Monophasic synovial sarcomas are entirely composed of ovoid/spindle cell morphology and rarely epithelial component is seen whereas biphasic types are composed of both spindle cell elements and epithelial components. Recently a third poorly differentiated histologic subtype of synovial sarcoma has been described. Poorly differentiated synovial sarcoma is composed of uniform densely packed, small ovoid blue cells that resemble other small round blue cell tumours. In pure form, poorly differentiated synovial sarcomas rarely occur, however upto 20% cases of synovial sarcomas may contain poorly differentiated areas.[6] Well differentiated malignancy has good prognosis if diagnosed early but poorly differentiated subtype is associated with a worst prognosis.[6] The diagnosis of synovial sarcoma is aided by the observation of t(X;18)(p11.2;q11.2) chromosomal translocation which is characteristic of this neoplasm. On RT-PCR -The t(X;18) (p11.2;q11.2) translocation commonly found in synovial sarcomas results from fusion of the SYT gene on chromosome 18 to either of two closely related genes, SSX1 and SSX2, on chromosome X. Currently, there are five different related SSX gene transcripts (SSX1 to SSX5) which have been identified.[7]

Conclusion

Fine Needle aspiration cytology can be a rapid and effective tool for suspecting primary mesenchymal lesions and provide reliable information to the clinician for triage of patients suspected to be having cancer.[8] As Neo adjuvant therapy is commonly applied before surgery in the management of synovial sarcoma, a reliable cytopathological diagnosis is of paramount importance.[9] Molecular genetic studies, improves the cytological, histological and immunohistochemistry-diagnosis of synovial sarcoma.[9]

References


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