ORIGINAL RESEARCH PAPER

Pathology

CYTOMORPHOLOGY PATTERNS AND IMMUNOCHEMISTRY CHARACTERISTICS OF SPINDLE CELL LESION

KEY WORDS:

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INTRODUCTION:-

Spindle cells are of mesenchymal origin and constitute part of the body's connective tissue [1].The spindle cells are fusiform in shape with cytoplasmic extensions away from the nucleus. They vary in size with moderate amount of blue cytoplasm. The nucleus of the cell is round to oval in shape and has a smooth to fine lacy chromatin pattern.The nucleoli usually are not visible in non-neoplastic spindle cell but when the spindle cells are malignant, their nucleoli become more prominent, coarse chromatin, basophilic cytoplasm with increase nuclear cytoplasmic ratio [2]. Some of the cells which exhibit spindle morphology are fibroblast, myofibroblast, smooth muscle cells, myoepithelial cells, perineural cells, pericytes, schwann cells and myoepithelial cells [3]

Spindle cell neoplasms may be reactive, benign or malignant. This heterogenous group of neoplasm includes neural, fibroblastic, myofibroblastic, muscular, epithelial and vascular neoplasm [4].

Spindle cell neoplasms can affect the soft tissue, bone, or any part of the human body and it is often very difficult for the pathologists to differentiate it from other similar microscopic simulates [5].Immunochemistry is presently the most important adjunct tool in the evaluation of spindle cell tumors because of its practicability and relatively low cost. Immunochemistry is helpful to exclude pertinent differential diagnosis and permit a reliable preoperative diagnosis of tumor in doubtful cases.

The present study was performed to study cytomorphology of spindle cell lesions with the aim of assessing the characteristics, patterns and type of spindle cell lesions by using immunomarkers and also compare the respective histopathology finding and diagnosis.

MATERIAL AND METHOD

This present study was a retrospective hospital-based case study. Total 83 cases of spindle cell lesion were selected for the study who were subjected to both cytology and histopathology.

METHODOLOGY

The Formalin fixed specimens were processed for routine paraffin embedding in histokinette.

Six sections of 4mm thickness were cut from each block one section was stained with Hematoxylin and Eosin stain for light microscopic evaluation and histological typing, while rest of the slides were used for immunohistochemistry.

Immunohistochemistry was employed in few cases where routine morphology and histopathology was unsuccessful in providing a definitive diagnosis.

A simple two markers were used in cases of spindle cell tumors which include Desmin and E-Cadherin.
The following were the inclusion and exclusion criteria of the study:

Inclusion criteria

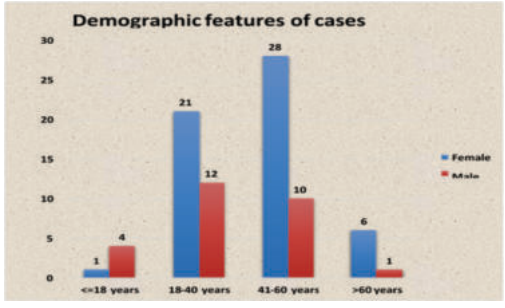
All cases diagnosed histology or cytology as spindle cell tumor irrespective of the age and gender were be included in the study.

Exclusion criteria

1) Patients decline to give consent for fine needle aspiration.
2) Fine needle aspiration cytology (FNAC) and histology findings showing no spindle cell morphology
3) Autolysis of biopsy

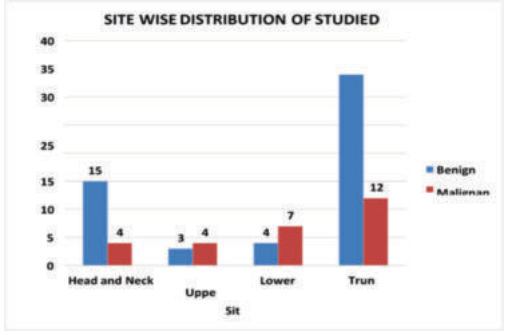
RESULTS:-

We studied 83 cases of spindle cell lesion who were subjected to both cytology and histology findings between January 2016 to May 2022 at the Department of Pathology, R.D. Gardi medical college, Ujjain.



Graph no.1 - Demographic features of cases studied (n=83 cases)

Graph no. 1. shows out of 83 cases age range of 18 to 60 years with mean age of 42.39 years. Majority (45.7%) of the cases were between the age group of 41-60 years, followed by 18-40 years of age (39.7%). In total 83 cases, 27 (32.5%) cases were male and 56 (67.5%) were females.



Graph no. 2 Site wise distribution of studied cases (N=83)

Graph no. 2. shows trunk was most common site for spindle cell tumor 46 cases (55.4%), followed by head and neck 19 cases (22.8%), lower extremities 11 cases (13.2%), and upper extremities 7 cases (8.4%).

DISCUSSION:-

A total of 83 samples of spindle cell tumors were analyzed in the present study. Of them, 56 (67.5%) were benign spindle cell tumors and 27 (32.5%) were malignant spindle cell lesions. In a study done by Jain et al on 370 cases of spindle cell tumors, they reported benign spindle cell tumors in 90.6% cases and rest were malignant spindle cell tumors [33-

35]. In another study done by Myhre-Jensen et al in which they had included 1403 cases of spindle cell tumors, 94.6% were benign and 5.4% were malignant [35-39]. In both these studies, benign spindle cell tumors were more than 90%, while in our study it was only 67.5%. The rate of malignant spindle cell tumors in our study was higher than that reported by these two studies. [40-42] The reason for higher incidence of malignant tumors in our study, could be that our institution is a referral center, and most of the cases from the surrounding regions are referred to this center.

Most of the cases belonged to 31-40 years age range (19) and 41-50 years (23%), followed by 51-60 years (15%). The mean age of the cases was 42.64 ± 15.30 years. The youngest one was 10 years old and the oldest one was 80 years old [42-45]. The mean age in benign spindle cell lesions was 39.91 ± 14.94 years and of malignant lesions was 48.29 ± 14.74 years.

There were 56 females and 27 males. There was a female preponderance in the study. Contrary to our study's finding, studies done by Kransdorf et al and Jobanputra et al reported a male preponderance in their study [47-48].

For site wise distribution, 60.7% benign spindle cell lesions were from trunk, 26.7% were from head and neck, 7.1% were from lower extremity, and 5.4% were from upper extremity. Trunk and head and neck regions are the commonest sites of benign spindle cell tumors.[49-50] In a study done by Rihal et al showed most common site for benign tumors was trunk (50%), followed by head and neck (22.14%), which partially supports our study findings. In our study, the most common site for benign spindle cell tumors was trunk and second most common site being head and neck [51-52]. 44.4% malignant spindle cell tumors were from trunk, 26.1% were from lower extremity, 14.8% were from upper extremity and head and neck. In a study done by Beg et al showed the most common site for malignant tumors was trunk and abdomen (42.8%) and lower extremity (42.8%). In another study done by Kransdorf et al showed lower extremity was the most common site (37.1%), followed by trunk and abdomen (26.1%). In our study also, we found that lower extremity was the commonest site for malignant spindle cell tumors [53-54]. Both these studies support our findings.

CONCLUSION:-

Our study concludes that Majority of the cases age ranged from 18-60 years, with mean age 42.39 years. Maximum cases were 41-60 years in age. The spindle cell tumor was more common in females than males. Most common site of spindle cell tumor was trunk followed by head & neck and lower extremities. Immunomarkers E-Cadherin and Desmin were of great efficacy in distinguishing among various spindle cell tumors and hence in confirming the diagnosis.

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