Abstract

This paper presents a method to extract cancer affected area from a histopathological image of bone cancer. Existing approaches are manual, time-consuming and subjective. In the proposed approach, morphology technique is used to find the area affected in the bone cell and extract the same using adaptive threshold technique. To get more accurate segmentation, watershed algorithm is used which will separate the attached tissue cells. In this method we used nucleus size, area, orientation to define malignancy level. Experiment results show that, using the proposed method, the meaningful features in the background with heterogeneous intensities are appropriately segmented. Bone tissue samples contain several cell type and these cells including blood cells, normal cells, and cancerous cells. Nuclear size and shape are good visual descriptors which is used to differentiate normal and cancer cell. This method successfully demonstrated an automated image segmentation technique to overcome noise due to staining process from bone cancer microscopic images and provide accurate analysis of nuclear size and density with a comparable difference from normal bone histology. The automatic segmentation resulted in a sensitivity of 76.4%, defined as the percentage of hand segmented nuclei that were automatically segmented with good quality.
References


Index Terms

Computer Science

Pattern Recognition

Keywords

Human pathology  Image Segmentation  Cancer Cell Images  nuclei  bone