spider web-like

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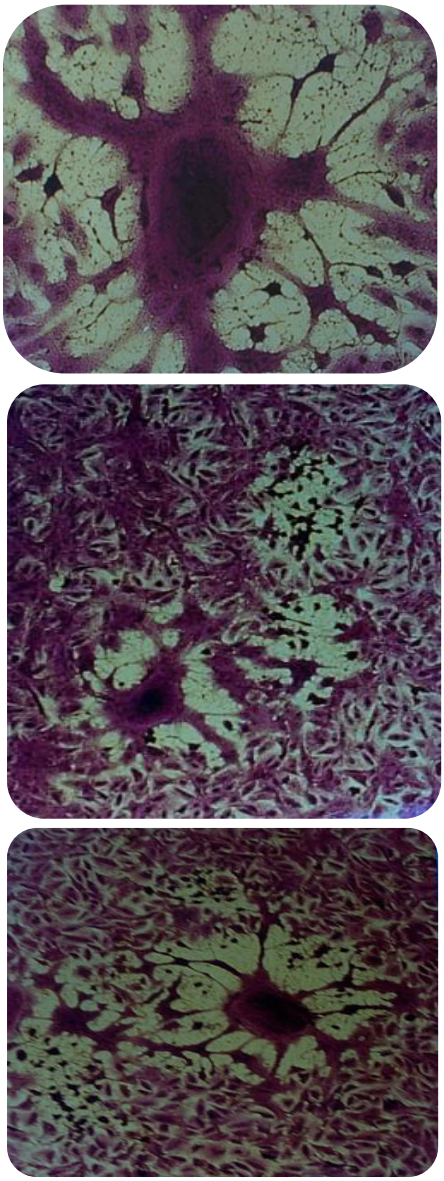
The spider-web-like feature shown is not the actual spindle shape of the fibroblast cell. This cytopathic effects (CPE) appearance is one of the unique morphological changes caused by some viruses as a result of redistribution of cytoskeletal elements. The spider web-like cytoplasmic protrusions initially begin with tight adhesions of two adjacent cells, followed by the formation of fusion pores that enlarge until cytoplasmic mixing and extension is achieved. Various virus infections develop different features of CPE, in which the most common is cell rounding and the unique ones include spider web-like. Whenever there is a mixture of viruses in a sample, a plaque assay can be used to differentiate them. In addition to purifying a clonal population of virus, plaque assay can be used to determine viral titer. In this assay, cell monolayers are infected with viruses. An overlay of agarose keeps the cells stable and limits the spread of virus. When the plates are incubated, the original infected cells release viral progeny. The spread of the new viruses is restricted to neighboring cells by the gel. Consequently, each infectious particle produces a circular zone of infected cells called a plaque. The features of plaques, either large or tiny and the type of CPE shown within the plaques, can indicate the differences in virus isolates. Crystal violet dye stains living cells and used to enhance the contrast between the plaques and the surrounding living cells.



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