

PREVAILING FORMS OF PATHOLOGICAL MITOSES IN TYPE 1
ADENOVIRUS-INFECTED CULTURES OF RES (CLONE 1) CELLS

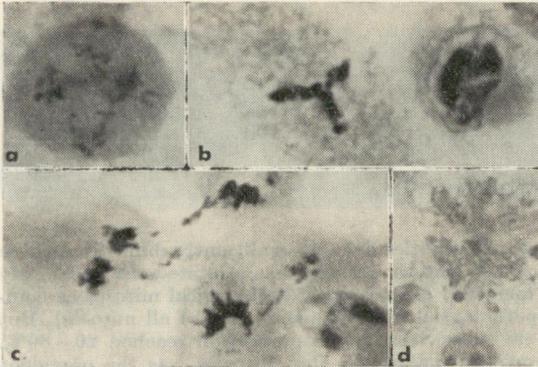
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Coverslip cultures of the RES (clone 1) cell line were infected with human adenovirus type 1 at multiplicities of 0.8 and 0.08 TCD₅₀ per cell. Within 18–48 hours after inoculation, the number of abnormal mitoses increased considerably, up to 60 and 30% of the total number of mitoses in cultures infected with the high and low multiplicity, respectively. The proportion of pathological mitoses in the controls amounted to 0–5%. The abnormal mitoses were classified according to our modification of Alov's (1) system.

Metaphase with multiple groupings of chromosomes—multigroup metaphase (Fig. a) was the prevalent form of pathological mitoses in infected cultures. In addition, we observed multipolar meta- and anaphases (Fig. b, c) and, less frequently, C-metaphases with irregularly distributed shortened chromosomes. We followed the transition from multigroup metaphases to atypical telophases, ending either in the formation of micronuclei corresponding to each of the chromosome groupings, or in the appearance of odd wavy nuclei with adenoviral inclusions (Fig. d).



Since in type 1 adenovirus-infected RES (clone 1) cells the prevalent forms of pathological mitoses were multigroup and multipolar metaphases, one has to assume that in this in vitro infection there occurs excessive multiplication of cellular centres—organoids, determining the number

of chromosome groupings and the orientation of the mitotic spindle. Moreover, the multiple chromosome groupings formed did not, as a rule, separate: either there was no anaphase, or bridges were formed. Consequently, in type 1 adenovirus-infected RES (clone 1) cells also the function of the spindle is disturbed. Finally, in a number of cases the involvement of cell centres and spindles in the infected cells was accompanied by degenerative changes of the chromosomes, their swelling, sticking together into clumps, and pulverization.

We found similar forms of pathological mitoses in type 7 adenovirus-infected cultures.

The forms of pathological mitoses described above differed from atypical mitoses prevailing in cultures infected with other viruses (2–6).

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