NOTES

POLIOMYELITIS INDUCED BY INOCULATION OF TOOTH PULP CAVITIES

MYRON S. AISENBERG AND THOMAS C. GRUBB

University of Maryland, School of Dentistry, Baltimore, Maryland

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Since there is still considerable uncertainty regarding the path by which the poliomyelitis virus reaches the central nervous system, it appears of interest to determine whether other routes beside the respiratory and alimentary tracts may serve as portals. The recent report by Faber and Silverberg (1942) of the presence of the virus in the semilunar (Gasserian) ganglion suggested to one of us (M. S. A.) that the virus might enter the pulp chamber of a carious tooth with pulpal exposure and travel via the maxillary and mandibular divisions of the fifth nerve to the semilunar ganglion and thence to the central nervous system.

To test this hypothesis, the pulp chambers of the anterior teeth of three Macacus rhesus monkeys under nembutal anesthesia were exposed. The pulps were removed and a drop of 20 or 40 per cent suspension of the "Creach" strain of the virus was placed in each canal and the cavities sealed with "Plicene" (Central Scientific Co.) in the successful experiment and silver amalgam in the unsuccessful experiments. Two of the three animals inoculated with the use of silver the first or second time failed to develop paralysis during an observation period of 16 to 50 days. The negative results may have been due to the oligodynamic action of the silver fillings and the use of only a 20 per cent suspension of virus. The third animal was inoculated in a similar fashion with 20 per cent virus and the cavities sealed with Plicene. When paralysis did not develop after a three-week observation period, the animal was again inoculated with a 40 per cent suspension of virus and the cavities sealed with Plicene. Seven days later this animal showed tremors of the hind legs and all four legs were paralyzed on the following day. On the ninth day the monkey was sacrificed and histologic sections of the cord showed the characteristic pathology of poliomyelitis. The Gasserian ganglion showed marked cellular infiltration, some neurophagia and karyolysis of many of the ganglion cells.

It was considered desirable to publish this preliminary report since there is no evidence in the literature of poliomyelitis having been previously produced experimentally by inoculation of pulp canals. It is by no means implied that this experiment proves that poliomyelitis may be acquired under natural conditions in human beings by infection through carious teeth. However, we believe that these results do indicate a possible pathway of the virus which has not been hitherto considered.

REFERENCE