Frank Mayfield

Frank Mayfield (1897-1991)was selected as the first recipient of the Harvey Cushing Medal of the American Association of Neurological Surgeons in 1977. This was only one reflection of the many contributions he made to the neurosurgical profession during his career. He founded the Mayfield Institute in Cincinnati where much of his legacy is continued. Among his many contributions there have been some which were particularly significant to the field of spine care and are recognized here. Mayfield, in 1980, documented his 16 years of clinical experience with fat grafts and noted that they could prevent epidural and per neural scar tissue and control cerebro-spinal fluid leaks and in the repair of dural tears. He also noted that their greatest danger was the possibility neural compression. The illustration above is from his chapter in Clinical Neurosurgery (1980) “Autologous Fat Transplants for the Protection and Repair of the Spinal Dura.” It demonstrates autologous fat being sutured to the dura to close a complicated defect. His interest in the subject of adhesive arachnoiditis was an avant-garde effort for its time. He not only was interested in the clinical picture but worked with associates to better understand the nature of the cellular reactions involved. In 1983 he, and his associates, were the first to culture arachnoid cells to demonstrate their growth characteristics, morphology and cytoskeletal structure. By electron microscopy and immunofluorescence it was shown that the cell cultures derived from the arachnoid membrane were arachnoid cells alone and not fibroblasts (characteristic of the dura mater). This work made clear that in arachnoiditis the fibrosis results from the migration of fibroblasts from the adjacent dural membranes.