

blood supply to the dorsolumbar and cervical segments of the cord. The authors had on two occasions seen patients develop irreversible long tract damage during competently performed cervical rhizotomies. From the clinical manifestations in each case it had been concluded that infarction had occurred. Legal proceedings had been instituted in both cases. Angiographic studies in one of these patients had demonstrated the importance of the vertebral and radicular blood supply to the human cervical cord.

NEUROSURGERY IN SINGAPORE

G. BARATHAM (Singapore) gave an account of neurological surgery in Singapore.

ANTERIOR CERVICAL DISCECTOMY—

A MICROSURGICAL APPROACH

JOHN M. TEW, JR and FRANK H. MAYFIELD (Cincinnati) had decided in 1970 to carry out a prospective study to evaluate iliac bone graft insertion in the treatment of the herniated disc operated on by the anterior interbody approach. It had been agreed that only patients with minimal degenerative changes and single disc protrusions would be included in the study. Thirty young patients had been operated on and observed. In order to reduce the amount of bone removed beneath the discs the surgical microscope had been used in all cases, and the illumination and magnification provided had proved most valuable. As a result of this study, the authors concluded that the herniated cervical disc could be effectively removed through the interbody approach, that a microsurgical technique facilitated the procedure, and that bone grafting was not essential.

BIPOLAR DIATHERMY

JULIAN L. ROBINSON (Quebec) discussed the various problems associated with surgical diathermy which was radiofrequency current having an electromagnetic biphasic wave. Many machines used spark gap generators which produced bursts of damped radiofrequency followed by periods of electrical

silence. For cutting diathermy a modified Colpits oscillator was often used. Unipolar diathermy radiofrequency flowed right through the patient and coagulation occurred in a sphere round the forceps points. This coagulation is probably mainly produced by voltage and not by dielectric loss. Bipolar diathermy produced localized, accurate, and controlled lesions which were ideal in microsurgical work. The screening of spark gap waves was difficult and machines employing spark gaps usually caused electrical interference with monitoring equipment. Pure d.c. sine waves in the mega Hz range were easily screened. Nerve muscle preparations were insensitive to this type of radiofrequency. Some machines used a gate to prevent neuromuscular stimulation but this introduced an unnecessary complication. Mains driven devices avoided themselves of all possible grounding connections. The problem with mains driven bipolar coagulators was the achievement of radiofrequency output of high floatability. The author had studied an output coupling which was best driven by a balanced cross-coupled oscillator circuit with control of output by a closed loop feed back system compensating automatically for any discrepancy between dial setting and actual radiofrequency delivered. Transistors had not been used as they tended to function at low voltage and gave loss of floatability when transforming up to a workable voltage.

STERILITY DURING MICROSURGERY

THEODORE KURZE, MARTIN H. WEISS, and MICHAEL L. J. APUZZO (Los Angeles) considered that there was a considerable mythology regarding preferential methods of preserving sterility in the operative area during the performance of microsurgery. There was little or no experimental evidence for the effectiveness of the various methods which have been advocated. The authors performed controlled bacteriological studies of various methods of ensuring sterility. They found a conventional ethylene oxide technique highly satisfactory.