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THE FUNCTIONAL RETURN OF TISSUES TRANSPLANTED ON EXTENDED NEURO--ETC(U)
DEC 78 H J BUNCKE N00014-76-C-0486

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OFFICE OF NAVAL RESEARCH

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Contract N. 00014-76-C-486
Grant No. NR 287/076/01-25-77

(9) Progress Report, 0001AM
due December 31, 1978

(6) THE FUNCTIONAL RETURN OF TISSUES TRANSPLANTED ON EXTENDED NEUROVASCULAR PEDICLES.

(10) Harry J. Buncke, M.D.
Principal Investigator

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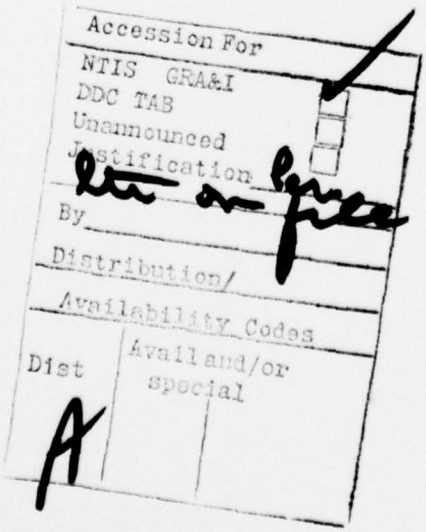
Amount due;December 31,1978
Covering Report 0001AM

I certify this to be correct and proper for payment.

Harry J. Buncke,M.D.
Principal Investigator



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1, Progress is reported on the following projects:

The following is a summary of the progress made since the report of September 30,1978-0001AL on the Office of Naval Research Contract Number N.00014-76-C-486

(1) The Use of Isoxuprine to Increase Flap Survival in the Rat,

This double blind study has been completed and is being prepared for publication by Drs. Finseth,Goodstein and Walker.

(2) A Histological Study of The Extent of Vascular Injury Created with Avulsive Disruption of Blood Vessels in the Rat,

This study is continuing,the material has been harvested and is ready for SEM and conventional histological study. Delays have been encountered because of the availability of SEM time.

(3) Long Vein Graft Study,

There has been no progress since the last report. Dr. Thomas Gant, Chief of Plastic Surgery at the San Francisco County General Hospital now has an equipped microvascular laboratory with operating microscopes with facilities for large animal work on the dog and primate. It is our intention to continue this study in the cat or dog in the coming months.

(4) The Effect of Steroids on Replantation Edema,

The study has been completed and submitted for publication to the Journal of Plastic and Reconstructive Surgery.

(5) The Effect of Suture Material on the Strength of Vascular Anastomoses, a-d

The study is completed and the report submitted for publication. Results were established that 8 sutures of 20 micron nylon on a 70 micron needle produced a strong repair,measured by strain gauged disruption on a completed anastomoses.

(6) The Effects of Steroids on the Survival of Flaps Submitted to Long Periods of Ischemia. A

The total abdominal flap model described by Dr. Finseth is being used to ascertain whether parental steroids will increase the salvage rate of ischemic flaps. Preliminary results confirm the work of Harashina and others that six hours of venous congestion is followed by over 80 percent failure rate if the circulation is re-established. Unfortunately,this is a tedious and time consuming study for each anaimal must be anesthetized for a period of at least 6-8 hours. The project is well under way and is being continued by the new microvascular Fellow since Dr. L. Colen has completed his time with us.

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Experimental and clinical results of the microsurgical laboratory and of the replantation team of the Ralph K. Davies Medical Center have been presented at the following meetings,symposia and seminars.

Yoder Memorial Lecture,Closed circuit TV microvascular demonstration - a one day symposium presented by Dr. H.J. Buncke and Zoltan Szabo to the St. Vincent Hospital staff in Tacoma,Washington,November 17,1978.

Patterns of anastomoses correlated with flap survival. Presented at the annual meeting of the American Society of Plastic and Reconstructive Surgeons in Hollywood,Florida,by H.J. Buncke and W.A. Goodstein.

Basic techniques in microsurgery-a one and one half hour course sponsored by the Educational Foundation,American Society of Plastic and Reconstructive Surgeons,given by H.J. Buncke at the above meeting in November,1978.

Panel on Replantation and Transplantation at the Third annual meeting of the Iberian Society of Plastic Surgeons in Guadalajara,Mexico October 30,1978, H.J. Buncke,panelist.

Symposium on Difficult Hand Problems sponsored by the American Society for Surgery of the Hand at Indianapolis,Indiana,October 23-26- H.J. Buncke,subject presentations of Management of Avulsive Injuries of the Upper Extremity and Soft Tissue Cover to the Hand.

American College of Surgeons,annual clinical meeting,October 16,1978, Microsurgical Panel,H.J. Buncke-Limitations of Microsurgical Transplantation and Replantation.

Exhibit on Microsurgical Transplantation and Replantation displayed at the above mentioned meeting of the American College of Surgeons Certificate of Recognition issued to all authors.

Video cassette on microsurgical transplantation and replantation accepted by the Educational Foundation of the American Society of Plastic and Reconstructive Surgeons for distribution in its Educational File to members.

Video tape presented at the Video Session at the meeting of the Society as mentioned above in Hollywood,Florida in November.

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Two new microsurgical Fellows will begin January 1,1979, Dr. Philip Hendel from Canada will begin his research grant subsidized in part by the Office of Naval Research Contract and in part by a grant from the American Association of Plastic Research Committee and the Hearst Foundation. His project will be zeon clearance,a measure of flap profusion and survival. Dr Barry Zide will replace Dr. Lawrence Colen and will continue on Dr. Colen's studies. Dr. Carolyn Cline remains another six months and will continue her exploratory studies and investigations on the various techniques for monitoring flow through microvascular and microvenous anastomoses.

We consider this particular phase of microvascular research to be the most pertinent at this time and hope to orient the major thrust of research along these lines in the coming months. Many of the basic problems in microvascular technique control vascular spasm, agglutination etc. and have been solved. The major problem at present in the experimental and clinical microvascular field is being able to dependably monitor flow. Skin color,turgor,temperature, capillary fill are well accepted clinical signs. Doppler Flow meters photo-electric plethesmography,flourocene dye studies,tissue oxygen studies,PH and pressure are valuable laboratory tests. However a simple infallible index for immediate readout of experimental and clinical microvascular flow must be developed. We are hopeful that zeon clearance and planable expendable electrodes to monitor to monitor flow or nuclear magnetic residence will give us the answer.

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