

healed and all blood levels and weight had returned to control levels by the 28th day.

All phases of the study were much less severe and recovery uncomplicated in the seven dogs that survived. A similar picture was seen in the contact burn plus whole body irradiation when treatment was instituted with penicillin except that the recovery period was far longer—an average of 120 days. The treated contact burns had a mortality of 14 per cent.

No blood or wound cultures were studied in this group.

SUMMARY

Flash burns were produced experimentally in dogs and compared with burns of a comparable depth and extent produced by the contact method. Peripheral blood studies were similar in both groups. However, blood culture studies and mortality seemed to indicate a less fatal outcome in the flash burn group which was thought greatly influenced by the initial eschar formation in the flash burn, this eschar acting as a protective coat to prevent the purulent supuration seen in contact lesions. It would appear that the overall clinical approach to flash and contact burns will be the same.

It is not the purpose of this report to advocate any form of therapy in burn wounds, but rather to point out local factors which influence to a marked degree wound healing and the systemic effect pro-

duced by varied sources of thermal energy which produce burns.

ACKNOWLEDGMENT

Technical assistance of Harry Mueller, Mrs. Evelyn Mueller, Fred Pierce, Leslie Ellis, Max Rittenburg is herewith acknowledged.

BIBLIOGRAPHY

1. Brooks, J. W., P. Robinett, T. L. Largen and E. I. Evans: A Standard Contact Burn. *Surg., Gynec. and Obst.*, **93**: 543, 1951.
2. Brooks, J. W., E. I. Evans, W. T. Ham and J. D. Reid: The Influence of External Body Radiation on Mortality from Thermal Burns. *Ann. Surg.*, **136**: 533, 1952.
3. Evans, E. I., J. W. Brooks, F. H. Schmidt, R. C. Williams and W. T. Ham, Jr.: Flash Burns in Human Volunteers. *Surg.*, **37**: 280, 1955.
4. Ham, W. T., Jr. and E. D. Trout: Million-Volt Berillium Window X-Ray Equipment for Biophysical and Biochemical Research. *Radiology*, **55**: 257, 1950.
5. Hogg, L., J. T. Payne and H. E. Pearse: Experimental Flash Burns. *Ann. of Pathol.*, **49**: 267, 1950.
6. Pearse, H. E. and H. D. Kingsley: Thermal Burns from the Atomic Bomb. *Surg., Gynec. and Obst.*, **98**: 385, 1954.
7. Reid, J. Douglas, J. W. Brooks, W. T. Ham and E. I. Evans: The Influence of X-radiation on Mortality Following Thermal Flash Burns: The Site of Tissue Injury as a Factor Determining the Type of Invading Bacteria. *Ann. Surg.*, **142**: 844, 1955.
8. Schmidt, Frederick H., R. C. Williams, W. T. Ham, J. W. Brooks and E. I. Evans: Experimental Production of Flash Burns. *Surg.*, **36**: 1163, 1954.

DISCUSSION.—PRESIDENT BLALOCK: I feel sorry for those who did not stay to hear this final paper, because it has been excellent. I wish Everett Evans could have been here. I am so glad to see people

like Dr. Willis Gatch, Pete Churchill and others of us who no longer are quite as young as we used to be, who still retain a great interest in what is new in surgery.