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Neurosurgical Treatment of Persistent Pain

Physiological and Pathological Mechanisms of Human Pain

Jan M. Gybels, MD, PhD

Professor of Neurology and Neurosurgery, Chief of Clinic of the Department of Neurosurgery, Director Laboratory Experimental Neurology, KUL University of Leuven, Leuven, Belgium

William H. Sweet, MD, DSc, DHC, FRCS Ed (Hon.)

Professor of Surgery Emeritus, Harvard Medical School, Whilom Chief, Neurosurgical Service, Massachusetts General Hospital, Boston, Mass. USA

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Legend for the Cover Illustration

Munch described the motive of the painting appearing on the cover in the following words: “One evening I was walking along a path - on one side lay the city and below me the fjord. I was tired and ill - I stopped and looked out across the fjord - the sun was setting - the clouds were dyed red like blood.
I felt a scream pass through nature; it seemed to me that I could bear the scream. I painted this picture - painted the clouds as real blood. - The colors were screaming. - This became the picture The Scream from the Frieze of Life."

Preface

It is now almost two decades (1969) since White and Sweet wrote their second substantial treatise on pain entitled ‘Pain and the Neurosurgeon’. Since that time, surgical techniques have changed. Previous open operations have been supplemented by the percutaneous introduction of electrodes under very brief general or local anesthesia with the opportunity of verifying by physiological means the nervous structures one aims to destroy. In addition the operating microscope may have disclosed subtle compressive lesions on cranial nerves which may give rise to paroxysmal neuralgias and possibly can be treated by removing the compression.
But perhaps more importantly, since that time the evidence that a complex system of pain suppressor mechanisms exists has presented a completely new vista of pain control by activation of these mechanisms. Included are both electrical stimulation at specific sites and introduction of chemicals to bind to either opiate or many nonopiate types of pain suppressor receptors. Clinical utilization of these new concepts is still in its early stages. Neurosurgeons have known since Foerster’s comprehensive studies
that pain often seems to ‘run in front of the knife’, i.e. the nervous system possesses a remarkable capacity, following destructive procedures on it, to return towards the status quo ante, and to develop little-used or new mechanisms either to cause recurrence of the original pain or to replace it by other types of pain. Although often appearing at a slower pace than the analogous development of tolerance to chemical analgesics, it is clear that both physician and surgeon are confronted by this major problem in pain control.

The new developments include awareness of both pain suppressor and pain inducer pathways, of a bewildering variety of normal chemical mediators at the synapses in these pathways, and the pharmacology of the less readily destroyed analogs of the pain suppressors and antagonists of the pain inducers. This knowledge, though increasing, is still in a state of flux very difficult for the clinician to analyze and apply.

This book is written primarily for neurosurgeons who seek but do not yet have a special expertise in the neurosurgical treatment of pain. Its second intention is to provide all students and therapists of pain with a survey of clinical observations re the effects on chronic pain of destroying, stimulating electrically, and applying drugs to specific parts of the human nervous system. Within the limits of the pages prescribed by the publisher this second objective can be met only incompletely.

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