
REFLEX SYMPATHETIC DYSTROPHY

**EDITED BY MICHAEL STANTON-HICKS, M.D.,
WILFRID JÄNIG, PH.D., ROBERT A. BOAS, M.D.**



**KLUWER ACADEMIC PUBLISHERS
BOSTON DORDRECHT LONDON**

CURRENT MANAGEMENT OF PAIN

P. PRITHVI RAJ. SERIES EDITOR

The series, *Current Management of Pain*, is intended by the series editor and the publishers to provide up-to-date information on advances in the clinical management of acute and chronic pain and related research as quickly as possible. Both the series editor and the publishers felt that, although comprehensive texts are now available, they do not always cover the rapid advances in this field. Another format was needed to publish advances in basic sciences and clinical modalities and to bring them rapidly to the practitioners in the community. A questionnaire was sent to selected clinicians and, based on their responses, topics were chosen by the series editor. Editors of each volume were chosen for their expertise in the field and their ability to encourage other active pain specialists to contribute their knowledge:

- Ghia, J.N., ed.: *The Multidisciplinary Pain Center: Organization and Personnel Functions for Pain Management*, 1988. ISBN 0-89838-359-5. CUMP 1
- Lynch, N.T., Vasudevan, S.V.: *Persistent Pain: Psychosocial Assessment and Intervention*, 1988. ISBN 0-89838-363-3. CUMP 2
- Abram, S.E., ed.: *Cancer Pain*, 1988. ISBN 0-89838-389-7. CUMP 3
- Racz, G.B., ed.: *Techniques of Neurolysis*, 1989. ISBN 0-89838-397-8. CUMP 4
- Stanton-Hicks, M., ed.: *Pain and the Sympathetic Nervous System*, 1989. ISBN 0-7923-0304-0. CUMP 5
- Rawal, N., Coombs, D.W., eds.: *Spinal Narcotics*, 1989. ISBN 0-7923-0374-1. CUMP 6
- Stanton-Hicks, M., Jänig, W., Boas, R., eds.: *Reflex Sympathetic Dystrophy*, 1989. CUMP 7

ISBN-13:978-1-4612-8026-2
DOI:10.1007/978-1-4613-0685-6

e-ISBN-13:978-1-4613-0685-6

Copyright © 1990 by Kluwer Academic Publishers
Softcover reprint of the hardcover 1st edition 1990

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher, Kluwer Academic Publishers, 101 Philip Drive, Assinippi Park, Norwell, Massachusetts 02061.

Distributors for North America:
Kluwer Academic Publishers
101 Philip Drive
Assinippi Park
Norwell, Massachusetts 02061 USA

Distributors for all other countries:
Kluwer Academic Publishers Group
Distribution Centre
Post Office Box 322
3300 AH Dordrecht, THE NETHERLANDS

Library of Congress Cataloging-in-Publication Data

Reflex sympathetic dystrophy.

(Current management of pain ; # 7)

I. Reflex sympathetic dystrophy—Congresses.

I. Stanton-Hicks, Michael d'A. II. Janig, Wilfrid.

III. Boas, Robert A. IV. Series. [DNLM: 1. Reflex

Sympathetic Dystrophy. W1 CU788LW v.7 / WL 600 R332]

RC422.R43R44 1989 617.5 '8 89-24474

CONTENTS

Contributing authors ix

Series editor foreword xv

Preface xvii

Section I

General Considerations

1. Reflex sympathetic dystrophy:
Clinical features 1
STEPHEN H. BUTLER
2. Reflex sympathetic dystrophy:
Incidence and epidemiology 9
STEPHEN E. ABRAM
3. Chronic pain mechanisms 17
TERENCE M. MURPHY
4. Sympathetically maintained pain
principles of diagnosis and therapy 25
PETER R. WILSON
5. Psychosomatic aspects of
reflex sympathetic dystrophy 29
U.T. EGGLE, S.O. HOFFMANN

Summary of Section I 37

vi Contents

Section II

Basic Researches in Pathophysiology of RSD

6. Pathobiology of reflex sympathetic dystrophy:
Some general considerations 41
WILFRID JÄNIG
 7. Spinal hyperexcitability in
sympathetically maintained pain 55
WILLIAM J. ROBERTS
 8. Neuropharmacological aspects of
reflex sympathetic dystrophy 61
ILMAR JURNA
 9. Clinical and neurophysiological
observations relating to
pathophysiological mechanisms
of reflex sympathetic dystrophy 71
ERIK TOREBJÖRK
 10. Mechanisms and role of
peripheral blood flow dysregulation
in pain sensation and edema
in reflex sympathetic dystrophy 81
H. BLUMBERG, H.J. GRIESSER,
M.E. HORNYAK
- Summary of Section II 97

Section III

Therapeutic Techniques in RSD

11. Sympathetic nerve blocks:
Their role in sympathetic pain 101
ROBERT A. BOAS
 12. Intravenous regional sympathetic blocks 113
J.G. HANNINGTON-KIFF
 13. Reflex sympathetic dystrophy -
Neurosurgical approaches 125
RONALD R. TASKER
 14. Peripheral nerve stimulator
implant for treatment of RSD 135
GABOR B. RACZ, BOYCE LEWIS, JR.,
JAMES E. HEAVNER, JOHN SCOTT
 15. Psychological support of the patient
with reflex sympathetic dystrophy 143
J. DAVID HADDOX
 16. Reflex sympathetic dystrophy
non-invasive methods of treatment 151
J.E. CHARLTON
 17. Multi-disciplinary management of
reflex sympathetic dystrophy 165
PRITHVI RAJ, JEFFREY CANNELLA,
JENNIFER KELLY, KAREN MCCONN, PATRICIA LOWRY
- Summary of Section III 173

viii Contents

Section IV

New Techniques

18. Three-phase bone scanning
in reflex sympathetic dystrophy 177
H. STEINERT, O. NICKEL, K. HAHN
19. An investigation of the role of
clonidine in the treatment of
reflex sympathetic dystrophy 187
C.J. GLYNN, P.C. JONES
- Summary of Section IV 197
- Summary Comments 199
- Proposed Definition of
Reflex Sympathetic Dystrophy 207

PREFACE

The syndrome of Reflex Sympathetic Dystrophy is one long recognized clinically by those providing treatment for chronic pain. Despite this, basic research has been sparse with little support from clinical studies to clarify our understanding of the syndrome or reveal its pathophysiology. While many clinical investigators have added their own diagnostic points and new terminology, confusion rather than consensus now prevails.

Provocative enquiry by recent clinical researchers like P. W. Nathan and J. J. Bonica challenged conventions of the day encouraging much of the momentum in study, which has led to the Workshop and material appearing in this text.

To discuss the syndrome RSD, clinicians and basic scientists drawn from 9 countries gathered at Schloss Rettershof, Kelkheim in West Germany last Fall. In keeping with its present description as a triad of autonomic, motor and sensory disturbances in an extremity following a precipitating event, the participants reviewed RSD against all of the other descriptions that are now assembled under the term sympathetically maintained pain. There was general agreement that the sympathetic nervous system is variably involved with the generation and maintenance of the clinical phenomena of RSD but that the syndrome is probably aneurologic disease.

The charge of the Workshop was an attempt to develop a statement that might more clearly define the syndrome of RSD, provide minimal diagnostic criteria and screening tests as well as confirmatory laboratory methods and to offer guidelines for future epidemiological, basic and clinical research. While the material listed in the table of contents accurately reflects the topics discussed, it may not belie the differing points of view that were expressed throughout the Workshop; the greatest difficulty being what should be included under the term RSD.

We hope also that clinicians will be encouraged to maintain outcome audits of their cases and also that therapists will focus their treatment on multidisciplinary management techniques. At the very least it is hoped that this meeting and its text will consolidate and coordinate efforts of those working in the field of pain and rehabilitation, for patients with posttraumatic painful disorders. More immediate tangible consequences of this Workshop include the formation of a special interest section with the IASP, under whose sponsorship the Workshop was held, and submissions for a redefinition of RSD terminology of the Taxonomy of Pain. A synthesis of these ideas and a suggested definition of RSD can be found at the end of the text.