

Medical Education

Tehran University, Faculty of Medicine, 1956

Postgraduate Training

Internship, St. Joseph's Hospital, Patterson, N.J. 1957-58.
Residency, New Jersey Orthopaedic Hospital and
New York University, 1958-62.

Academic Positions

- 1) Professor of Orthopaedic Surgery
Drexel University College of Medicine
- 2) Parviz Kambin Endowed Chair of Spinal Surgery
Drexel University College of Medicine
- 3) Clinical Associate Professor of Orthopaedic Surgery,
University of Penn, School of Medicine

Past Positions

President, International Society for Minimal Intervention in
Spinal Surgery (SICOT) 2001-2002

National Representative, U.S.

Treasurer, American Section, U.S.

International Society for Minimal Intervention in Spinal Surgery
- ISMISS

Clinical Associate Professor of Orthopaedic Surgery,
University of Pennsylvania, School of Medicine

Orthopaedic Surgeon, Dept. of Orthopaedic Surgery,
Hospital of the University of Pennsylvania

North American Spine Society
Committee Chairman, Minimal Invasive Surgery

Director of Disc Treatment and Research Center of Graduate
Hospital, University of Pennsylvania, Philadelphia

Specialty Certification

1965 American Board of Orthopaedic Surgery

Licensure

1964 Pennsylvania

1962 Virginia

Professional Honors

New Jersey Orthopaedic Association
"Surgical Management of Deformities of the Lower
Extremities in Cerebral Palsy Patients." October 1961

American Academy of Orthopaedic Surgery Educational Video
tape "Percutaneous Lumbar Discectomy, Arthroscopic Anatomy of
Periannular structures (Triangular Zone) , 1989

SICOT "Appreciation Award," Bangkok, Thailand, 1993.

The American Academy of Neurological and Orthopaedic Surgeons "Lifetime
Achievement Award." July, 2000.

The American Academy of Minimally Invasive Spinal Medicine & Surgery
"Minimally Invasive Hall of Fame" Las Vegas, Nevada, December, 2000.

Stryker Spine "Lifetime Achievement Award" Naples, Florida,
December 2000.

Royal College of Surgeons, USA "Lifetime Achievement Award", December, 2005

American International University, Honorary PhD award, December, 2005.

World Congress of Minimally Invasive Spine Surgery & Techniques Lifetime
Achievement Award, June, 2008

2011 Kambin Award Society of Minimally Invasive Spinal Surgery (Joimax)

Professional Affiliations

- 1) American Academy of Orthopaedic Surgeons
- 2) International College of Surgeons
- 3) SICOT: Societe Internationale de Chirurgie Orthopaedique et de
Traumatologie
- 4) Co-founder and past President
International Society for Minimal Intervention in Spinal
Surgery (ISMISS)
- 5) Eastern Orthopaedic Association
- 6) North American Spine Society
- 7) American Medical Society
- 8) The Royal College of Physicians & Surgeons (US) Honorary
- 9) Philadelphia College of Physicians
- 10) Philadelphia Orthopaedic Society
- 11) Philadelphia Medical Society

SPINE, International Journal for the study of the spine
Advisory Board
Editorial Reviewer

Publications

- Kambin, P., Smith, J.M., and Hoerner, E.F.: Myelography and Myography in Diagnosis of Herniated Intervertebral Disc. *Journal of AMA*, August 11, 1962, Vol. 181, pp 472-475.
- Keats, S. and Kambin, P.: An Evaluation of Surgery for the Correction of knee flexion Contracture in Children with Cerebral Spastic Paralysis. *The Journal of Bone and Joint Surgery* Vol. 44-A No. 6, pp 1146-1154 Sept., 1962.
- Kambin, P.: Use of Relaxant Drugs in Cerebral Palsy. *Disease of Nervous System*, Vol. 23 No. 7., July 1962.
- Kambin, P.: Clinical Experience with Chloriozepoxide in Infantile Cerebral. *Developmental Medicine and Child Neurology*, Vol. 4, No. 3, pp 336-337, June, 1962.
- Kambin, P.: Giant-Cell tumor of the Thoracic Spine with Pathological Fracture and Paraparesis-A Method of Stabilization. *The Journal of Bone and Joint Surgery*, Vol. 48-A No. 4, pp 779-782 June, 1966.
- Kambin, P. and Abda, S.: Intradiskal Pressure and Volume Recording: Evaluation of Normal and Abnormal Cervical Disks. *Clinical Orthopaedics and Related Research*, Vol. 146 pp 144-147 Jan./Feb., 1980.
- Kambin, P.: Anterior Cervical Fusion Using Vertical Self-Locking T-Graft. *Clinical Orthopaedics and Related Research*, Vol. 153, pp 132-137, Nov./Dec., 1980.
- Kambin, P.: Percutaneous Lateral Discectomy, *Image*, The Graduate Hospital, May, 1982.
- Kambin, P. and Gellman, H.: Percutaneous Lateral Discectomy of the Lumbar Spine, A Preliminary Report. *Clinical Orthopaedics Related Research*, Vol. 174, pp 127-132, April, 1983.
- Kambin, P.: Herniated Disc, A Common Problem. *Image*, The Graduate Hospital, Fall, 1984.
- Kambin, P., and Sampson, S.: Laminectomy Versus Percutaneous Lateral Discectomy - A Comparative Study. *The Journal of Bone and Joint Surgery, Orthopaedic Transactions*, Vol. 8, No. 3 pp 408, Fall, 1984.
- Kambin, P.: Percutaneous Lateral Discectomy. *Journal of Orthopaedic Today*, February, 1985.
- Kambin, P., Sampson, S.: Posterolateral Percutaneous Suction-Excision of Herniated Lumbar Intervertebral Discs Report of Interim Results. *Clinical Orthopaedics and Related Research* Vol. 207 pp 37-43, June 1986.
- Kambin, P.: Bulging Annulus and Lumbar Radiculopathy. *Orthopaedic Transactions, The Journal of Bone and Joint Surgery*, Vol. II, No. 1, pp 23, Spring 1987.

Publications (Continued)

- Kambin, P. and Brager, M.D.: Percutaneous Posterolateral Discectomy Anatomy and Mechanism. *Clinical Orthopaedics and Related Research* No. 223, pp 145-154, October, 1987.
- Kambin, P.: Discectomie Percutanees Au Trocart. Abstract *Rhumato*, Vol. 23 pp 11, September/October, 1987.
- Kambin, P.: Percutaneous Lumbar Discectomy-Safe, Efficient, Effective. *Orthopaedics Today*, February 1988.
- Kambin, P., Nixon, J.E., Chait, A., and Schaffer, J.L.: Annular Protrusion: Pathophysiology and Roentgenographic Appearance. *Spine*, Vol. 13, No. 6, June 1988.
- Kambin, P.: Percutaneous Lumbar Discectomy (Triangular Working Zone): Current Practice. *Surgical Rounds for Orthopaedics*, pp 31-35, December, 1988.
- Kambin, P. and Schaffer, J.L.: Percutaneous Lumbar Discectomy Review of 100 Patients and Current Practice. *Clinical Orthopaedics and Related Research*, Vol. 238, pp 24-34, January, 1989.
- Kambin, P.: Histoire du Traitement Chirurgical des Hernies Discales Lombaires. *La Revue de Medecine Orthopedique*, No. 15, pp 7-8, March, 1989.
- Kambin, P.: La Discectomie Lombaire Percutanees, Une etude Prospective de 100 Malades. *La Revue de Medecine Orthopedique*, No. 15, pp 15-18, March, 1989.
- Schaffer, J.L. and Kambin, P.: Percutaneous Lumbar Discectomy: Analysis of Surgical Failures and Complications in 100 Consecutively Treated Patients. *Orthopaedic Transactions, The Journal of Bone and Joint Surgery* Vol. 13, No. 3, 1989.
- Kambin, P.: Incidence of Communications of Lumbar Disc with the Surrounding Neural Structures. *Orthopaedic Transactions, The Journal of Bone and Joint Surgery*, Vol. 13, No. 1, 1989.
- Kambin, P., MacMillan, J., and Schaffer, J.L.: Routes of Communication of Lumbar Intervertebral Discs with Surrounding Neural Structures. *Spine*, Vol. 16, No. 2 pp 167-171, 1991.
- Kambin, P.: Arthroscopic Microdiscectomy. *The Mount Sinai Journal of Medicine*, Vol. 58 No. 2, March 1991.
- Kambin, P.: Laser Assisted Arthroscopic Microdiscectomy. *Orthopedic and Sports Medicine News*, May, 1991.
- Schaffer, J.L. and Kambin, P.: Percutaneous Posterolateral Lumbar Discectomy and Decompression with a 6.9-Millimeter Cannula. *The Journal of Bone and Joint Surgery*, Vol. 73-A, No. 6, pp 822-831, July, 1991.
- Kambin, P.: Arthroscopic Microdiscectomy Laser Nucleolysis. *Philadelphia Medicine*, Vol. 87, No. 12, December, 1991.

Publications (Continued)

- Kambin, P.: Arthroscopic Microdiscectomy. *Arthroscopy: The Journal of Arthroscopic and Related Surgery*, Vol. 8 No. 3 pp 287-295, 1992.
- Kambin, P. and Schaffer, J.L.: Arthroscopic Microdiscectomy: Prospective outcome Analysis of 100 Consecutively treated Patients. *Orthopaedic Transactions, The Journal of Bone and Joint Surgery*, Vol. 16, No. 3, pp 618, Winter 1992-1993.
- Schaffer, J.L., Kambin P: Percutaneous Posterolateral Lumbar Discectomy and Decompression with a 6.9 Millimeter Cannula: Analysis of Operative failures and Complications. *The Year Book of Neurology and Neurosurgery*, pp 375-377, 1993.
- Kambin, P.: Arthroscopic Microdiscectomy: Laser Nuclear Ablation. *SPINE: State of the Arts Reviews*. Vol. 7, No. 1, pp 95-101, January 1993.
- Kambin, P.: Arthroscopic Microdiscectomy of the Lumbar Spine. *Clinics in Sports Medicine*, Vol. 12, No 1, January, 1993.
- Kambin, P, and Cohen L.F: Arthroscopic Microdiscectomy versus Nucleotomy Techniques. *Clinics in Sports Medicine*. Vol 12, No. 3, July 1993.
- Schaffer, JL, Kambin, P: Minimally invasive spine surgery. *Textbook of Rheumatology Update 9*, pp. 2-12. 1994.
- Parke, WW, Whalen, JL, Van Demark, RE, Kambin, P: The infra-aortic Arteries of the Spine: Their Variability and Clinical Significance. *SPINE* Vol. 19, No 1, pp 1-5, 1994.
- Kambin, P: Anterior Approach to the Cervical Disk with Bone Grafting. *The Mount Sinai Journal of Medicine* Vol. 61, No.3, pp 243-245, May, 1994.
- Kambin, P., Cohen, L., Brooks, M., and Schaffer, JL: Development of Degenerative Spondylosis of the Lumbar Spine after Partial Discectomy. *SPINE* Vol. 20, No.5 pp 599-607, March, 1995.
- Zhou, L., Kambin, P., Casey, KF, Bonner, FJ, O'Brien, E., Shao, Z., and Ou, S: Mechanism research of cryoanalgesia. *Neurological Research* Vol 17, pp 307-311, August, 1995.
- Schreck RI, Manion, WL, Kambin, P, Shon, M: Nucleus Pulposus Pulmonary Embolism. *SPINE* Vol. 20,, No. 22, pp 2463-2466, November 15, 1995.
- Kambin, P: Diagnostic and therapeutic spinal arthroscopy. *Neurosurgery Clinics of North America* Vol. 7, No. 1, January, 1996.
- Kambin, P., Casey, K., O'Brien, E., and Zhou, L: Transforaminal arthroscopic decompression of lateral recess stenosis. *J Neurosurg* 84: 462-467, 1996.
- Kambin P, Zhou, L: Arthroscopic discectomy. *Current Opinion in Orthopedics* 1996, 7:11:25-30.

Publications (Continued)

- Kambin, P, Zhou, L., History and Current Status of Percutaneous Arthroscopic Disc Surgery. Spine Vol. 21, No. 24S, 57S-61S, December 15, 1996.
- Andersson, GBJ, Brown, MD., Dvorak, J., Herzog, RJ., Kambin, P., Malter, A., McCulloch, JA., Saal JA., Spratt, KF., and Weinstein, JN., Consensus Summary on the Diagnosis and Treatment of Lumbar Disc Herniation, Spine Vol. 21, No 24S, pp 75S-78S, December 15, 1996.
- Kambin P, Zhou, L: Arthroscopic Discectomy of the Lumbar Spine. Clinical Orthopaedics and Related Research No. 337, 49-57, April, 1997.
- Onik, GM, Kambin, P, Chang, MK: Controversy Minimally Invasive Disc Surgery Nucleotomy Versus Fragmentectomy. Spine Vol.22, No 7 April 1, 1997.
- Quartararo, LG, Kambin, P, Berman, AT, Schwartz, DM, Ruggiero, RA, Scopp, JM: The Use of Neurophysiological Monitoring in Arthroscopic Lumbar Spine Surgery: A New Technique. ISMISS News, Fourth Issue, June 1997.
- Casey, KF, Chang, MK, O'Brien, ED, Yuan, HA, McCullen, GM, Schaffer J, Kambin, P: Arthroscopic Microdiscectomy: Comparison of Preoperative and Postoperative Imaging Studies. The Journal of Arthroscopic and Related Surgery, Vol 13, No. 4, August, 1997.
- Kambin P, Gennarelli T, and Hermantin,F: Minimally invasive techniques in spinal surgery: current practice. Neurosurgical Focus 4 (2): Article 8, 1998
- Kambin P, O'Brien E, Zhou L, and Schaffer JL: Arthroscopic Microdiscectomy and Selective Fragmentectomy. Clinical Orthopaedics and Related Research, Number 347, February 1998.
- Hadjipavlou AG, Kambin P, Lander PH, Crow WN, and Simmons, JW: Imaging guided minimally invasive surgery for low Back pain sciatica and spinal infection. Journal of Interventional Radiology, Vol. 14 1-22, 1999.
- Hermantin FU, Peters T, Quartararo L, and Kambin P: A Prospective, Randomized Study Comparing the Results of open Discectomy with Those of Video-Assisted Arthroscopic Microdiscectomy. The Journal of Bone and Joint Surgery, Vol. 81-A. No. 7, July 1999.
- Zhou L, Connors T, Chen DF, Murray M, Tessler A, Kambin P, and Saavedra RA: Red Nucleus neurons of Bcl-22 over-expressing mice and protected from cell death induced by axotomy. Molecular Neuroscience Neuro Report Vol 10 No 16 8 November, 1999.
- Kambin P and Savitz MH, Arthroscopic Microdiscectomy: An Alternative to Open disc Surgery. The Mount Sinai Journal of Medicine, Volume 67 No. 4, September, 2000.
- Kambin P, et al Arthroscopic Microdiscectomy, North American Spine Society, Contemporary Concepts in Spine Care, Originally Published: February, 1994,

Updated: September, 2001

Publications (Continued)

Kambin P, Evolving methodology in arthroscopic and endoscopic spinal surgery. *Rachis Revue De Pathologie Vertebrale*, Vol. 14 No 6, December, 2002.

Textbooks

Kambin, P.: Chapter-Percutaneous Lumbar Discectomy. *Interventional Radiology in Bone and Joint*, Springer-Verlag Publishing Co. Michel Bard, Jean-/debus Karedi (eds.) 1987, pp 133-139.

Kambin, P.: Chapter-History of Surgical Treatment of Herniated Lumbar Discs. *Percutaneous Lumbar Discectomy*, Springer-Verlag Co., Editors, H. Michael Mayer, M.D. and Mario Brock, Professor of Neurosurgery, University of Berlin, pp 3-6, 1989.

Kambin, P.: Chapter-Percutaneous Lumbar Discectomy-Indication, Technique and Results. *Percutaneous Lumbar Discectomy*, Springer-Verlag Co., Editors H. Michael Mayer, M.D. and Mario Brock, Professor of Neurosurgery, University of Berlin, pp 87-93, 1989.

Kambin, P.: Editor-Arthroscopic Microdiscectomy, Minimal Intervention in Spinal Surgery, Urban Schwarzenberg Medical Publishers, Inc. (Williams & Wilkins), 1990.

Kambin, P.: Guest Editor-Arthroscopic Microdiscectomy. *Seminars in Orthopaedics*, W. B. Saunders Company, June, 1991.

Kambin, P.: Chapter-Arthroscopic Microdiscectomy of the Lumbar Spine. *Clinics in Sports Medicine*, W.B. Saunders Company, Guest Editors, Vincent DiStefano, M.D. and Frederick C. Balduini, M.D., pp 143-150, 1993.

Kambin, P.: Chapter 71: Selection of Surgical Treatment by Analysis of Pain Generators. Chapter 73: Arthroscopic Microdiscectomy Lumbar and Thoracic. Chapter 77: Arthroscopic Lumbar Interbody Fusion. *Spine Care Volume Two*, V.C.Mosby, Editor Arthur H. White, M.D., Associate Editor Jerome A. Schofferman, M.D. 1995.

Guyer, RD, and Kambin, P.: Arthroscopic microdiscectomy: Posterolateral approach in Regan, JJ, McAfee, PC, Mack, MJ (eds): *Atlas of Endoscopic Spine Surgery*. St. Louis, Quality Medical Publishing, Inc., 1995.

Kambin, P: Chapter 88, *Gross and Arthroscopic Anatomy of the Lumbar Spine*. Chapter 89, *Arthroscopic Techniques for Spinal Surgery*. Chapter 90, *Arthroscopic Treatment of Spinal Pathology* McGinty, JB (ed. in chief), Caspari, RB, Jackson, RW, Poehling, GG (Sec. Eds) *Operative Arthroscopy*. New York, Raven Press, 1995.

Kambin, P: The Role of Minimally Invasive Surgery in Spinal Disorders. Stauffer, RN (ed-in-chief) Erlich MG, Fu, FH, Kostuik JP, Manske, PR and Sim, FH (assoc. eds): *Advances in Operative Orthopaedics Vol. 3*. St. Louis,

Mosby-Year Book, Inc. 1995.

Textbooks (Continued)

- Regan, JJ (moderator), Kambin P, Mathews, HH and Yuan, HA (panelists)
Endoscopic Spine Surgery. Hadley MN (editor), Batjer III HH, Black
KL, Dacey RG, Guthrie BL, Heros RC, Laws ER, Mayberg MR and Selman
WR, (editorial board) Perspectives in Neurological Surgery Vol. 6 No. 2
St. Louis, Quality medical Publishing, Inc. 1995.
- Parke WW, Whalen JL, Van Demark RE, Kambin P: The Infra-Aortic Arteries of
the Spine: Their Variability and Clinical Significance. 1995 Yearbook of
Neuroradiology.
- Schaffer, JL, Kambin, P: Arthroscopic Fusion of the Lumbosacral Spine.
Margulies, JY, Floman, Y, Farcy, JP C, Neuwirth, MG: (editors):
Lumbosacral and Spinopelvic Fixation. Hagerstown, MD, Lippincott-
Raven Publishers, May, 1996.
- Kambin, P: Chapter 94 Arthroscopic Microdiscectomy.
Chapter 95 Arthroscopic Lumbar Intervertebral Fusion in
Frymoyer, J (ed-in-chief) Ducker T, Hadler N, Kostuik J, Weinstein J,
Whitecloud III T, (assoc. eds): The Adult Spine Principles and
Practice Second Edition. New York, Raven Press, July, 1996.
- Kambin, P: Section I, Chapter 10, Minimally Invasive Arthroscopic
Treatment of Painful Disorders of the Lumbar Spine: Arthroscopic
Lumbar Disk Surgery. American Academy of Orthopaedic Surgeons, Low
Back Pain A Scientific and Clinical Overview. Editors James N.
Weinstein, DO, MS and Stephen L. Gordon, Ph.D, 1997.
- Kambin P, McCullen G, Parke W, Regan JJ, Schaffer JL, & Yuan, H: Chapter
12, Minimally Invasive Arthroscopic Spinal Surgery. Instructional
Course Lectures, American Academy of Orthopaedic Surgeons. Dempsey S.
Springfield, M.D., Editor. Volume 46 1997.
- Schaffer J, and Kambin, P: Section 3, Chapter 27 (725-737) Minimally
Invasive Spine Surgery. Rothman-Simeone (ed-in-chiefs) H.N. Herkowitz,
S.R. Garfin, R.A. Balderston, F.J. Eismont, G.R. Bell, and S.M. Wiesel
(assoc. eds.): The Spine, Fourth Edition. Philadelphia, W.B. Saunders
Company, 1999.
- Kambin P, and Chang MK: Section VII, Chapter 43 (589-600) Anterior Column
Support for Failed Fusion. Joseph Y. Margulies, MD, Ph.D., Max Aebi, MD, and
Jean-Pierre C. Farcy, MD (ed-in-chiefs): Revision Spine Surgery, Mosby
Inc., St. Louis Missouri, 1999.
- Kambin P: Chapter 15 (228-237) Operative Spine Surgery, (edited by)
William C. Welch, George B. Jacobs, and Roger P. Jackson, Appleton & Lange
A Simon & Schuster Company, 1999.
- Casey KF, Kambin P, and Chang M: Volume VIII (209-216) Neurosurgical
Operative Atlas Volume I-VIII, AANS Publications Committee, Setti S.
Rengachary and Robert H. Wilkins, Editors, The American Association of
Neurological Surgeons, 1999.

Textbooks (Continued)

Kambin P: Chapter 19 (187-199) Arthroscopic Microdiscectomy, (edited by) H.M. Mayer, Springer-Verlag Berlin Heidelberg NY, 2000.

Kambin P. & Savitz MH: Chapter 11 (105-114) The Advent of Arthroscopic Microdiscectomy, The Practice of Minimally Invasive Spinal Technique, Savitz MH, Chiu JC, and Yeung AT (editors) CSS Lima, Ohio, 2000.

Kambin P. Editor Arthroscopic and Endoscopic Spinal Surgery Minimal Intervention in Spinal Surgery Text and Atlas Second Edition, Humana Press, 2005.

Kambin P. & Savitz MH. Chapter 52 (394-401) Advent of Arthroscopic Microdiscectomy, Paactice of Minimally Invasive Spinal Technique, Savitz MH, Chiu JC, Rauschnig, W, and Yeung AT (Editors-in-Chief) AAMISS Press, New City, New York, 2005.

Kambin P. The Practice of Minimally Invasive Spinal Technique, Hall of Fame (581). AAMISS Press, New City, New York, 2005.

Kambin P. Chapter 111 (816-825) Arthroscopic and Endoscopic Microdiscectomy via Posterolateral Access, Atlas of Neurosurgical Techniques Spine and Peripheral Nerves, Fessler RG and Sekhar L (Editors), Thieme Medical Publishers, Ny, NY, 2006.

Kambin P. Chapter 17, (263-271) History of Minimally Invasive Spine Surgery, Emerging Spine Surgery Technologies Evidence and Framework for Evaluating New Technology, Edited by, Corbin TP, Connolly PJ, Yuan HA, Bao QB, and Boden SD, Quality Medical Publishing, Inc., St. Louis, MO, 2006.

Presentations, Symposiums & Work Shops

Kambin, P.: Comparative Value of Electromyography and Myelography in Lumbar Disc Disease. Annual Meeting of the American Congress of Physical Medicine and Rehabilitation, 1963.

Kambin, P.: Stress Fracture. American Fracture Association, November 13, 1963.

Kambin, P.: Cervical Disc Syndrome, Scientific Exhibit, Annual Meeting of the AAOS, March, 1975.

Kambin, P., Ignatius, P.: Surgery for Metatarsalgia, Scientific Exhibit. Annual Meeting of the AAOS, February, 1976

Kambin, P.: Load Resistance of Intervertebral Disc. Annual Meeting AAOS, February, 1978.

Kambin, P.: Chairman and Course Director, Symposium-Surgical Management of Herniated Lumbar Disc, The Graduate Hospital, Phila., Pa., March 5, 1983.

CURRICULUM VITAE

PARVIZ KAMBIN, M.D.

Kambin, P.: Percutaneous Lateral Discectomy. Orthopaedic Alumni Association, University of Pennsylvania School of Medicine, April 29, 1983.

Presentations, Symposiums & Work Shops (Continued)

Kambin, P.: Percutaneous Lateral Discectomy of the Lumbar Spine, Scientific Exhibit. Annual Meeting of the AAOS, February, 1984.

Kambin, P.: Laminectomy Versus Percutaneous Lateral Discectomy - A Comparative Study, Scientific Program, Annual Meeting of the AAOS Meeting, February, 1984.

Kambin, P.: Posterolateral Decompression and Discectomy, Scientific Exhibit. Societe Internationale de Chirurgie Orthopedique et de Traumatologie (SICOT), London, England September, 1984.

Kambin, P.: A New Approach to Lumbar Discectomy. American Academy of Neurological and Orthopaedic Surgeons, Las Vegas, Nevada, October, 1984.

Kambin, P.: Chairman and Course Director, International Symposium- Percutaneous Lateral Discectomy, The Graduate Hospital, Philadelphia, Pa., December 29, 1984.

Kambin, P.: Herniated Lumbar Disc and Its Management by Percutaneous Lateral Discectomy. Rehabilitation Conference, Philadelphia, Pa., October 23, 1985.

Kambin, P.: Percutaneous Posterior Lateral Discectomy - Anatomy and Mechanism. The Federation of Spine Association Meeting, New Orleans, Louisiana, February 20, 1986.

Kambin, P.: Chairman of Workshop and Symposium- Percutaneous Nucleotomy. International College of Surgeons, Las Vegas, Nevada, March 22, 1986.

Kambin, P.: Percutaneous Lateral Discectomy Advantages and its Potential Pitfalls. International College of Surgeons Meeting, Las Vegas, Nevada, March 21, 1986.

Kambin, P.: Anterior Cervical Stabilization Indications and Technique. International College of Surgeons Meeting, Las Vegas, Nevada, March 22, 1986.

Kambin, P., Nixon, J.E., and Chait, A.: Bulging Annulus and Lumbar Radiculopathy. First Annual Meeting of the North American Spine Society Meeting, Bolton Landing, N.Y., July 22, 1986.

Kambin, P.: Percutaneous Posterolateral Discectomy: Mechanism and Anatomy. First Annual Meeting of the North American Spine Society Meeting, Bolton Landing, N.Y., July 23, 1986.

Kambin, P., Nixon, J.E., and Chait, A.: Annular Protrusion,

Pathophysiology and Its Roentgenographic Appearance, Scientific Program, Annual AAOS Meeting San Francisco, CA, January 25, 1987.

Presentations, Symposiums & Work Shops (Continued)

Kambin, P., Nixon, J.E., and Chait, A.: Annular Protrusion, Pathophysiology and Its roentgenographic Appearance, Poster Exhibit. Annual AAOS Meeting, San Francisco, CA. January 26, 1987.

Kambin, P.: Chairman and Course Director-International Symposium and Workshop, Percutaneous Lumbar Discectomy for Orthopaedic and Neurological Surgeons, 11 Hours C.M.E. Credit, The Graduate Hospital, Philadelphia, Pa. March 13-14, 1987.

Kambin, P.: Percutaneous Lumbar Discectomy Historical Data and Mechanism of Pain Relief. Alumni Meeting of The University of Pennsylvania Orthopaedic Surgeons, May 2, 1987.

Kambin, P.: Chairman and Course Director-International Symposium and Workshop for Orthopaedic and Neurological Surgeons- Percutaneous Lumbar Discectomy, The Graduate Hospital, Philadelphia, Pa., November 6-7, 1987.

Kambin, P., MacMillan, J., and Schaffer, J.L.: Routes and Incidence of Communication of Lumbar Disc with the Surrounding Neural Structures. North American Spine Society Meeting, Colorado Springs, Colorado, July 25, 1988.

Kambin, P.: Chairman and Course Director-International Symposium and Workshop-Percutaneous Lumbar Discectomy. The Graduate Hospital, Philadelphia, Pa., 11.5 C.M.E. Credit hours, October 28-29, 1988.

Kambin, P., and Schaffer, J.L.: Posterolateral Lumbar Discectomy: analysis of Surgical Failures and Complications of 100 Consecutively Treated Patients, Scientific Program, Annual Meeting AAOS, February 13, 1989.

Kambin, P.: Chairman and Course Director-International Symposium and Workshop for Orthopaedic and Neurological Surgeons, 11 Hours C.M.E. Credit hours, The Graduate Hospital, Philadelphia, Pa. October 27-28, 1989.

Kambin, P.: Arthroscopic Microdiscectomy Instructional Course No. 3, North American Spine Society Meeting, Monterey, CA., August 10, 1990.

Kambin, P.: Chairman and Course Director-International Symposium and Workshop for Orthopaedic and Neurological Surgeons, Arthroscopic Microdiscectomy of the Lumbar Spine, The Graduate Hospital, Philadelphia, Pa., 10.5 C.M.E. Credit, November 16-17, 1990.

Kambin, P.: Chairman and Course Director-International Symposium and workshop for Orthopaedic and Neurological Surgeons, Arthroscopic

CURRICULUM VITAE

PARVIZ KAMBIN, M.D.

Microdiscectomy of the Lumbar Spine, Graduate Hospital, 16 C.M.E.
Credit Hours, November 1-2, 1991.

Presentations, Symposiums & Work Shops (Continued)

Kambin, P.: Percutaneous Segmental Stabilization in situ and with Pedicular Screws and Subcutaneous Fixators, Symposium, The Graduate Hospital, Philadelphia, Pa. November 1, 1991.

Kambin, P.: Laser Assisted Arthroscopic Microdiscectomy, Symposium The Graduate Hospital, Philadelphia, Pa. November 1, 1991.

Kambin, P. and Schaffer, J.L.: Arthroscopic Microdiscectomy: Prospective Outcome Analysis of 100 Consecutively Treated Patients, Annual Meeting AAOS, Scientific Program, Washington, D.C., February 20, 1992.

Kambin, P., Schreiber, A., and Shepperd, J.A.N.: Scientific Exhibit for the International Society for Minimal Intervention in Spinal Surgery, Annual Meeting AAOS, Washington, D.C., February 20-25, 1992.

Kambin, P., and Schaffer, J.L.: Prospective Outcome Analysis of Uniportal Arthroscopic Microdiscectomy, International Society for the Study of the Lumbar Spine, Chicago, Illinois, May, 1992

Kambin, P. and Schaffer, J.L.: Analysis of Operative Successes, Failures and Complications in 100 Patients Treated by Arthroscopic Microdiscectomy, Annual North American Spine Society Meeting, Boston, MA, July 9-11, 1992.

Kambin, P., Schaffer, J.L., Brooks, M.L. and Cohen, L.: Comparative Incidence of Degenerative Spondylosis of Lumbar Spine Following Partial Discectomy: Laminectomy and Discectomy vs. Posterolateral Discectomy, Annual North American Spine Society Meeting, Boston, MA., July 9-11, 1992.

Kambin, P.: Chairman and Course Director-International Symposium and Workshop, Arthroscopic Microdiscectomy of the Lumbar Spine, The Wigwam Resort Litchfield Park, Arizona, 16 C.M.E. Credit hours, November 6-7, 1992.

Kambin, P.: Subcutaneous Removable Pedicular Bolt and Plate Fixation, Symposium, The Wigwam Resort, Litchfield Park, Arizona, November 7, 1992.

Kambin, P.: Use of Pedicular Targeting Jig in Minimal Invasive Spine Surgery, Symposium, The Wigwam Resort, Litchfield Park, Arizona, November 5, 1992.

Kambin, P.: Use and Abuse of Laser in Minimal Intervention Spinal Surgery, Symposium, The Wigwam Resort, Litchfield Park, Arizona, November 6, 1992.

Kambin, P., Schreiber, A., Leu, H., Schaffer, J.L., Shepperd, J.A.N., and Cohen, L. Scientific Exhibit, International Society of Minimal Intervention

in Spinal Surgery, Annual AAOS Meeting, San Francisco, CA. February 18-22, 1993.

Presentations, Symposiums & Work Shops (Continued)

- Kambin, P.: Chairman and Course Director, 8th International Symposium and Workshop on Minimal Intervention in Spinal Surgery, The Graduate Hospital, Philadelphia, Pa., November 5-6, 1993, 12.5 credit hours in Category 1.
- Kambin, P.: Arthroscopic Visualization and Magnification: The Cornerstone of Minimally Invasive Techniques in Spinal Surgery. 8th International Symposium on Minimal Intervention in Spinal Surgery, The Graduate Hospital, Philadelphia, Pa., November 5-6, 1993.
- Kambin, P.: Role of Laser in Lumbar Disc Surgery and Spine Stabilization. 8th International Symposium on Minimal Intervention in Spinal Surgery, The Graduate Hospital, Philadelphia, Pa. November 5-6, 1993.
- Kambin, P.: North American Spine Society 9th Annual Meeting, Minneapolis, Minnesota, October 19-22, 1994. Arthroscopic Lumbar Microdiscectomy, Intra and Post Operative Imaging Studies. Symposium II-Minimally Invasive Spine Surgery, October 21, 1994.
- Kambin, P.: 9th International Symposium on Minimal Intervention in Spinal Surgery, The Graduate Hospital, Phila.,PA. Course Director, "Role of Fluid Management and Arthroscopic Visualization in Minimally Invasive Spinal Surgery", "Principle of Arthroscopic Disc Surgery, Surgical Approaches", "Arthroscopic Lumbar Interbody Fusion Augmented with Removable Pedicular Bolts and Subcutaneous Plates", November 5 & 5, 1994.
- Kambin, P., O'Brien, E., Zhou, L., and Schaffer JL: A Prospective Outcome Analysis Posterolateral Arthroscopic Lumbar Fragmentectomy and Discectomy. Scientific Program, 62nd Annual Meeting American Academy of Orthopaedic Surgeons, Orlando, Florida, February 20, 1995.
- Kambin, P., Cochairman, 10th International Symposium sponsored by University of Minnesota, Abbott Northwestern Hospital under the Auspices of ISMISS-SICOT. Role of Fluid Management in Arthroscopic Visualization. Diagnostic Spinal Arthroscopy. Arthroscopic Intradiscal and Extraannular Fragmentectomy (Surgical Technique). Arthroscopic Lumbar Interbody Fusion Augmented with Pedicular Bolts and Subcutaneous Plates(Schaffer & Kambin), Mineapolis, Minnesota, October 6 & &, 1995.
- Kambin, P., Casey, K., O'Brien, E., Zhou, L: Transforaminal Arthroscopic Decompression of Lateral Recess Stenosis. 10th Annual Conference

CURRICULUM VITAE

PARVIZ KAMBIN, M.D.

North American Spine Society, Washington, D.C., October 20, 1995.

O'Brien, E., Casey, K.E., McCullen, G.M., Fredrickson, B.E., Yuan H.A., Zhou, L, Brooks, M., Kambin, P: Arthroscopic Microdiscectomy: Post-Operative Imaging Study. 10th Annual Conference North American Spine Society, Washington, D.C., October 21, 1995.

Presentations, Symposiums & Work Shops (Continued)

Kambin, P. (Moderator) Parke, W, Regan, JJ, Schaffer JL, Yuan, HA: Instructional Course, Minimally Invasive Arthroscopic Spinal Surgery, American Academy of Orthopaedic Surgeons, Annual Meeting, Atlanta, Georgia, February 24, 1996.

Kambin P., Course Director, Arthroscopic Microdiscectomy and hands-on workshop, Medical College of Pennsylvania and Hahnemann University, April 13, 1996. (8.0 Credit hours)

Kambin P., Status of Arthroscopic Microdiscectomy. 11th Annual Conference North American Spine Society. Vancouver, B.C., Canada October 26, 1996.

Kambin P., Course Director, New Horizons in Spinal Surgery Minimally Invasive Spinal Surgery: Less is More, MCP & Hahnemann School of Medicine, Dept. of Orthopaedic Surgery and Office of Continuing Medical Education and The International Society for Minimal Intervention in Spinal Surgery (ISMIS) Philadelphia, November 1 & 2, 1996. (15.0 Credit hours)

Kambin, P, M.D. Delamarter, RB., Schaffer, JL., McCulloch, JA (moderator) Instructional Course and demonstration, Microdiscectomy or video assisted arthroscopic discectomy for the lumbar disc herniation, American Academy of Orthopaedic Surgery, 64th Annual Meeting, San Francisco, CA, February 14, 1997.

Quartararo, LG., Kambin, P., Schwartz DM., Ruggiero RA., Scopp, JM. The Use of Intraoperative Neurophysiological Monitoring in Arthroscopic Lumbar Spine Surgery: A New Technique, Scientific exhibit, American Academy of Orthopaedic Surgery, 64th Annual Meeting, San Francisco, CA February 13-17, 1997.

Kambin, P: Course Director, 12th International Symposium on Minimal Intervention in Spinal Surgery. Allegheny University of the Health Sciences, MCP-Hahnemann University School of Medicine, Spine and Diagnostic and Treatment Center Dept. of Orthopaedic Surgery and Office of Continuing Medical Education and the International Society for Minimal Intervention in Spinal Surgery (ISMIS) Philadelphia, PA November 21, 22, 23, 1997 (20 hours CME Category 1)

Hermantin FU, Quartararo L, Peters T, and Kambin, P: A Prospective, Randomized Study Comparing the Results of Open Discectomy Versus Video-Assisted Microdiscectomy. Scientific Program, American Academy of Orthopaedic Surgeons 65th Annual Meeting, New Orleans, March 23, 1998.

Hermantin FU, Kambin P, Berman AT, Peters T, Quartararo L: A Prospective, Randomized Study Comparing the Results of Open Discectomy Versus Video Assisted Microdiscectomy. Scientific Exhibits, American Academy of Orthopaedic Surgeons 65th Annual Meeting, New Orleans, March 19-23, 1998.

Presentations, Symposiums & Work Shops (Continued)

Kambin P, Delamarter, RB, Watkins, RG, and McCulloch,JA (moderator)
Instructional Course Least Invasive Spine Surgery Options for the Degenerative Lumbar Spine. American Academy of Orthopaed Surgeons 66th Annual Meeting, Anaheim, CA February 4-8, 1999.

Audio-Visual Scientific Programs

Kambin P, Course Director, 14th International Symposium on Arthroscopic and Endoscopic Spinal Surgery. MCP Hahnemann School of Medicine, Graduate Hospital's Department of Orthopaedic Surgery and The International Society for Minimal Intervention in Spinal Surgery, Philadelphia, PA May 5-6, 2000.

Percutaneous Lumbar Discectomy - Educational Video Tape, American Academy of Orthopaedic Surgeons, Cat. #29-028.

Percutaneous Lumbar Discectomy By invitation of the Orthopaedic Audio-Synopsis Foundation, Vol. 19, No. 10, 1988 - Continuing Education in Orthopaedic Surgery.

Medical Outlook for Orthopaedic Surgeons by invitation of the Orthopaedic Audio Synopsis Foundation, Vol 5, No. 2, 1989 - Continuing Education in Orthopaedic Surgery.

Arthroscopic Microdiscectomy, Video/Interactive Presentation, A.A.O.S., March, 7-12, 1991, Anaheim, CA.

Lectures by Invitation

October 22-23, 1987, Lumbar Disc Surgery, Balgrist Orthopaedic Hospital, University of Zurich, School of Medicine, Zurich, Switzerland.

March 3-5, 1988, Percutaneous Lumbar Discectomy Review of One Hundred Patients, The Centre Hospitalier General De Blois, Blois, France.

May 12-14, 1988, Management of Herniated Lumbar Discs, The American Back Society Meeting, Orlando Florida.

August 11-12, 1988, The History of Disc Surgery, and Percutaneous Lumbar Discectomy-Indication, Technique and Results, University of Berlin, Berlin, Germany.

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PARVIZ KAMBIN, M.D.

March 17-18, 1989, Posterolateral Suction, Excision of Herniated Lumbar Discs, Current Practice, Brussels, Belgium.

April 14-15, 1989, Ten Years Experience with Posterolateral Discectomy and Decompression, The American Back Society, Cambridge, MA.

Lectures by Invitation (Continued)

April 27, 1989, Posterolateral Discectomy Manual Versus Automated Instrumentation, Workshop and Teaching Session, International College of Surgeons Meeting, San Francisco, CA.

June 14, 1989, Posterolateral Lumbar Discectomy, Didactic Operating Room Presentation with closed circuit television, One Day Symposium, University of Milan, Department of Orthopaedic Surgery, Milan, Italy.

June 15-16, 1989, Conception, Evolutions and Experience with Percutaneous Posterolateral Discectomy, Balgrist Orthopaedic Hospital, University of Zurich, School of Medicine, Zurich, Switzerland.

October 15-20, 1989 Percutaneous Lumbar Discectomy, Current Practice, Annual Meeting of The American College of Surgeons, Atlanta, Georgia.

November 4, 1989, Percutaneous Arthroscopic Microdiscectomy, Kaiser Permanente, Orthopaedic Symposium and Workshop, Advances in Lumbar spine, Newport Beach, CA.

November 9-10, 1989, Percutaneous Arthroscopic Microdiscectomy Laser Nuclear Ablation, University of Berlin, Department of Neurosurgery, Berlin, Germany.

January 12-14, 1990, Combined Manual and Automated Method of Percutaneous Discectomy, Meeting of Spinal Disorders, Boca Raton, Florida.

May 4, 1990, Arthroscopic Microdiscectomy, Laser Nuclear Ablation, The American Back Society, Chicago, Illinois

May 5, 1990, Arthroscopic Microdiscectomy Development, Evolution and Current Practice, Meeting of The International College of Surgeons, A symposium on Recent Developments in spinal Instrumentation and Disc Surgery, San Antonio, Texas.

June 21-22, 1990, Percutaneous Nucleotomy: Experience since 1973, Recent Advancements and Current Trends in the United States, International Symposium and Workshop, Orthopaedic University Balgrist, University of Zurich, School of Medicine, Zurich Switzerland.

November 2, 1990, Clinical Significance and Potential Complications Associated with the Extravasation of Therapeutic and Diagnostic Agents Injected into Intervertebral Discs, Society for Back Pain Research, 38th Scientific Meeting, Regent's College, London, England.

November 3, 1990, Percutaneous Arthroscopic Microdiscectomy, 2nd British Course for Minimal Intervention Surgery to the Lumbar Disc, Royal College

of Surgeons, London, England.

April 26, 1991, Arthroscopic Microdiscectomy, Laser Nuclear Oblation, Extra-Articular Endoscopy Instructional Course, Arthroscopy Association of North America, San Diego, CA.

Lectures by Invitation (Continued)

June 7-8, 1991, 1st Italian/Swiss Course for Vertebral Surgery, under the auspices of International Society for Minimal Intervention in Spinal Surgery, Chairman and Moderator, (1) Microlumbar Disc Excision under Discoscopy through Posterolateral Approach, (2) Endoscopic Laser Nucleolysis vs. Blind Nuclear Ablation.

June 27-28, 1991, Endoscopic Spine Surgery, Past and Future, 9th Course for Percutaneous Intervertebral Surgery with Discoscopy, under the auspices of ISMISS/SICOT, Balgrist Orthopaedic Hospital, University of Zurich School of Medicine, Zurich Switzerland.

April 29, 1992, Posterolateral discectomy vs. Nucleotomy, Robert Wood Johnson University Hospital.

May 15-16, 1992, Arthroscopic Microdiscectomy, Philadelphia Technique, Third British Course on Percutaneous and Minimal Intervention Surgery to the Lumbar Spine, Royal Society of Medicine, London, England.

May 18, 1992, Minimal Intervention Techniques in Spinal Surgery, University of Oslo, Norway.

May 22, 1992, Arthroscopic Microdiscectomy-Operative Technique and Indication, Preston Health Authority, Royal Preston Hospital, Preston, England.

July 4-11, 1992, Comparative Incidence of Degenerative Spondylosis of the Lumbar Spine following Open Posteromedial Discectomy & Percutaneous Posterolateral Discectomy, Coolum Sunshine Coast, QLD, Australia, Robin J.E.D. Higgs, M.D. Course Chairman, Concord Hospital, Concord, N.S.W., Australia.

July 4-11, 1992, Arthroscopic Microdiscectomy vs. Percutaneous Nucleotomy, Coolum Sunshine Coast, QLD, Australia, Robin J.E.D. Higgs, M.D., Course Chairman, Concord Hospital, Concord, N.S.W. Australia.

October 3-4, 1992, Arthroscopic Microdiscectomy vs. Percutaneous Nucleotomy, Second Annual East Coast Back Symposium, Boston, MA.

April 2, 1993, Endoscopic Disc Surgery Techniques. Pennsylvania Neurolosurgical Society Meeting, Philadelphia, Pa.

April 22, 1993, Minimally Invasive Surgery, Arthroscopic Microdiscectomy. Back Pain '93, New Orleans, Louisiana,

June 13, 1993, Arthroscopic Microdiscectomy. IV Instructional Course, The

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Lumbar Spine: State of the Art. Rome, Italy.

August 24, 1993, Anterior Cervical Fusion using vertical self-locking T-graft. SICOT Pre-Congress/TOA Meeting, Bangkok, Thailand.

August 24, 1993, Chairman-Session of free papers. SICOT Pre-Congress/TOA Meeting, Bangkok, Thailand.

Lectures by Invitation (Continued)

August 24, 1993, Evolution and experience with percutaneous posterolateral discectomy. SICOT Pre-Congress/TOA Meeting, Bangkok, Thailand.

August 24, 1993, Arthroscopic microdiscectomy with and without laser assisting. SICOT Pre-Congress/TOA Meeting, Bangkok, Thailand.

August 31, 1993, Co-Chairman, Free Paper Percutaneous Discectomy, SICOT 93, Seoul Korea.

September 3, 1993 Chairman, symposium for the International Society for Minimal Intervention in Spinal Surgery (ISMIS)

September 3, 1993, Arthroscopic microdiscectomy, Nucleotomy or Targeted Posterior Fragmentectomy. SICOT/ISMIS 93, Seoul Korea.

September 3, 1993, Arthroscopic arthrodesis of the lumbar spine. SICOT/ISMIS 93, Seoul, Korea.

November 12, 1993, Endoscopic and Percutaneous Techniques. The Fifth Pan-Philadelphia Neurosurgery Conference: The Management of Disorders of the Spine, Philadelphia, Pa.

December 2, 1993, Principles and experiences in monoportal arthroscopic microdiscectomy, Endoscopic Interlamina access to Sequestered Disc Herniation. 12th Course for Percutaneous Endoscopic Spinal Surgery. Orthopaedic University Clinic Balgrist, Zurich, Switzerland.

December 3, 1993, Arthroscopic Arthrodesis of the lumbar spine. 12th Course for Percutaneous Endoscopic Spinal Surgery. Orthopaedic University Clinic Balgrist, Zurich, Switzerland.

May 18, 1994, Percutaneous Arthroscopic Discectomy: Patient Selection, Methods and Results. Intradiscal Therapy Workshop, 7th Annual Meeting. Aberdeen, Scotland.

May 21, 1994, Arthroscopic Discectomy. 7th Annual Meeting International Intradiscal Therapy Society, Aberdeen, Scotland.

June 17, 1994, Arthroscopic Disc Surgery, Second Annual Musculoskeletal and Sports Rehabilitation Focus: Management of Lumbar Disc Disease. Secaucus, New Jersey.

July 7, 1994, Minimally Invasive Surgery-Indications and Patient Selection,

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PARVIZ KAMBIN, M.D.

Spine Challenge Meeting, Toronto, Ontario, Canada.

July 8, 1994, Localization of Level-MRI Facet Blocks-Discograms, Spine Challenge Meeting, Toronto, Ontario, Canada.

Lectures by Invitation (Continued)

September 9, 1994, J.L. Schaffer & P. Kambin, Minimally Invasive Segmental Stabilization of Lumbar Motion Segments: Comparison of Subcutaneous and Deep Conventional Plate Placement. European Spine Society 5th Annual Meeting, Madrid, Spain.

November 16, 1994 Arthroscopic Microdiscectomy, XXIX World Congress of the International College of Surgeons, London, England.

November 18, 1994 1. Arthroscopic Microdiscectomy, 2. Least Invasive Fusion. Fourth British Course on Percutaneous and Minimal Intervention Surgery to the Lumbar Disc, Royal Society of Medicine, London, England.

February 15, 1995 Arthroscopic Microdiscectomy of the Lumbar Spine from Nucleotomy to Targeted Fragmentectomy, Twenty Years Experience. 11th Annual Meeting Joint Section on Disorder of the Spine and Peripheral Nerves, A Joint Section of the American Association of Neurological Surgeons and Congress of Neurological Surgeons. Phoenix, Arizona.

February 17, 1995 The Outlook for Minimally Invasive Spinal Surgery. Medical Data International, Trends & Opportunities in the Musculoskeletal Marketplace, Orlando, Florida.

February 24, 1995 Visiting Professor and guest lecturer, University of Virginia, Department of Neurological Surgery, Charlottesville, VA.

March 15, 1995 Visiting Professor and guest lecturer at Grand Rounds, Brown University School of Medicine, Providence, Rhode Island.

March 23, 1995 Presentation and workshop, Arthroscopic Microdiscectomy, Department of Orthopaedic Surgery, Catholic Medical College Kangnam St. Mary's Hospital, Seoul, Korea.

March 24, 1995 Arthroscopy Microdiscectomy. Arthroscopic Lumbar Fusion (ALF) augmented with removable pedicular bolts and subcutaneous plates. International Symposium: Current Topics on Spinal Surgery. The Research Institute of Clinical Medicine Chonnam University Hospital Kwangju, Korea.

March 25, 1995 Presentation and workshop, Arthroscopic Microdiscectomy, Department of Neurosurgery, Catholic Medical College Kangnam St. Mary's Hospital, Seoul, Korea.

March 27, 1995 Presentation and workshop, Arthroscopic Microdiscectomy, Department of Orthopaedic Surgery, School of Medicine, Chiba University, Chiba, Japan.

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PARVIZ KAMBIN, M.D.

April 29, 1995 1. Arthroscopic Visualization and Magnification: The Cornerstone of Minimally Invasive Techniques in Spinal Surgery. 2. Arthroscopic Microdiscectomy Techniques and How to Prevent Neural Injury- Unilateral and Biportal Approaches. St. Luke's Episcopal Hospital 31st Annual Orthopaedic Symposium, Houston, Texas

May 26, 1995 1. Posterolateral Intradiscal and Extra-Annular Access to the Spinal Canal for Extraction of Herniated Disc Fragments. 2. Arthroscopic Lumbar Fusion (ALF) Augmented with Removable Pedicular Bolts and Subcutaneous Plates. The 13th Annual G.W.N. Eggers Lectureship, The University of Texas Medical Branch Orthopedic Alumni, Current Concepts on Surgery of the Spine, Galveston, Texas

December 8-9, 1995 1. Vertebral Body Infection. 2. Percutaneous Fusions. Anterior Column Support of the Thoracolumbar Spine. New York, New York.

June 15-17, 1995 7th Annual International Spine Workshop, Spinal Research and Education Foundation and The Uniformed Services University of the Health Sciences in conjunction with Walter Reed Army Medical, Washington, D.C., Bethesda National Naval Medical Center, Bethesda, MD, North American Spine Society, Rosemont, IL. Session Chairman, Minimally Invasive/Endoscopy Program, Lectures and Workshop, Bethesda, MD.

June 18, 1995 Joint International Congress on Minimally Invasive Techniques in Neurosurgery and Otolaryngology. Arthroscopic Microdiscectomy of the Lumbar Spine from Nucleotomy to Targeted Fragmentectomy: Twenty Years Experience. Pittsburgh, PA.

September 22-23, 1995 4th International Symposium: New Developments in Spine Surgery and Low Back Treatment. Arthroscopic Lumbar Fusion augmented with Removable Pedicular Bolts and Subcutaneous Plates. Intradiscal and Extra Annular Access to the Spinal Canal (Indications and Techniques), Munich, Germany.

October 15, 1995 Congress of Neurological Surgeons 45th Annual Meeting. Faculty member, instructional course- Percutaneous Spinal Techniques. Moscone Center South, San Francisco, CA.

January 29-30, 1996 Minimally Invasive Spinal Surgery Course, Queen's Medical Centre. Principles and Results of Percutaneous Disc Excision. Nottingham, England.

February 3, 1996 Course on Minimally Invasive Endoscopic Spine Surgery, Wake Forest University, The Bowman Gray School of Medicine, 1. Paralumbar arthroscopic stabilization of lumbar motion segments. 2. Paramedial vs. paralumbar arthroscopic disc surgery, indications, results and complications, Winston-Salem, North Carolina.

May 17-19, 1996 AAOS Spine Course, Least Invasive Lumbar Spine Surgery, 1. Arthroscopic anatomy of lumbar spine. 2. Arthroscopic lumbar discectomy potential complications. Hands-on workshop, St. Louis, MO. (22 hrs. CME)

June 5-8, 1996 2nd Annual Current Concepts on Surgery of the Spine. 1. Percutaneous Intervertebral. Lumbar spinal fusion and stabilization.

Techniques and results of surgery. 2. Percutaneous arthroscopic posterolateral intradiscal and foraminal access to the spinal canal for extraction of herniated disc fragment. Technique, patient's selections and results. Hands-one workshop. The University of Texas Medical Branch at Galveston, Texas.(33.5 hrs. CME)

Lectures by Invitation (Continued)

September 29, 1996 46th annual meeting Congress of Neurological Surgeons. Lecture and workshop, Minimally Invasive Spinal Surgery. Montreal, Quebec Canada.
Louis, MO.

October 12, 1996 North American Traveling Fellows visit to Philadelphia and The University of Pennsylvania School of Medicine. Minimally Invasive Lumbar Spine Surgery. Philadelphia, PA.

December 7, 1996 AO/ASIF Spine Course. Arthroscopic Microdiscectomy, Davos, Switzerland

January 23-24, 1997 15th Course for Percutaneous Endoscopic Spinal Surgery and Complementary Techniques. Percutaneous Lumbar Disc Surgery: 25 years experience, Zurich, Switzerland.

April 4-6, 1997 Least Invasive Spine Surgery, American Academy of Orthopaedic Surgeons. Arthroscopic Discectomy, Anatomy of Arthroscopic Discectomy. Hands on labs and workshops. St.

May 14-16, 1997 Arthroscopic Microdiscectomy (AMD). The Ninth Annual International Spine Workshop Jointly sponsored by Uniformed Services University of the Health Sciences Bethesda, Maryland and Spinal Research and Education Foundation. Hands on labs and workshops. Bethesda, Maryland.

September 28, 1997 Minimally Invasive Spinal Surgery, lecture, lab and workshop, Congress of Neurological Surgeons 47th Annual Meeting, New Orleans, Louisiana

October 3, 1997 Percutaneous Fusion of the Lumbar spine. 8th International Conference on Lumbar Fusion and Stabilization. San Antonio, Texas.

October 15-19, 1997 Eastern Orthopaedic Association 28th Annual Meeting. Moderator of Session on Arthroscopic Microdiscectomy and the Future of Minimal Invasive Back Surgery, Scottsdale, Arizona.

November 13-15, 1997 Advantages and Limitations of Minimal Invasive Spinal Surgery. Pennsylvania Orthopaedic Society, Wilmington, Delaware (7.5 CME)

April 16, 1998 Microsurgical Approach to disc Disease. Allegheny University Hospitals, Elkins Park, PA.

April 27, 1998 Seminar-Minimally Invasive Surgery of the Lumbar Disc. The

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American Association of Neurological Surgeons, 66th Annual Meeting, Philadelphia, PA.

May 13-17, 1998 Arthroscopic Microdiscectomy Lecture and workshop.
International Intradiscal Therapy Society, San Antonio, Texas

October 2, 1998 Arthroscopic Disc Surgery of the Lumbar Spine and Workshop. Congress of Neurological Surgeons Annual Meeting, Seattle, Washington.

Lectures by Invitation (Continued)

December 5-6, 1998 Arthroscopic discectomy: indications, results and complications:: is it superior to laser, chymopapine, and percutaneous suction discectomy? The Management of Vertebral Intercorporeal Disorders What works and what doesn't. GICD-USA. Chicago, IL.

September 18-20, 1999 Current Status of arthroscopic and endoscopic discectomy and foraminal decompression. Arthroscopic anterior column stabilization and fixation of the lumbar spine. 4th Middle East Spine Group Congress, Amman, Jordan.

November 3-5, 1999 Subligamentous Arthroscopic Microdiscectomy of Lumbar Spine. Arthroscopic Anterior Column Stabilization. IV International Bakirkoy Days. Bakirkoy State Hospital for Psychiatric and Neurological Diseases, Istanbul, Turkey.

July 20-22, 2000 Current Status and Future of Arthroscopic and Endoscopic spinal Surgery via a Posterolateral Access. Presidential Guest Speaker, 24th Annual Scientific Meeting, the American Academy of Neurological and Orthopaedic Surgeons, Las Vegas, Nevada.

October 6-7, 2000 Turkish Neurosurgical Society, University of Antayla. "Evolution and Current Status of Arthroscopic and Endoscopic Microdiscectomy" and "Role of Minimally Invasive Surgery in Management of Discogenic Pain and Segmental Instability.

December 7, 2000 1st World Congress of Minimally Invasive Spinal Medicine and Surgery. "Evolution and Current Status of Arthroscopic and Endoscopic Spinal Surgery.

December 9, 2000 "Controversies and Challenges in Spine Surgery." "Evolution, Current Status and Future of Arthroscopic and Endoscopic Spine Surgery."

August 30, 2002 "Introduction, Subligamentous Access to Contained and Non-Migrated Sequestered Disc Herniation" Chairman Current Trends, Minimally Invasive Spine Surgery, SICOT XXII World Congress, San Diego, CA

December 8-11, 2002 "History and Evolving Methodology in Arthroscopic and Endoscopic Spinal Surgery" AAMISMS Third World Congress, Phoenix, AZ

December 13 & 14, 2002 "Evolution of Techniques in Arthroscopic and Endoscopic Spine Surgery" 15th Annual Meeting of GIEDA INTER RACHIS, Paris,

France

January 29/30, 2004 "Philadelphia experience with minimal invasive spinal surgery" International 22nd Course for Percutaneous Endoscopic Spinal Surgery and Complementary Techniques, Zurich, Switzerland

U. S. Patents

Method for Decompressing Herniated Intervertebral Discs, Spine Instruments, October, 1983. #4,573,448

Surgical Cutting Device with Reciprocating Cutting Member, July, 1989.

Reexamination of Patent, Method for Decompressing Herniated Intervertebral Discs, March, 1990.

Deflecting Suction Forceps, July, 1991. #5,354,311

Percutaneous Fixation of the Vertebrae, September, 1993 #5,242,443

Unilateral Biportal Percutaneous surgical Procedure and Instrumentation, October, 1991. #5,395,317

Open Surgical Technique for Vertebral Fixation with Subcutaneous Fixators Positioned between the Skin and the Lumbar Fascia of the Patient, January, 1996 #5,480,440

Offset Bone Bolt #5,545,228

Percutaneous Screw Adapter #5,584,887

Oval Cannula Assembly, May, 1996 #08/643,056

Double Barrel Spinal Fixation System and Method May, 1997 #5,630,816

Expandable Intervertebral Cage and Surgical Method September, 1997 #5,665,122

Method and Instruments for Percutaneous Arthroscopic Disc Removal, Bone Biopsy and Fixation of the Vertebrae #5,964,761, Oct. 12, 1999

Method and Instruments for Percutaneous Arthroscopic Disc Removal, Bone Biopsy and Fixation of the Vertebrae Jul. 22, 2003 #6,596,008B1

Method for Percutaneous Arthroscopic disc Removal Bone Biopsy and Fixation of the Verebrae #6,175,758B1, January 16, 2001

European Patents

Pedicle screw and percutaneous fixation of vertebrae #92306935.5, July, 1992

Fixation apparatus, April, 1994

Offset Bone Bolt, #061116

Percutaneous Screw Adapter #5,584,887

Oval Cannula Assembly, January, 1999 #97922618.0-2305