

Pablo Clavel, M.D.

Neurosurgeon.
Barcelona Spine Center.



PERSONAL INFORMATION

Citizenship: Spanish

Sex: Male

EMPLOYMENT HISTORY

- 1995-2000 Neurosurgical residency at the Hospital of Sant Pau, Barcelona
- 2000 Neurosurgeon at the Hospital of Sant Pau
- 2001 Neurosurgeon at the Hospital of Germans Trias i Pujol, Barcelona
- 2002 Neurosurgeon at the Hospital Mutua de Terrassa, Terrassa, Barcelona
- 2002 – Present Neurosurgeon at the Hospital of Sant Pau
- 2000 – Present Neurosurgeon at the Hospital Quirón. Barcelona.

EDUCATION

- 1986 High school graduate from Briarcliff High School, Atlanta, Georgia.
- 1990-1991 Medical internship for one month each year in the Department of Neurosurgery. University of Oklahoma.
- 1991 Medical internship for one month in cardiothoracic surgery at the University of California. San Diego.
- 1991 Medical internship for one month in orthopedic surgery at the University of Padova. Italy.
- 1987 – 1993 M.D., Central University of Barcelona Medical School (UB), Barcelona, Spain.
- 1993 USMLE (United States Medical Licensure Examination)

qualification

- 1994 1 year of training in Family Medicine in Mallorca, Spain.
- 1996 Surgical internship for six weeks in Neurosurgery Columbia Presbyterian Neurosurgical Department.
- 1995-2000 Neurosurgical residency program at the Hospital of Sant Pau, Barcelona
- 2000 Achievement of neurosurgical specialization.
- 2005 Written exam from the European Association of Neurosurgical Societies (EANS). Oral exam to be taken.
- 2000 – Present Doctorate Program and PhD (unfinished). Anatomy Department, Autonomous University of Barcelona (UAB), Spain. “Micro anatomical study of the temporal bone. Retrosigmoid approach to the fundus of the internal auditory canal”.
- 2005 – Present Chief of the Medical Advisory Department at Neosurgery S.L. (www.neosurgery.com), an innovation and technologybased company dedicated to the research and development of implantable medical devices for neurosurgical applications.
- July-august 2007 FIENS Volunteer (Foundation for international education in Neurological Surgery, www.fiens.org) in Neurosurgical department of Black Lion Hospital, Addis Ababa, Ethiopia.

RESEARCH EXPERIENCE

- Research experience in neurophysiology for three months in Emory University, Atlanta, GA. 1989
- Research activities in the microsurgery anatomy laboratory at the University of Florida for one month, Dr. A. Rhoton Jr. 1999
- Micro anatomical study for the temporal bone. Retrosigmoid approach to the fundus of the internal auditory canal. In collaboration with the Universidad Autonoma de Barcelona. Anatomy Department. From 2000 to present.
- Principal investigator in EU grants “Custom-IMD (implantable medical devices)”. Involved in new custom made spine arthroplasty design. Started February 2007 (through 2011)

COURSES and MEETINGS

1. II y III Curso de Neurooncología. Hospital de la Vall d’Hebrón Barcelona. 95-96 y 96-97.
2. II y III Curso de patología neurovascular. Hospital de la Vall d’Hebrón. Barcelona. 95-96 y 96-97.
3. IV Curso de Monitorización de la Presión Intracraneal. Barcelona. Mayo 1997.
4. Curso sobre Patología de la Columna Cervical. Barcelona Octubre de 1999.
5. Jornada sobre la sustitución protésica de un disco intervertebral. Hospital de Sant Pau. Noviembre de 1999.
6. Formación continuada para el personal facultativo: Análisis de casos clínicos (80h). Servicio de Neurocirugía del Hospital de Sant Pau. Barcelona. Marzo del 2000.
7. Minimal invasive approaches in lumbar spine surgery. 1-3 Diciembre 2000.

- Hospital de la Ribera. Alzira, Valencia.
8. "Advanced techniques in image guided surgery". Medtronic. Lausanne, Suiza. Junio 2002.
 9. Curso sobre Cifoplastia vertebral. "The balloon Kyphoplasty surgeon training program". Leiden. Holanda. Enero 2003.
 10. Curso sobre Neuroendoscopia. "Basic Neuroendoscopy". Prof. A. Pernezcky. Tuttlingen. Alemania. Marzo 2003.
 11. Skull base hands-on Workshop University of St. Louis. Prof. Al-Mefty. April 2003.
 12. Assistant to the International Society of Pituitary Surgeons. Capri, Italy, April 23,24, 2004
 13. Asistente a International workshop de anatomical dissections for use in temporal en insular lobe surgery. Alzira, Valencia, Spain. Octubre de 2004.
 14. III symposium about controversies and updates in diagnosis and treatment of hydrocephalus. Vall d'Hebron University Hospital, Barcelona, Spain.
 15. Curso de microcirugía y anastomosis vascular de Hospital de Viena. Octubre de 2004.
 16. Participante en el Eans training the trainers course in Prague. February 2005.
 17. Workshop de cirugía endoscopia de hipofisis. Bologna, Italia, Marzo de 2005.
 18. Tecnologías dinámicas de columna. Hotel St. Moritz, Barcelona. Abril de 2005.
 19. Complex lumbar spine surgery. University of St. Louis, EEUU, November 2005.
 20. Skull Base Hands-on Workshop. Preauricular approaches: cavernous sinus, subtemporal, infratemporal, and clivus. Neurosurgery Department, "Hospital de la Santa Creu i Sant Pau", Barcelona, Spain. March 2005, 2006 and 2007. Participant as faculty.
 21. "Ley-Tolosa" Lecture. Catalan Society of Neurosurgery. Antonio Bernardo and Atul Goel lectures on Skull Base Surgery. September 2006.
 22. Minimal invasive techniques in spinal surgery at Dr. Yeung's clinic in Phoenix, Arizona. March 2007.
 23. Spine Arthorplasty Society's seventh annual global symposium on motion preservation technology. Berlin, Germany May 1-4, 2007
 24. Chairperson in "free papers" session of the 5th international conference on vestibular schwannoma and other CPA lesions. Barcelona, June 5th-9th.
 25. International workshop on Advanced Transnasal endoscopic skull base surgery, ENT and Neurosurgical Team approach. July 5-6, 2007, Barcelona, Spain.
 26. Seminari sobre metodologia docent i avaluativa. Institut de Estudis de la Salut 2007.
 27. Participant in TOPS (total facet posterior arthroplasty) workshop in Vienna. July 23-24, 2007.
 28. Faculty at the Cranial Base Surgery Course. Cornell University. December 14-16, 2007.
 29. Workshop for the Thesys endoscopic approach to herniated lumbar discs. Salzburg. November 23-24, 2007.
 30. Participant at the Trans1 training workshop. Zwolle, Holland. January 2008
 31. Participant in the "Minimal Access Spinal Technologies (MAST) for the Treatment of Thoracolumbar Pathologies". January 17-18, 2008. Vienna.
 32. Participant and presenter at the Catalan Neurosurgical Society Winter Meeting. February 10-17, 2008. Baqueira, Lleida. Spain.
 33. Faculty at the Sant Pau Cranial Base Course. February 28-29, 2008
 34. Faculty at the Trans1 training workshop. Barcelona, Spain. March 2008
 35. Perpos and Percudyn surgical training workshop. Salzburg. April 2008
 36. Member and participant of the Trans1 International Advisory Council. Inaugural

- Meeting in Vienna. April 4-5, 2008
37. Faculty at the Kyhoplasty Workshop. Barcelona, April 2008
 38. Participant at the Medtronic workshop on Minimally Invasive Surgery for lumbar fusion. April 24, 2008. Barcelona.
 39. Participant at the Spine Week Geneva. May 2008
 40. Faculty for the percdyn and perpos systems at the Spanish Society 2008 meeting. Valencia. May 2008.
 41. NASS annual meeting. October 13-17, 2008. Toronto, Canada
 42. Faculty at the 2009 Cranial Base Surgery Course. Weil Cornell Neurosurgical Department. February 6-8, 2009.
 43. Invited speaker and presenter at the “Taller-Teórico Práctico de Tecnologías de Cirugía de Columna Mínimamente Invasiva y Sistemas interespinosos dinámicos” course. Barcelona 27-26, 2009
 44. Participant and presenter at the Neuroraquis (Spanish Spine Society) Congress. March 2009.
 45. Participant and presenter at the Joint Annual Meeting EANS-SFNC, March 27-31, 2009. Marseille, France.
 46. Participant and presenter at the SAS Meeting. London April 2009.
 47. Invited speaker at the III Simposio Internacional de cirugía de columna vertebral. Medellin, Colombia. May 28, 29 and 30 2009.
 48. Participant in the “understanding the basics in the treatment of spinal deformity” course. June 11-12, 2009. Leiden.
 49. Participant in the 16th International Meeting on Advanced Spine Techniques IMAST July 15-18, 2009. Vienna.
 50. Participant in the Nubac training course. Napoli. September 2009.
 51. 2nd-O-arm Intraoperative Imaging symposium 2009. October 16-17. Leipzig.
 52. Participant at the Catalan society annual meeting. November 20th, 2009. Barcelona.
 53. Participant in the “Evidence based surgery. Clinical trials in surgery” course. November 26, 27 and 28, 2009

ABSTRACTS AND PRESENTATIONS

- **Oral presentations :**

1. HEMATOMAS INTRAPARENQUIMATOSOS. Clavel P., Pares P., Bartumeus F. Reunión de la Sociedad Catalana de Neurocirugía. Abril de 1996.
2. ESPONDILODISCITIS ESPONTANEA POR CANDIDA ALBICANS.(Poster) Clavel P; Parés P; Molet J; Oliver B; Tresserras P; Fernández Villa JM; Pardo S; Mata PR; Bartumeus F. II REUNION DE LA SOCIEDAD ESPAÑOLA DE NEUROCIRUGIA. Barcelona. Mayo 1997.
3. MENINGIOMA DEL SENO CAVERNOSO. (Vídeo) Clavel P; Tresserras P; Oliver B; Pardo S; Fernández Villa JM; Molet J; Parés P; Mata PR; Bartumeus F. III CONGRESO DE LA SOCIEDAD ESPAÑOLA DE BASE DE CRANEO. Barcelona. Febrero 1998.
4. MANEIG DE LES METÀSTASIS I TUMORS PRIMARIS VERTEBRALS. Clavel P; Molet J; Parés P; Oliver B; Tresserras P; Mata PR; Pardo S; Ayats E; Bartumeus F. REUNION DE LA SOCIEDAD CATALANA DE NEUROCIRUGIA. Marzo 1998.
5. MENINGIOMAS DE BASE CRANEAL. CRITERIOS QUIRURGICOS Y EVOLUCION. Clavel P; Oliver B; Tresserras P; Molet J; Parés P; Pardo S; Mata PR; Bartumeus F. REUNION CONJUNTA DE LAS SOCIEDADES BRASILEÑA, ESPAÑOLA, ITALIANA Y PORTUGUESA DE NEUROCIRUGIA. Lisboa. Mayo 1998.
6. GANGLIOGLIOMAS INTRACRANEALES. CARACTERISTICAS, PRONOSTICO Y

- TRATAMIENTO. Clavel P., Oliver B., Parés P., Matias-Guiu X., Molet J., Tresserras P., Mata P., Pardo S., Ayats E., Arteaga J.M. y Bartumeus F. IV Congreso de la Sociedad Española de Neurocirugía. Burgos 5-8 Mayo 1999.
7. ESTUDIO RETROSPECTIVO DE 120 MENINGIOMAS DE LA BASE CRANEAL. Clavel P., Oliver B., Tresserras P., Mata P., Molet J., Pares P., Pardo S., Ayats E., Gil de Bernabé M. A., y Bartumeus F.. IV Congreso de la Sociedad Española de Neurocirugía. Burgos 5-8 Mayo 1999.
 8. SPECT EN LA HEMORRAGIA SUBARACNOIDEA. Clavel P., Oliver B., Tresserras P., Mata P., Molet J., Pares P., Ayats E., Arteaga J.M., Marruecos L., Martí J., Marí C., Catafau A. Y Bartumeus F. IV Congreso de la Sociedad Española de Neurocirugía. Burgos 5-8 Mayo 1999.
 9. CORDOMA DE CLIVUS. ABORDAJES TRANSCONDILAR Y TRANSYUGULAR. Clavel P., Oliver B., Tresserras P., Mata P., Molet J., Pares P., Matias-Guiu X., Pardo S., Ayats E., Bartumeus F.. IV Congreso de la Sociedad Española de Neurocirugía. Burgos 5-8 Mayo 1999.
 10. TRATAMIENTO MICROQUIRÚRGICO DE LAS MALFORMACIONES ARTERIOVENOSAS CEREBRALES. Clavel P., Bartumeus F., Oliver B., Molet J., Pares P., Tresserras P., Mata P.R., Ayats E., Arteaga JM., Gil de B. M.A., Matías X., Zamora A. V Congreso de la Sociedad Española de Neurocirugía. Bilbao 24-27 Mayo 2000.
 11. ESTUDIO DEL EFECTO DE LA TECNICA DE NEUROESTIMULACION SOBRE EL DOLOR CENTRAL MEDIANTE SPECT CEREBRAL CON 99mTc-HMPAO. Clavel P., Molet J., Tembl A., Arteaga JM., Catafau A., Pares P., Oliver B., Tresserras P., Mata P.R., Ayats E., Bartumeus F. V Congreso de la Sociedad Española de Neurocirugía. Bilbao 24-27 Mayo 2000.
 12. ANÁLISIS MORFOMÉTRICO DE LA CARA POSTERIOR DE PEÑASCO DEL HUESO TEMPORAL. Clavel P., Reina F. Presentación oral en el Simposium de Cirugía de Base de Cráneo. Hospital de Sant Pau. Barcelona. Enero 2001.
 13. FORAMINOTOMÍA (UNCINATECTOMÍA) ANTERIOR CERVICAL MICROQUIRÚRGICA (a propósito de dos casos). Clavel P., Clavel M., Arteaga J. M., Ayats E., Pares P., Bartumeus F. Barcelona. Póster en Congreso de la Sociedad Española de Neurocirugía. Ávila. Mayo 2001.
 14. ANÁLISIS MORFOMETRICO DE LA CARA ENDOCRANEAL POSTERIOR DEL PEÑASCO DEL HUESO TEMPORAL. Clavel P., Reina F., Rodríguez Baeza A., Oliver B. Comunicación en Congreso de la Sociedad Española de Base de Cráneo. Salamanca. Marzo 2002.
 15. MORPHOMETRIC ANÁLISIS OF THE POSTERO-SUPERIOR ASPECT OF THE PETROUS BONE. Clavel P., Reina F., Rodríguez-Baeza A., Oliver B., Bartumeus F., Comunicación en Congreso Europeo de Base de Cráneo. Terrassa-Barcelona, Marzo 2003.
 16. ANATOMIA QUIRÚRGICA EN LA CIRUGÍA HIPOFISARIA. Clavel P. Curs de Doctorat i Formació Continuada en Neurocirurgia. Dates 10 i 11 d' Abril 2003. Lloc: Unitat Docent del Hospital de la Santa Creu i Sant Pau de la Universitat Autònoma de Barcelona. Tema: Glándulas Intracraneales. Hipòfisis y Epífisis. 30 crèdits.
 17. LAMINOPLASTIA CERVICAL COLOCACION DE MALLAS DE MOSS. Clavel P, Arteaga JM, Bartumeus F, Molet J, Tresserras P, Parés P, Cano JP, De Teresa S, Solivera J. VIII Congreso de la Sociedad Española de Neurocirugía. Alacant, Maig 2003.
 18. MICROFORAMINOTOMIA CERVICAL ANTERIOR. Clavel P, Molet J, Bartumeus F, Tresserras P, Parés P, Arteaga JM, Cano P, DE Teresa S, Solivera J. VIII Congreso de la Sociedad Española de Neurocirugía. Alacant, Maig 2003.
 19. ABORDAJE ANTERIOR TRANSUNCAL PARA LAS HERNIAS DE DISCO CERVICAL. Clavel P, Molet J, Bartumeus F, Clavel M. XIX Annual Meeting de la

- Cervical Spine Research Society. European Section. Barcelona, June 2003.
20. MORPHOMETRIC ANALYSIS OF ENDOCRANIAL POSTERIOR SURFACE OF THE TEMPORAL BONE'S PETROUS PART. Clavel P. Reina F. XXI Congress of the Spanish Society of Anatomy. Pamplona 18-20 Septiembre 2003. (publicación en la revista de European Journal of Anatomy).
 21. ANÁLISIS MORFOMÉTRICO DE LA CARA POSTERO-SUPERIOR (RETROSIGMOIDEA) DEL PEÑASCO DEL HUESO TEMPORAL. Clavel P. Fòrum 2003. Organitzat per l'Institut de Recerca Sant Pau. Barcelona, Octubre 2003.
 22. ESTUDIO RETROSPECTIVO DE 88 PACIENTES ACROMEGÁLICOS TRATADOS ENTRE 1980 Y 2005. Clavel P.¹, Bartumeus F. ¹, Sucunza N.², Barahona M.J. ², Webb S. ², Oliver B. ¹, Molet J. ¹, Tresserras P. ¹, Rodriguez R.¹. Oral presentation. XI Spanish Society of Neurosurgery Congress. May 2006. Vigo, Spain.
 23. MEDICIONES POR TAC DE LA FOSA POSTERIOR Y DE LA CARA RETROSIGMOIDEA DEL PEÑASCO DEL HUESO TEMPORAL. IMPLICACIONES EN CIRUGÍA. Clavel P. ¹, Reina F. ³, de Juan M. ², Tresserras P.¹, Rodriguez-Baeza A.³, Rodriguez R.¹, Molet J.¹, Bartumeus F.¹. . Oral presentation. XI Spanish Skull Base Society June 2006. San Sebastian, Spain.
 24. SAFE DRILLING OF THE POSTERIOR WALL OF THE PETROUS APEX. ANATOMICAL STUDY AND SURGICAL APPLICATION. Clavel P. Reina F. De Juan M. 5th international conference on vestibular schwannoma and other CPA lesions. June 6th - 9th, 2007.
 25. PETROUS APEX AND POSTERIOR FOSSA BONE CT MEASUREMENTS. IMPLICATIONS IN SURGERY. Clavel P. 5th international conference on vestibular schwannoma and other CPA lesions. June 6th - 9th, 2007.
 26. KYPHOPLASTY COMPLEX CASES. Clavel P. Winter Meeting of the Neurosurgical Catalan Society. Bakeira. February 2008.
 27. PERCUDYN: A NEW MINIMALLY INVASIVE DYNAMIC STABILIZATION SYSTEM. Clavel P. et al. Spinal Disorders Section of the Spanish Neurosurgical Society. Vigo. March 2008.
 28. Neuroraquis 2009
 29. THE CRANIAL LOOP: A NEW HIGH-STRENGTH POLYMERIC DEVICE FOR POSTOPERATIVE CRANIAL BONE FIXATION. Clavel P. Joint Annual Meeting EANS and SFNC-MARSELLA March 27th 2009.
 30. PercuDyn as a dynamic stabilization device. Clavel P. Presentaton at the Spine technology Summit at the SAS meeting. London. April 2009.
 31. PercuDyn: Overview of case experience. Clavel P. SAS Panel Meeting for Interventional Spine Workshop at SAS meeting. London. April 2009.

PUBLICATIONS

1. Clavel Escribano M. y Clavel Laria P. Tratamiento quirúrgico de la mielopatía cervical espondiloartrósica. Estudio preliminar. Neurocirugía 1993; 4:46-52.
2. Clavel Escribano M., Noboa R., Faus Riera, Carrasco García M. y Clavel Laria P. Neurinomas gigantes intraespinales. Revista de Ortopedia y Traumatología. Vol. 40. 258-262.
3. Clavel Escribano M., Clavel Laria P. Meningioma quístico del quiasma óptico. Neurología 1996 Oct, 11:8,310.
4. Clavel Escribano M. y Clavel Laria P. Espondilolistesis degenerativa lumbar. Resultados del tratamiento quirúrgico. Neurocirugía 1995; 6: 196-200.
5. Clavel Escribano M., Clavel Laria P. Meningioma quístico del quiasma óptico. Neurología 1996 Oct, 11:8,310.
6. Clavel Escribano M. y Clavel Laria P.. Tratamiento quirúrgico de la mielopatía cervical espondiloartrósica. Neurocirugía 1996; 4-10.

7. Clavel Escribano M. y Clavel Laria P.. Paraplejía secundaria a expansión vertebral metastásica. Caso clínico. *Neurocirugía* 1996; 7:33-36.
8. Clavel Escribano M., López Ibor B. y Clavel Laria P. Evolución benigna de un glioblastoma multiforme hipotalámico. Caso clínico. *Neurocirugía* 1996; 7:49-54.
9. Clavel Escribano M. y Clavel Laria P.. El abordaje posterolateral extracavitario a la columna dorsal. *Neurocirugía* 1996; 7:119-125.
10. Clavel Escribano M. y Clavel Laria P. Metástasis cerebrales de melanoma. *Neurocirugía* 1996; 7:275-280
11. Clavel M., Clavel P. Creutzfeld-Jacob disease transmitted by dura mater graft. *European Neurology*, 1996,36:4,239-240.
12. Clavel M. and Clavel P. Occipital neuralgia secondary to exuberant callus formation. Case report. *J. Neurosurgery* 85: 1170-1171, 1996.
13. Bartumeus F., Clavel P. Tratamiento quirúrgico de las metástasis cerebrales. *Revista de Neurología* 2000; 31 (6):1-3.
14. Clavel M., Robles Balibrea A., Clavel P., Robles Cano V. Quiste óseo aneurismático del hueso frontal. Caso clínico. *Neurocirugía* 2001: 12: 166-169.
15. Clavel M. Robles Balibrea A., Clavel P. Fusión intersomática lumbar posterior. *Neurocirugía* 2001: 12: 447-455.
16. Castaño C. Rusalleda J., Clavel P., Early experience studying cerebral aneurysms with rotational and three-dimensional angiography and review of CT and MR angiography literature. *Interventional Neuroradiology* 8: 377-391, 2002.
17. R. Rodríguez, J. Molet , P. Clavel., Monitorización neurofisiológica intraoperatoria del tronco del encéfalo en un caso de cavernoma en protuberancia. *Neurocirugía* 16:117-123, 2005.
18. Rodriguez R, Molet J, de Teresa S, Tresserras P, Clavel P, Cano P, Solivera J, Muñoz F, Bartumeus F. Monitorización neurofisiológica intraoperatoria del tronco del encéfalo en un caso de cavernoma en protuberancia. [Intraoperative neurophysiological monitoring of the brain-stem in a pontine cavernoma]. *Neurocirugia*, Vol 16, 117-123, 2005.
19. Estudio retrospectivo de 100 MAVs . Muñoz F., Clavel P. et al. *Neurocirugia* 2007.
20. Efectividad de las valvulas gravitacionales en la prevención del hiperdrenaje en pacientes adultos con hidrocefalia. C. de Quintana-Schmidt, R. Rodriguez, p. Clave et al. *Rev. Nuerología* 2009,4982):64-68.
21. De Quintana-Schmidt C. Casajuna-Garreta E., Clavel P. The occipital nerve stimulation therapy as a treatment for drug-resistant cluster headache. *Rev. Neurol.* (in press)
22. De Quintana-Schmidt C. Clavel Laria P., Bartumeus-Jene F. Avulsión del ureter como complicación de uan discectomía lumbar posterior. *Neurocirugía.* (in press).

Chapters in Books.

Management of subarachnoid hemorrhage. Clavel P. Emergency protocols from Hospital of Sant Pau. 2004

Consulting neurosurgeon on CNS tumors of the pediatric age. Protocols. Catalan agency for the Catalan health public system.

Clavel P., Muñoz F., Molet J., *Neurocirugía y Neuroradiología intervencionista en Neuroradiología intervencionista* 2006.

Molet J, De Teresa S, Solivera J, Castaño C, Sanromán L, Tresserras P, Clavel P, Cano P, Rodríguez R, Bartumeus F. Estado actual del tratamiento quirúrgico de los aneurismas

intracraneales. [Current surgical management of Intracranial aneurysms]. In: El Paciente Neurocrítico [The neurocritical patient]. Directors: Net Castel A, Marruecos-Sant L, Ars Medica. Barcelona 2006.

PROFESSIONAL AFFILIATIONS

2000- present Spanish Society of Neurosurgery (S.E.N.E.C.)

2000- present European and spanish skull base society

2005- present AOSpine member

2004- present International Society of Pituitary Surgeons

2008- present International Advisory Board Transl