

KANNA K. GNANALINGHAM

PROFILE



After studying Medicine in Manchester, Mr Gnanalingham completed his Neurosurgical training in London. This included specialist training in Complex spinal surgery, Pituitary and Skull base surgery, at the National Hospital for Neurology and Neurosurgery. He learned minimally invasive techniques at several centres in the UK and US and was appointed as a Consultant at the Greater Manchester Neuroscience Centre at Salford Royal Foundation Trust (SRFT) in 2005. He is also an honorary senior lecturer at the University of Manchester.

His sub-speciality interests include pituitary, anterior skull base and complex spine surgery, utilising minimally invasive techniques. He is the lead consultant for Pituitary surgery in Manchester and introduced the endoscopic approach to the region. With respect to the spine, Mr Gnanalingham has particular interests in degenerative spinal disease, spinal trauma, tumours, spinal arthroplasty and other motion preserving technologies. He has a preference for minimally invasive spinal approaches that minimise post-operative pain and speed up post-operative recovery.

In recognition of his expertise, Mr Gnanalingham is frequently invited to speak at national and international meetings and conduct workshops for spinal and pituitary disorders. SRFT is a national and international Visitation centre for Minimally Invasive Surgery, with regular visits from surgeons wishing to learn such 'key hole' surgical techniques. He offers an international fellowship in minimally invasive surgery.

He has a strong interest in clinical and basic science research in Neuroscience, qualified to a doctorate level, with over 80 publications and international presentations.

PERSONAL DETAILS:

- Current Position:** Consultant in Neurosurgery, (Manchester, UK)
Honorary Senior Lecturer (University of Manchester, UK)
Honorary Senior Lecturer (Edge Hill University, Lancashire, UK)
Honorary Lecturer (University of Salford, UK)
- Specialist Interests:** *Pituitary and skull base surgery*
Complex spinal surgery
Minimally invasive techniques
- Contact address:** Department of Neurosurgery,
Greater Manchester Neuroscience Centre (GMNC),
Salford Royal Foundation Trust (SRFT), Stott Lane, Salford, M6 8HD, UK
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- Web links:** <http://www.manchesterneuro.co.uk/>
[University of Manchester](#)
[Manchester Centre for Clinical Neurosciences \(MCCN, at SRFT\)](#)
[BMI The Alexandra Hospital](#)

PROFESSIONAL QUALIFICATIONS:

- CCST in Neurosurgery - General Medical Council, UK, 2004
- FRCS SN - Royal College of Surgeons London, 2003
- MBChB (Hons) - Manchester University, 1996
- PhD in Neuropharmacology - King's College London, 1993
- BSc (Hons) in Anatomy - Manchester University, 1990

RECENT POSTS:

Consultant in Neurosurgery:

02/05 – to date Dept of Neurosurgery, GMNC, Salford Royal Hospital, Salford M6 8HD (NHS)
Alexandra Hospital, Mill Lane, Cheadle, Cheshire, SK8 2PX (Private practice)

SpR in North London Neurosurgical training programme (08/99 – 02/05):

08/04 – 02/05 National Hospital for Neurology and Neurosurgery, London WC1N
Fellowship in Pituitary surgery (Mr M Powell)
Fellowship in Spine & Skull base surgery (Professor A Crockard & Mr A Casey)

08/03 – 08/04 Royal London Hospital, London EC1
02/02 – 08/03 Charing Cross Hospital, London W6
08/01 – 02/02 Great Ormond Street Hospital for Children, London WC1N
08/00 – 08/01 National Hospital for Neurology and Neurosurgery, London WC1N
08/99 – 08/00 Royal Free Hospital, London NW3

CURRENT RESEARCH PROJECTS:

- Principal investigator in a Cervical Spine Research Society (CSRS) funded study of 'Cervical intervertebral disc degeneration: assessment by quantitative magnetic resonance imaging and histology', Greater Manchester Neuroscience Centre, Salford Royal NHS Foundation Trust and University of Manchester (Mario Boni Research Grant award; 21K Euros; 2012)
- Lead investigator in Manchester for an European Trial of Cervical disc replacement (2008-2010; Depuy)
- Lead investigator in Manchester for a pan European PRCT of Interspinous device (2010-2012; Medtronic)
- Collaborator in a Wellcome Trust funded study of the 'Mechanisms of oestrogen induced pituitary proliferation', utilising human and rat pituitary tissue, Endocrine Sciences Research group, University of Manchester (£165K; 2008)
- Co-investigator in a pan European study of pituitary function in head injury patients and the impact of pituitary hormone replacement (£41K; Pfizer; 2008)
- Co-investigator in a study of pituitary function in patients with Subarachnoid haemorrhage and the impact of pituitary hormone replacement (£42K; Pfizer; 2008)
- Co-investigator in a study of the pathophysiology of cervical disc degeneration, School of Biomedicine, University of Manchester (£90K; Johnson & Johnson; 2009-2012)
- Co investigator in a study of microbiological profile in Pituitary Apoplexy, Microbiology Research Group, University of Manchester (2009 to date)
- Manchester Pituitary Tumour Tissue Bank (2006 to present)
- Manchester Intervertebral Disc Tissue Bank (2008 to present)

TEACHING & TRAINING:

- Minimally Invasive Surgery fellowship at SRFT (2006 onwards)
- Co-supervisor of PhD student in a study of the pathophysiology of cervical disc degeneration (2010-2013)
- Supervisor of MD on Cervical foraminotomies (standard Vs minimally invasive) (2007-8)
- Co-supervisor of MSc project on BHCG expression in pituitary adenomas (2007)
- Spinal Workshops for Neurosurgeons & Orthopaedic surgeons – Faculty member for several national and international workshops for minimally invasive surgery for cervical and lumbar disorders
- SRFT is a national and international Visitation centre for Minimally Invasive Surgery
- Pituitary Courses - faculty member for the annual course run by the Royal College of Surgeons of England on the 'Surgical Approaches to Pituitary lesions' (2006)
- Faculty member – Cardiff Spinal Surgery Course, WIMAT (Welsh Institute for Minimally Access Therapy), Cardiff, UK (2010)
- Faculty member – Cambridge British Neurosurgical Training Course (Tumours): Pituitary Tumour management & Transsphenoidal approach, Cambridge, UK – (2010 onwards)
- Faculty member – “Manchester Advanced Sinus Dissection Course” Cadaveric work shop at University of Manchester, UK (2013, 2015)
- Faculty member – “Manchester Skull Base Course” Cadaveric work shop at University of Manchester, UK (2017)

OTHER AWARDS:

- **Prize for best poster presentation (2013)**
Society of British Neurosurgeons meeting (SBNS), Sheffield, UK (May, 2013).
- **Prize for best poster presentation (2009)**
Society of British Neurosurgeons meeting (SBNS), Dublin, UK (Oct, 2009).
- **The Worshipful Company of Cutlers' Surgical Fellowship (2004: £6500)**
Fellowship at the Institute of Minimally Invasive Neurosurgery in Pittsburgh, USA (Dr Jho).
- **Simpson-Smith Memorial Fund Travelling Scholarship (2003: £700)**
Fellowship at the Institute of Minimally Invasive Neurosurgery in Pittsburgh, USA (Dr Jho).
- **Wayhead Trust Grant (2002: £2000)**
Study of “Percutaneous coagulation of choroid plexus using the modified Seldinger technique: a novel technique to unblock the ventricular catheter under local or general anaesthesia”.
- **Royal College of Surgeons of England - Preiskel Elective Prize in Surgery (1995: £1000)**
Elective in Sri Sathya Sai Superspeciality Hospital, Andra Pradesh, India.
- **Welcome Trust Elective Prize (1995: £980)**
Elective in Sri Sathya Sai Superspeciality Hospital, Andra Pradesh, India.
- **Science and Engineering Research Council CASE award (1990-1993: £45,000)**
In conjunction with SmithKline Beecham Pharmaceuticals for PhD degree in Pharmacology.
- **Medical Research Council Studentship (1989-1990: £9500)**
Intercalated BSc degree in Anatomy, University of Manchester.

MAJOR PUBLICATIONS:

TOTAL PUBLICATIONS	- Full papers:	53
	- Book/E chapters	3
	- Case reports:	48
	- Letters:	4

PUBLICATIONS ON PUBMED: [\(click here\)](#)

KEY PUBLICATIONS:

1. Humphreys GJ, Waqar M, McBain AJ, Gnanalingham KK (2017) Sphenoid sinus microbiota in pituitary apoplexy: a preliminary study. *Pituitary* (in press).
2. Giritharan S, Cox J, Heal CJ, Hughes D, Gnanalingham K, Kearney T (2017) The Prevalence of Growth Hormone Deficiency in Survivors of Subarachnoid Haemorrhage - Results from a Large Single Centre Study. *Pituitary* (in press).
3. Richardson SM, Ludwinski FE, Gnanalingham KK, Atkinson RA, Freemont AJ, Hoyland JA (2017) Notochordal and nucleus pulposus marker expression is maintained by sub-populations of adult human nucleus pulposus cells through aging and degeneration. *Nature Scientific Reports* (online)
4. Waqar M, McCreary R, Kearney T, Karabatsou K, Gnanalingham KK (2017) Sphenoid sinus mucosal thickening in the acute phase of pituitary apoplexy. *Pituitary* Aug; 20 : 441-449.
5. Davies BM, Tirr E, Wang YY, Gnanalingham KK. (2017) Transient Exacerbation of Nasal Symptoms following Endoscopic Transsphenoidal Surgery for Pituitary Tumors: A Prospective Study. *J Neurol Surg B Skull Base*. Jun;78 : 266-272.
6. Kyriacou A, Gnanalingham KK, Kearney T (2016) Lymphocytic hypophysitis: modern day management with limited role for surgery. *Pituitary* Apr 20 : 241-250.
7. Giritharan S, Gnanalingham KK, Kearney T (2016) Pituitary apoplexy - bespoke patient management allows good clinical outcome. *Clinical Endocrinology (Oxf)*. 85 : 415-22.
8. Davies BM, Atkinson RA, Ludwinski F, Freemont AJ, Hoyland JA, Gnanalingham KK (2016) Qualitative grading of disc degeneration by magnetic resonance in the lumbar and cervical spine: lack of correlation with histology in surgical cases. *British Journal of Neurosurgery*. 21:1-8.
9. Davies, BM, Carr E, Soh C, Gnanalingham KK (2016) Assessing size of pituitary adenomas: a comparison of qualitative and quantitative methods on MR. *Acta Neurochirurgica*. 158:677-83.
10. Keiler A, Schmoelz W, Erhart S, Gnanalingham K (2014) Primary stiffness of a modified transforaminal lumbar interbody fusion cage with integrated screw fixation: cadaveric biomechanical study. *Spine* 39(17) : E994-E1000.
11. Zador Z, Coope DJ, Gnanalingham KK, Lawton MT (2014) Quantifying surgical access in eyebrow craniotomy with and without orbital bar removal: cadaver and surgical phantom studies. *Acta Neurochirurgica*. 156 : 697-702.
12. Abou-Zeid A, Palmer J, Gnanalingham KK (2014) Day Case Lumbar Discectomy – Viable option in the UK? *British J Neurosurgery*. 28 : 320-3.
13. Zador Z, Gnanalingham KK (2013) Endoscopic transnasal approach to the pituitary - Operative technique and nuances. *British Journal of Neurosurgery* 27 : 718-26.
14. Zador Z, Gnanalingham KK (2013) Eyebrow craniotomy for anterior skull base lesions: how I do it. *Acta Neurochirurgica*. 155:99-106
15. Ludwinski FE, Gnanalingham K, Richardson SM, Hoyland JA (2013) Understanding the native nucleus pulposus cell phenotype has important implications for intervertebral disc regeneration strategies. *Regenerative Medicine* 8 : 75-87.
16. Gnanalingham KK, Davies BM, Balamurali G, Titoria P, Doyle P, Abou-Zeid A (2013) Improving levels of evidence in studies published in spinal journals from 1983 to 2011. *British J Neurosurgery*. 27 : 152-5.
17. Wang YY, Higham C, Kearney T, Davis J, Trainer P, Gnanalingham KK (2012) Acromegaly surgery in Manchester revisited - The impact of reducing surgeon numbers and the 2010 consensus guidelines for disease remission. *Clin Endocrinol (Oxf)*. 2012 76:399-406
18. Zador Z, Abou-Zeid A, Wang YY, Gnanalingham KK (2012) Minimally Invasive Surgical (MIS) Approaches to the Posterior Thoraco-lumbar Spine. Part 1 & 2. [E-brain, 2012; <http://www.ebrainjnc.com/learning/course/view.php?id=80>]
19. Wang YY, Zador Z, Gnanalingham KK (2011) Performing transsphenoidal approach to the sellar Part 1 & 2. [E-brain, 2011; <http://www.ebrainjnc.com/learning/course/view.php?id=82>]
20. Zador Z, Wang YY, Gnanalingham KK (2011) Performing an eye brow craniotomy Part 1 & 2. [E-brain, 2011; <http://www.ebrainjnc.com/learning/course/view.php?id=80>]
21. Wang YY, Thirayai WA, Ramaswamy R, Gnanalingham KK (2011) Accuracy of surgeon's estimation of sella margins during endoscopic surgery for pituitary adenomas: Verification using neuro-navigation. *Skull base* 21:193-200.

22. Wang YY, Srirathan V, Tirr E, Kearney T, Gnanalingham KK (2011) Nasal symptoms following endoscopic trans-sphenoidal pituitary surgery: assessment using the General Nasal Patient Inventory *Neurosurgery Focus* 30:E12.
23. Wang YY, Kearney T, **Gnanalingham KK** (2011) Low grade CSF leaks in endoscopic trans-sphenoidal pituitary surgery: Efficacy of a simple and fully synthetic repair with a hydrogel sealant *Acta Neurochirurgica* 153:815-22.
24. Leach P, Abou-Zeid A, Kearney T, Davis J, Trainer P, **Gnanalingham KK** (2010) Endoscopic transsphenoidal pituitary surgery: Evidence for an operative learning curve. *Neurosurgery* 67:1205-12.
25. Richardson SM, Doyle P, Minogue BM, **Gnanalingham KK**, Hoyland JA (2009) Increased Expression of Matrix Metalloproteinase 10, Nerve Growth Factor and Substance P in the Painful Degenerate Intervertebral Disc. *Arthritis Research & Therapy*, 11:R126
26. Doyle PM, Waziq AT, Joshi A, Du Plessis D, Kearney T, **Gnanalingham KK** (2009) Beta human Chorionic Gonadotropin (β -hCG) expression in pituitary adenomas: relationship to endocrine function and tumour recurrence. *Pituitary* 12 : 190-5.
27. Schaller B, Prabhakar H, Koerbel A, **Gnanalingham KK**, Cornelius JF, Sandu N, Ottaviani G, Filis A, Buchfelder M for the Trigemino-Cardiac Reflex Examination Group (TCREG) (2009) Review article: The trigeminocardiac reflex (TCR): An update of the current knowledge. *Journal of Neurosurgical Anaesthesiology*. 21 : 187-95.
28. Powell M, **Gnanalingham KK**, (2007) Editorial: Endoscopic transsphenoidal pituitary surgery – Is it here to stay?. *British Journal of Neurosurgery* 21 : 315-7.
29. **Gnanalingham KK**, Tysome J, Martinez-Canca, J, Barazi SA (2006) Quality of clinical studies in Neurosurgical journals: Signs of improvement over three decades? *J Neurosurgery* 103 : 439-443.
30. Singh A, **Gnanalingham KK**, Casey A, Crockard A (2006) Quality of life assessment using the Short form-12 (SF12) questionnaire in patients with cervical spondylotic myelopathy: Comparison with SF36. *Spine* 31 : 639-43.
31. **Gnanalingham KK**, Bhattacharjee S, Pennington R, Ng J, Mendoza N (2005) The time course of visual field recovery following transsphenoidal surgery for pituitary adenomas: predictive factors for a good outcome. *Journal of Neurology, Neurosurgery and Psychiatry* 76 : 415-9.
32. Gnanalingham KK, Lafuente J, Brew S, Thompson D, Harkness W and Hayward R (2005) Percutaneous coagulation of choroids plexus to unblock the ventricular catheter using the Seldinger technique: Preliminary report. *Surg Neurology* 64 : 440-3
33. Datta G, **Gnanalingham KK**, Peterson D, Mendoza N, O'Neill K, Van Dellen J, McGregor A, Hughes SPF (2004) Back pain and disability following lumbar laminectomy – Is there a relationship to muscle retraction? *Neurosurgery* 54 : 1413-20.
34. **Gnanalingham KK**, Elsaghier A, Kibbler C, Shieff C (2003) The impact of Methicillin resistant *Staphylococcus Aureus* (MRSA) in a Neurosurgical unit: A growing problem. *Journal of Neurosurgery* 98 : 8-13.
35. **Gnanalingham KK**, Lafuente J, Thompson D, Harkness W and Hayward R (2002) Surgical procedures for posterior fossa tumours in children: Does craniotomy lead to fewer complications than a craniectomy? *Journal of Neurosurgery* 97 : 821-826.
36. **Gnanalingham KK**, Byrne EJ, Thornton A, Sambrook M and Bannister P (1997) Motor and cognitive function in Lewy Body Dementia: comparison with Alzheimer's and Parkinson's diseases. *Journal of Neurology, Neurosurgery and Psychiatry* 62 : 243-252
37. **Gnanalingham KK**, Byrne EJ and Thornton A (1996) Clock-face drawing to differentiate Lewy body and Alzheimer type dementia syndromes. *Lancet* 347 : 696-697
38. **Gnanalingham KK**, Hunter AJ, Jenner P, Marsden CD (1995) Stimulation of adenylate cyclase activity by benzazepine D-1 dopamine agonists with varying efficacies in the 6-hydroxydopamine lesioned rat - relationship to circling behaviour. *Biochemical Pharmacology* 49 : 1185-1193
39. **Gnanalingham KK**, Hunter AJ, Jenner P, Marsden CD (1995) Selective dopamine antagonist pre-treatment on the antiparkinsonian effects of benzazepine D-1 dopamine agonists in rodent and primate models of Parkinson's disease - the differential effects of D-1 dopamine antagonists in the primate. *Psychopharmacology* 117 : 403-412
40. **Gnanalingham KK**, Erol DD, Hunter AJ, Smith LA, Jenner P, Marsden CD (1995) Differential antiparkinsonian effects of benzazepine D-1 dopamine agonists with varying efficacies in the MPTP-treated common marmoset. *Psychopharmacology* 117 : 275-286

41. **Gnanalingham KK**, Robertson RG (1994) The effects of chronic continuous versus intermittent levodopa treatments on striatal and extrastriatal D-1 and D-2 dopamine receptors and dopamine uptake sites in the 6-hydroxydopamine lesioned rat - an autoradiographic study. *Brain Research* 640 : 185-194
42. **Gnanalingham KK**, Robertson RG (1993) Chronic continuous and intermittent L-3,4-dihydroxyphenylalanine treatments differentially affect basal ganglia function in rats with unilateral 6-OHDA lesions of the medial forebrain bundle: an autoradiographic study using [³H]-Flunitrazepam. *Neuroscience* 57 : 673-681

KEY LECTURES & COURSES:

- Guest Lecture – “Minimally invasive Neurosurgery”, Worshipful Company of Cutlers – (2004)
- Faculty Member – “Surgical approaches to Pituitary Lesions”, Royal College of Surgeons of England, London, UK – (2006 & 2008)
- Faculty member – “Cervical Spine Disease & Spinal Trauma: Principles of management” Mch Master of Surgery, Trauma & Orthopaedics, University of Edgehill, UK – (annually, 2006 onwards)
- Guest Lecture – 7th Spanish Congress of Neurospine Society – “Minimally invasive posterior thoracolumbar fixation – Theoretical and practical advantages”, Barcelona, Spain (2007)
- Guest Lecture – “Endoscopic surgery for Acromegaly”, 9th Clinico-Pathological Conference in Pituitary Disease, Royal Society of Medicine, London, UK – (2007)
- Guest Lecture – EANS Workshop: “Less invasive posterior lumbar instrumentation: The solution for lumbar degenerative pathologies?”, EANS meeting, Glasgow, UK (2007)
- Faculty member – Depuy Spinal Workshop – “Intermediate cervical instructional course”, Barcelona, Spain (2007)
- Faculty member – Depuy Spinal Workshop – “Minimally Invasive Surgical techniques in the Thoracolumbar Spine: Instructional Course”, Barcelona (2008 to 2015; 2-3x a year)
- Guest Lecture – WENMISS Workshop: “Posterior lumbar instrumentation – Less Invasive Approach”, WENMISS (World Society for Endoscopic, Navigated & Minimally Invasive Spine Surgery) London, UK (2008)
- Visiting Professor at the Chinese University of Hong Kong – The Prince of Wales Hospital. “Minimally Invasive Surgery for lumbar spine – Lecture and Live surgery demonstration, Hong Kong (July, 2008)
- Guest Lecture – Manchester Medical Society Meeting: “Pituitary surgery – Nose picking the advanced way”. Manchester, UK (Sept, 2008)
- Faculty member – EANS Course II in Spinal Surgery – Thoracolumbar Spine. Opatija, Croatia, (November, 2008)
- Faculty member – MRCS course at North Manchester general Hospital – Head and C-Spine injury, Manchester, UK (biannually, 2009 onwards)
- Guest Lecture – What’s the evidence for MIS in spine – First National Congress of Minimally Invasive Surgery, Porto, Portugal (February, 2009)
- Guest Lecture – Endoscopic Pituitary surgery: Operative learning curve – 34th meeting Egyptian Society of Neurological Surgeons (ESPN) in collaboration with AANS, Hurghada, Egypt (March, 2009)
- Faculty member – Technical Tips and Error Avoidance in Spinal Surgery (TTEASS). Royal Coll Surg Eng (November, 2009)
- Faculty member – Cardiff Spinal Surgery Course, WIMAT (Welsh Institute for Minimall Access Therapy), Cardiff, UK (September, 2010)
- Faculty member –AO Spine Advances Symposium—Trauma Spine, Manchester, UK – (October, 2010)
- Faculty member – “MIS: Why and Why Not?” Work shop at Eurospine, Milan Italy (October, 2011)
- Guest Lecture – “Neurosurgery for Ophthalmologists” Manchester Royal Eye Hospital (MREH) Bicentenary conference, Manchester, UK (June, 2014)
- Guest Lecture – “I’ve just removed a patient’s pituitary gland. How do I know if he/she needs hydrocortisone?” Northwest Endocrine Society, Manchester, UK (June, 2014)
- Faculty member – “Manchester Advanced Sinus Dissection Course” Cadaveric work shop at University of Manchester, UK (2013, 2015)
- Faculty member of work shop at the SSSIHMS – “Endoscopic Skull Base Surgery Workshop and Neuro-Endocrine Symposium – Lectures and Live surgery demonstration, Bangalore India, (May, 2015)

- Session moderator at the International Society for Pituitary Surgeons (ISPS) – Liverpool, UK (Nov 2015)
- Session moderator and Chair – “Pituitary surgery – is there still a place for microscopic procedures”; Congress of the European Skull Base Society, Berlin, Germany (May, 2016)
- Faculty member – “Manchester Skull Base Course” Cadaveric work shop at University of Manchester, UK (2017)

OTHER KEY PRESENTATIONS:

- Clinical Neuroscience Section – Royal Society of Medicine – (2005)
- American Association of Neurosurgeons (AANS) meeting, Orlando, USA – (2004)
- Annual meeting of the International Society for Paediatric Neurosurgery, Kyoto, Japan – (2002)
- Congress of Neurosurgeons (CNS) meeting, Philadelphia, USA – (2002)
- Society of British Neurosurgeons meeting (SBNS), UK – (2001, 2003, 2004, 2007, 2008, 2009, 2010)



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