



ACTIVITY REPORT 2003

DEPARTMENT OF
ORTHOPAEDIC SURGERY



GANGA HOSPITAL
Coimbatore, INDIA

F ounders



*Mrs Kanakavalli Shanmuganathan &
Dr. J.G.Shanmuganathan*

*Their vision, total commitment and hard work
laid foundation of this institution ...*

...by example, they continue to inspire us.



1978 The beginning...

Ganga Hospital was founded in the year 1978 by Dr.J.G.Shanmuganathan and Mrs. Kanakavalli Shanmuganathan. Due to the dedicated work of Dr.J.G.Shanmuganathan and administrative skills of Mrs. Kanakavalli Shanmuganathan, the hospital grew steadily over the years. In 1991, Ganga Hospital was converted into a speciality centre for Trauma, Orthopaedics, Spine, Plastic and Micro Vascular surgery, following the return of their sons Dr. S.Rajasabapathy and Dr.S.Rajasekaran who had completed their speciality training abroad.

Soon, a highly skilled and dedicated team of Orthopaedic, Plastic and Anaesthesiologists was formed, which made the hospital a reputed and preferred centre for Trauma, Orthopaedics and Plastic Surgery.



... 2003 The journey continues

Ganga Hospital's steady progress over the years is the direct result of the confidence and goodwill of patients and the support of numerous referring doctors. With the grace of the Almighty, Ganga Hospital will continue to serve society in a greater measure in the years to come.



Looking ahead . . .

Another year...another opportunity to look back with a sense of contentment and to move forward with confidence.

The year 2003 witnessed expansion of the team and growth in all areas. With the addition of one more junior consultant, 2 registrars and one trauma research fellow, the team is geared for more work and achievements.

Patients' interest and care was the centre of focus as usual. Clinical work witnessed ample growth. While this reflects the confidence bestowed on us by our patients and referring physicians we are also aware of our growing responsibilities. A patient can offer us no higher tribute than to entrust us with his life and health and we continuously strive for improved treatment outcomes.

Apart from clinical work the unit also forged ahead in academics and research. Three major international meetings were hosted which were well attended and acclaimed for the scientific content and organization. The highlight of the year was however the quality of clinical and basic science research performed in both the fields of spine surgery and major trauma of limbs. These have earned prestigious national and international awards and the department is now recognized as a research unit of international standing.

Amidst all activities, responsibility to the society was not forgotten and the department has reached out to the community with its numerous service projects. In closing, I would like to thank the Almighty for His continued blessings, our referring physicians for their continued support and our patients for their trust.

To move ahead, stay in the forefront and to serve better will be the aim for the coming year.

Dr. S. Rajasekaran

M.S. (Ortho)., Dip. NB (Ortho)., F.R.C.S.(Ed)., M.Ch (Liverpool)., Ph.D.

**Director and Head
Department of Orthopaedics & Spine Surgery**

HIGHLIGHTS - 2003

Clinical work

- ◆ Total Outpatients: 61,400
- ◆ New Outpatients: 17,800
- ◆ Total Admissions: 3,640

Conferences Conducted

- ◆ 1st Conference of Trauma Section of APOA
- ◆ Combined meeting of the Spine Societies of India & Europe
- ◆ National Trauma Management Course

Awards Received for Research in 2003

International Society for Study on Lumbar Spine

- ◆ ISSLS Lumbar Spine Research Award - 2004

Medical Council of India

- ◆ BC Roy Silver Jubilee Research Award

Indian Orthopaedic Association

- ◆ Silver Jubilee Oration Award 2003
- ◆ K.P.Srivathsava Gold Medal for Best Poster
- ◆ Best Paper Presentation Award Trauma Session

Association of Spine Surgeons of India

- ◆ ASSI-Depuy Best Spine Research award
- ◆ ASSI-Depuy Publication award

Tamil Nadu Orthopaedic Association

- ◆ Prof. A. Subramaniam Gold Medal
- ◆ TNOA-Best Poster Award

Community Service

- ◆ Project Help Line - Help for the Helpless
- ◆ First Aid Awareness Programme
- ◆ Public Forum on Arthritis and Joint Pain
- ◆ Rotary Accident Help Line Centres

The Team & Staff

*“Alone we can do so little.
Together we can do so much”
-Helen Keller*



**DR. S. Raja Sabapathy***M.S. (Gen), M.Ch. (Plastic),
DNB (Platic), F.R.C.S (Ed).*Director and Head
Department of Plastic Surgery,
Hand Surgery and Reconstructive Microsurgery**Prof. Dr. M. V. Daniel***M.S. (Gen), M.S. (Ortho),
FACS (Ortho)*Academic Director of
Department of Orthopaedics

The hospital's work is supervised and guided by **Dr. S. Raja Sabapathy**, Head of the department of Plastic, Hand and Micro surgery, **Dr. S. Rajasekaran**, Head of the department of Orthopaedics and Spine surgery and **Prof. M. V. Daniel**, Academic director for Orthopaedic Surgery.

Orthopaedic Department:

The department is well staffed with 3 senior consultants, 1 junior consultant, 2 senior registrars, 3 registrars, 3 spine fellows, 2 trauma fellows, 1 paediatric orthopaedic fellow, 4 tutors in orthopaedic surgery and 10 post graduates.

Dr.S.Rajasekaran is the Clinical director and head of the department of orthopaedics and spine surgery. He was the **best outgoing student** of Coimbatore Medical College and stood **first in the University of Madras** in the orthopaedic post graduate examinations. He completed FRCS in Edinburgh and topped the University of Liverpool in the M.Ch orthopaedic examinations, **winning both the University Medals**. He has a PhD in Spinal Tuberculosis. For this work he was awarded the '**Tamil Nadu Scientists Award**' by the Government of Tamil Nadu, the prestigious '**Dr. B.C. Roy Silver Jubilee Research Award**' for original research work by the Medical Council of India for the year 2002 and the '**Sofamar Danek Award**' of the International Society for the Study of Lumbar Spine, Canada. He headed the research on disc diffusion which was awarded the coveted '**ISSLS Lumbar Spine Research Award**' from International Society for Study on Lumbar Spine- Canada, **ASSI - Depuy Best Spine research award** of the Association of Spine Surgeons of India and '**Best paper presentation award Brit Spine**' Nottingham, England.

**Dr.S.Rajasekaran***M.S. (Ortho), Dip. NB (Ortho),
F.R.C.S.(Ed), M.Ch (Liverpool), Ph.D.*Director and Head
Department of Orthopaedics &
Spine Surgery**Current Positions****President Elect**- World Orthopaedic Concern, UK**Chairman** - Trauma Section, 'Asia Pacific Orthopaedic Association'**Regional Council Member** - Asia Pacific Orthopaedic Association**Executive Committee member** -International Society for Study on Lumbar Spine, Canada.**Secretary**-Association of the Spine Surgeons of India**President** - Association of British Scholars, Coimbatore Chapter, British High commission New Delhi, India**Associate Editor** - SPINE - Indian Edition.**Reviewer** - Journal of Bone and Joint Surgery (Br)**Editorial Board** - Journal of Delhi Orthopaedic Association.**Examiner for** - National Board of Examinations, New Delhi.



Dr. J.Dheenadhayalan
M.S. (Ortho)

Dr. J.Dheenadhayalan joined the department in 1992 and became a **Consultant** in 1998. He had his basic orthopaedic training at Mysore, followed by advanced training at Nuffield Orthopaedic Centre, U.K. and a fellowship in Joint Replacement Surgery in Germany. He has been the Organising Secretary of International Conferences on Spine Surgery in 1994, 1996 and 2000, of the Indo German Orthopaedic Foundation Meeting, 1999 and of the International Knee Course, 2001.

Founder member of the trauma section of Asia Pacific Orthopaedic Association.

Executive Committee Member of the World Orthopaedic Concern International UK.

Japanese Orthopaedic Association Travelling Fellow-2004

Special Interests: Trauma, Shoulder and Joint Replacement Surgery



Dr. Ajoy Prasad Shetty
M.S. (Ortho), D.NB (Ortho)

Dr. Ajoy Prasad Shetty joined the department in 1994 and became a **Consultant** in 2000. He had his basic orthopaedic training at Bangalore followed by advanced training in Spine Surgery at Adelaide, Australia. He was the Organising Secretary for many International Workshops on Spine Surgery and for the periodic Instructional Courses on Spine held on the subjects of low back pain and spinal deformities

Prof T.K.Shanmugasundaram Gold Medal of Tamil Nadu Orthopaedic Association in 1995

Co-Author of ISSLS Spine Research Award Winning Paper.

Special Interests: Trauma and Spine Surgery.



Dr. S.R.Sundararajan
M.S. (Ortho)

Dr. S.R.Sundararajan joined the department in 1997 and became a Senior Registrar in 2001. He received Advanced Training in Arthroscopy and arthroplasty at Flinders Medical Centre, Australia and joined the department as a **Junior Consultant** in 2003.

Special interests: Trauma, Arthroscopy and Arthroplasty.



Department of Anaesthesia



Dr.Maheshwari S.Kumar, Dr. G. Venkateswaran, Dr.J.Balavenkatasubramanian,
Dr.C.Sekar, Dr.V.Ravindra Bhat

The department of anaesthesia offers round-the-clock comprehensive peri-operative care for all patients and forms the backbone of the unit. **Dr. V.Ravindra Bhat, M.D., DA, DNB**, joined as a consultant in 1993. He was the co-chairman of the scientific committee of ISA National Conference 2002 held at Coimbatore. **Dr.C.Sekar, MD** joined as a consultant in July 1995. His area of interest is anaesthesia for major spine surgeries. **Dr. J.Balavenkatasubramanian, MD, DA** joined as a consultant in April 1995. He was the chairman of the scientific committee of ISA National Conference 2002 held at Coimbatore. **Dr. Maheshwari S. Kumar** had her training at Ramachandra Medical College, Chennai and joined as registrar in 2000. **Dr. G. Venkateswaran, DA, DNB** has joined the unit as a registrar in 2002.

Spine Fellows



Dr. Yogesh K. Pithwa, Dr. J. Naresh Babu and Dr. Thomas Kishen

In 2000, the spine unit was recognized as the first unit in the country for super speciality training in spine surgery by the National Board of Examinations, New Delhi. The fellows have ample exposure to clinical problems and facilities for research with adequate funding from the Ganga orthopaedic research fund and Johnson and Johnson Ltd. **Dr. Yogesh Pithwa** is the senior spine fellow and was the Japanese Orthopaedic Association traveling fellow. He is the recipient of the Vyagreswaradu gold medal of TNOA and was the co-author of 3 international scientific publications. **Dr. J. Naresh Babu** was one of the principle research member of the ISSLS award winning work on human lumbar discs and recipient of the ASSI best spine research award. **Dr. Thomas Kishen** is actively involved in two prospective trials on cervical discectomy and limited decompression for multi level lumbar spinal stenosis.



Dr. B.C. Bhanu Prakash and Dr. Dhanasekar Raja

Arthroplasty Fellows

With the department crossing more than 100 total joint replacements last year, there was a need for arthroplasty fellows for accurate pre, intra and post operative documentation and counseling of patients. With the introduction of image guided surgery there is ample scope for cutting edge research and contribution to existing knowledge in this field. **Dr. B.C. Bhanu Prakash** and **Dr. P. Dhanasekar Raja** are the arthroplasty fellows for 2003.

Trauma Fellows

The Trauma Fellows are primarily responsible for the accurate documentation and record maintenance of the large number of trauma patients. The Fellows are exposed to more than 3500 major limb trauma every year and participate actively in ward management and surgical treatment of these patients. The one-year Fellowship receives ample funding and has enabled important research on various management options in the fields of open injuries of limbs, general trauma and interlocking nails since 1995. The present Trauma Fellows are **Dr. Ketan . S. Khurjekar** and **Dr. S. Pushpa Sekar**.



Dr. S. Pushpa Sekar & Dr. Ketan S. Khurjekar



Dr. K. Durga Nagaraju

Paediatric Orthopaedic Fellow

This year **Dr. K. Durga Nagaraju** was selected as the first paediatric orthopaedic fellow. He is actively involved in the management of children with poliomyelitis, congenital deformities and cerebral palsy. His research work on “Suturing vs. Non suturing of tendons in primary CTEV surgery” and “Ponseti's method in correction of CTEV in children with late presentation” have been presented in numerous meetings.

Overseas Trainees

The unit has become a popular destination for overseas trainees from neighboring countries. **Dr. S. Jayamanohara** was deputed by the National University of Sri Lanka, Colombo for one year of training in advanced trauma and spine surgery. He functioned in the post of senior registrar with full clinical and surgical responsibilities. He also actively participated in the unit's teaching and academic activities. **Dr. Iqbal Qavi**, Associate Professor of Orthopaedic Surgery, Dakha, Bangladesh was also in the department for a short-term training in advanced trauma surgery.



Dr. S. Jayamanohara FRCS



Clinical Work

'A patient can offer us no higher tribute than to entrust us with his life and health, and by implication, with the happiness of his entire family. To be worthy of this trust, we must submit for a life time effort in the search of knowledge and of constant devotion to every detail in every operation that we perform'

- Sir Berkley Moynihan



Clinical Work

With 150 dedicated beds, 5 operation theatres, 17, 800 new out patients, 61, 400 total out patients and 3, 640 major surgeries, the unit stands as one of the premier institutes in the field of orthopaedic surgery in our country. The high clinical load is well managed by the staff who have strived to be the best in their fields through constant training and upgrading of skills. The operating theatres are functional 24-hours a day and are equipped with the state of the art equipments allowing skilled and demanding surgeries to be performed at any time of the day.

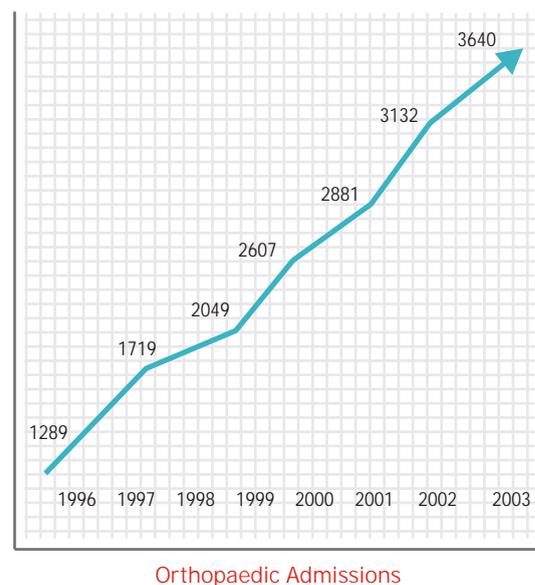
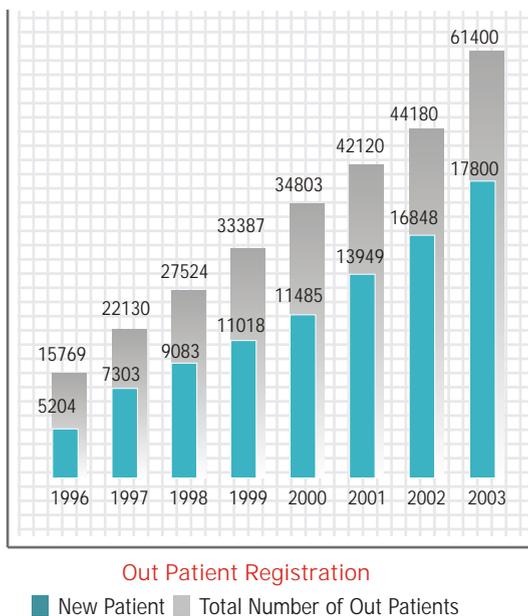
The department functions as a tertiary referral centre for all fields in orthopaedic surgery and is recognized internationally for its expertise in the management of major polytrauma and spine surgery. In 2003, the unit has also matured into an important unit for joint replacements performing more than 100 primary and revision replacements of knee, hip, shoulder and elbow. The quality of clinical work is carefully documented and frequently monitored by a meticulous clinical audit. This has helped to a great extent to maintain the high standards of the work and improve the results of treatment for the patient.



Acetabular fracture fixation surgery in progress



Out-patient Department





Trauma

A total of 3,155 number of trauma surgeries were performed this year accounting for nearly 10 major trauma surgeries everyday. The large trauma load is managed round the clock by the availability of an orthopaedic and plastic surgical team, three trauma theatres each fully equipped with a Siemens image intensifier and state of the art instrumentation and implants.

Five full time anesthesiologists provide continuous cover to the trauma theatres and to the trauma intensive care unit. There are also cardio thoracic, general and neuro surgeons on call for patients with poly trauma. The unit's work with close co-operation with the plastic unit has helped to set new trends in the treatment of open and mutilated injuries of limbs. The rich clinical experience has led to the evolving of a "Comprehensive trauma score to prognosticate salvage and outcomes in grade III open injuries of limbs" and to evaluate the "Role and safety of primary closure in open injuries".



Grade IIIB open fracture of tibia with bone loss treated by immediate debridement, wound cover and bone transport resulting in good functional outcome.

Trauma Surgery



Trauma Surgery	1999	2000	2001	2002	2003
Interlocked Nailing	370	345	373	414	554
Plate Osteosynthesis	270	217	363	450	397
Hip Fractures	207	217	187	273	301
Major Open Injuries	210	227	172	183	119
Major Pelvic Fractures	15	13	29	34	34
Knee Injuries	200	186	178	268	298
Distal Forearm Fractures	170	160	185	330	372
Shoulder Injuries	62	77	68	67	66
Limb Reconstruction for Bone Loss	14	20	64	53	56
Miscellaneous Fractures	750	779	843	870	958
Total	2268	2241	2462	2759	3155

Grade IIIB open fracture of tibia with soft tissue loss which otherwise would have been treated by serial surgical procedures, was treated by immediate debridement and wound closure with excellent functional result.

Spine

The department functions as a comprehensive tertiary referral centre for all spinal problems from the cranio-vertebral junction to the sacrum. The work is ever increasing with more than 6500 new spine out patients and 416 major spinal surgeries in 2003.

Micro spine surgery is routinely used for cervical and lumbar disc problems, removal of spinal tumors and in the treatment of congenital problems like tethered cord syndrome. Complex deformities due to tuberculosis or developmental problems are routinely treated by single or double staged corrections with spinal fixations. The clinical work attracts trainees from all parts of India, Indonesia, Sri Lanka, Bangladesh and China.



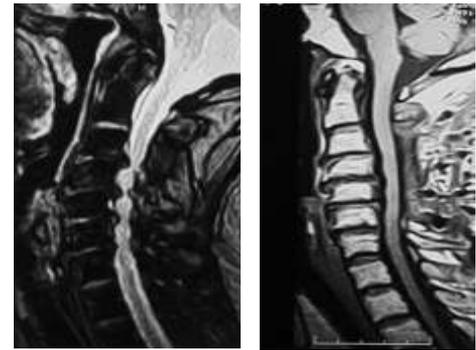
Before Surgery

After Surgery

Scoliosis correction done by posterior pedicular instrumentation in a 14 year girl



Micro surgery in progress for removal of a spinal cord tumour.



Before Surgery

After Surgery

Cervical myelopathy due to multilevel disc degeneration in a 40 year old lady treated by posterior surgery

Spine Surgeries Performed

Spine Surgeries	1998	1999	2000	2001	2002	2003
Microdiscectomy	61	66	59	73	103	105
Scoliosis & Kyphosis	20	19	23	24	27	41
Spinal Infections	2	3	17	23	18	15
Spondylolisthesis	32	25	37	50	60	67
Tumour Surgery	10	16	8	12	20	28
Cervical Spine Surgery	25	27	36	38	40	61
Spine Fractures	-	18	34	25	39	48
Degenerative Lumbar Stenosis	20	27	32	28	39	30
Miscellaneous	8	17	7	10	12	21
Total	178	218	253	283	358	416



Total Joint Replacement

The number of joint replacements performed has steadily increased from 41 in the year 2000, 86 in 2002 to 113 in 2003. Procedures include replacement of the hip, knee, shoulder and elbow. For patients with multiple joint arthritis, bilateral replacements are routinely performed in single admission and in suitable patients simultaneously on the same day. This has the advantage of promoting early rehabilitation and reducing the cost and pain for the patient.

The unit has also sufficient expertise to perform revision replacements and complex replacements such as in bone tumors where custom-made prosthesis is used to salvage the limbs. The unit has acquired the **VectorVision** for **computer assisted image guided surgery** which will bring precision and accuracy to heights which was previously not possible. This cutting edge technology will be of use especially in severely deformed joints that are common in our country.



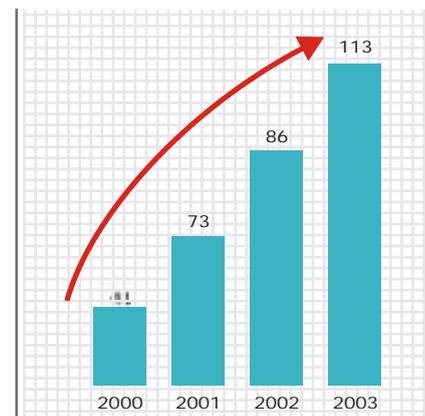
Total knee replacement in progress



Arthritis causes degeneration of joints and results in painful, deformed and unstable joints. Total joint replacement restores the joint alignment and results in painless stable range of movements.



Endoprosthetic replacement done for the tumour around the knee. These large tumours are usually treated by amputation but with the recent advancements in the joint replacements these limbs can be salvaged.



Total Number of Joint Replacement surgeries

Paediatric Orthopaedics

The clinical work in paediatrics is steadily increasing with 233 surgeries performed in 2003. Most of the work involves correction of birth deformities, infections and neurological problems. The unit has performed clinical research work in childhood spinal tuberculosis and in evaluating the role of Ponseti's method of correction of CTEV. With the aim of not letting any children suffer from any deformity for financial reasons the unit has joined hands with Coimbatore City Round Table 31 in providing free surgeries to children whose families cannot afford the basic costs of surgery.

This year, 'Project Helpline' received a boost with Johnson and Johnson Ltd joining hands in this project and donating Rs. 5 lakhs for expanding this project. The hospital has reciprocated this gesture by utilizing these donations to fund towards only consumables and performing surgeries worth Rs. 11.8 lakhs with this amount. This was possible by the entire medical team operating free of cost and the hospital heavily subsidizing the stay and treatment.



Before Cast

After Cast

Club foot deformity in a 3 months old child corrected without surgery by Ponseti plaster correction technique.

Paediatric Surgeries Performed

Procedure	1998	1999	2000	2001	2002	2003
CTEV	37	31	41	62	58	57
Limb deformity	54	62	68	41	44	31
Cerebral Palsy	37	33	48	51	56	53
Infection	42	39	42	47	58	40
Polio	28	33	48	51	53	52
Total	198	198	247	252	269	233



Limb lengthening performed in femur and tibia in congenital short limb



Arthroscopy of knee joint in progress

Arthroscopy

Arthroscopy of the knee for diagnostic and therapeutic purposes is performed routinely. Excision or repair of the meniscus and arthroscopic ACL reconstructions are performed.

These procedures have helped to radically change the functional results in problems of the knee. 58 ACL reconstructions and other therapeutic procedures were performed in 2003.



Awards

*Just the encouragement
that propels us to greater heights.*

The ISSLS Prize

for
Lumbar Spine
Sponsored by Del
Johnson & Johnson



17th
Annual Conference of
Association of
Spine Surgeons of
India

Recipients of ASSI-Deputy Publication Award
ASSI-Deputy Spine Research Award

S. Rajasekaran (Ortho), DNB (Ortho), ...



ISSLS - Spine Research Award winning team

ISSLS Prize for 2004
paper entitled

Lumbar discs



Chairman of ISSLS Prize Committee

President ISSLS

A wards

ISSLS Lumbar Spine Research Award

International Society for Study on Lumbar Spine-Canada.

A Study of Diffusion in Human Lumbar Discs

-A Serial MRI study documenting the influence of the endplate on diffusion in normal and degenerate discs.

**Dr.S.Rajasekaran, Dr.J. Naresh Babu, Dr.R.Arun,
Dr.BRW. Armstrong, Dr. Ajoy Prasad Shetty
Dr.K.S.Murugan**



receiving ISSLS Lumbar spine research Award from Mr.Gunnar Anderson, at Spine Week, Porto.Portugal.

B. C. Roy Silver Jubilee Research Award

Medical Council of India.

For original research work done in the field of spinal tuberculosis.

The Natural History of Childhood Spinal Tuberculosis

-A 15 year Prospective Study of Children Treated by Ambulant Chemotherapy.

Dr. S. Rajasekaran





Awards

Silver Jubilee Oration Award

Indian Orthopaedic Association

A Score to Prognosticate Limb Salvage and Outcome measures in Type III/IV Open Tibial fractures.
A Prospective Validation of a Comprehensive Score Assessing Injury to all Components of Limb and Associated Co-Morbid Factors.

Dr. S.Rajasekaran



Dr. S. Rajasekaran receiving Silver Jubilee Oration Award from the President of Indian Orthopaedic Association Dr. Praveen Kanabar at IOACON - 2003 Chennai.

ASSI - Depuy Publication Award

Association of Spine Surgeons India

For maximum number of publications in peer reviewed journals in the field of Spine Surgery

Dr. S.Rajasekaran



Dr. S. Rajasekaran receiving ASSI- Depuy Publication Award from Shree. Sharad Pawar at Annual Conference of Association of Spine Surgeons India, Pune.

Awards

Best Poster award

Tamil Nadu Orthopaedic Association.

Resection Arthodesis of knee with long intermedullary nail.

**Dr.Dhanasekara Raja, Dr. S.Rajasekaran,
Dr. J. Dheenadhayalan, Dr.Ajoy Prasad Shetty.**



ASSI - Deputy Best Spine Research Award

Association of Spine Surgeons of India

Influence of the Endplate Characteristics on Diffusion of Human Lu:

**Dr.J. Naresh Babu, Dr.S.Rajasekaran,
Dr.R.Arun, Dr.BRW. Armstrong,
Dr.K.S.Murugan**



Dr. J.Naresh Babu receiving ASSI-Deputy Best Spine Research Award from Shree. Sharad Pawar at Annual Conference of Association of Spine Surgeons India .Pune.



Awards

Best Paper Award

Orthopaedic Association of South Indian States

Analysis of changes in compartment pressure in reamed interlocking nailing of closed tibial fractures.

**Dr. Naveen Kumar, Dr. S. Rajasekaran,
Dr. C. Sekar, Dr. Ajoy Prasad Shetty.**



Dr. Naveen K
which won the B

Best Basic Science Presentation Award

Brit Spine- Nottingham, England.

Normal diffusion pattern on human lumbar Discs.

**Dr.R.Arun, Dr.S.Rajasekaran, Dr.J. Naresh Babu,
Dr.BRW. Armstrong, Dr. Ajoy Prasad Shetty, Dr.K.S.Murugan**



Annual Conference of Britspine

The third Combined Meeting of

British Scoliosis Society

British Cervical Spine Society

Society for Back Pain Research

British Association of Spinal Surgeons

British Association for Spinal Cord Injury



Dr. R. Arun receiving the award at Nottingham, England.

Awards

Best Poster Award

Association of Spine Surgeons of India

Use of Gadodiamide to assess Solute transport across human lumbar intervertebral Discs.

Dr. Arun, Dr. S. Rajasekaran, Dr. K. S. Murugan.



Best Scientific Presentation of Session Award

Indian Orthopaedic Association-Trauma Session

Primary Closure in Open Injuries Of the Limbs-The Role and Safety.

**Dr. J. Naresh Babu, Dr.S. Rajasekaran, Dr.Krishna Kumar,
Dr.J. Dheenadhayalan, Dr.Ajoy Prasad Shetty, Dr.S.Raja S**





Awards

K. P. Shrivatsava Gold Medal

Indian Orthopaedic Association for best poster presentation

Outcome of skeletal fixation in major upper limb replantation

- **Dr. B. C Bhanuprakash, Dr. S. Rajasekaran, Dr. Ajoy Prasad Shetty, Dr. Harivenkataramani, Dr. S. Raja Sabapathy.**



Indian Orthopaedic Association

Prof. A. Subramaniam Gold medal

Tamil Nadu Orthopaedic Association.

A study of solute transport across human lumbar intervertebral discs

Dr.R. Arun, Dr. S. Rajasekaran, Dr. K. S. Murugan.



Tamil Nadu Orthopaedic Association.

TOBIP Achievers award

Coimbatore Cosmo Junior Chamber

For Excellency in “ Profession”

- **Dr. S Rajasekaran.**



Coimbatore Cosmo Junior Chamber





*P*ublications & Presentations

*“Learning gives creativity,
Creativity leads to thinking,
Thinking provides knowledge,
Knowledge makes you great.”*

Shri A.P.J. Abdul Kalam.



Publications- 2003



Dr. S. Rajasekaran Ph.D

Dr. S. Rajasekaran Ph.D

*Text Book The Lumbar Spine, 3rd edition,
Chapter 79 "Tuberculosis of Spine".
Pages 755.*

Lippincott Williams & Wilkins

Edited by N.Herkowitz, Jiri Dvorak, Gordon Bell,
Margareta Nordin And Dieter grob.,



Manoj Kumar RV, Rajasekaran S.

J Bone Joint Surg Br. 2003 Aug; 85(6):883-6.

Spontaneous tendon ruptures in alkaptonuria.



S. Rajasekaran, PhD, and Yogesh K. Pithwa, MS.

SPINE Volume 28, Number 14, pp E273 E275.

*Baastrup's Disease as a Cause of
Neurogenic Claudication A Case Report*



Publications- 2003

05. A Comprehensive Trauma Score to Prognosticate Outcome in Grade III B Open Tibial Fractures.

American Academy of Orthopaedic Surgeons 71st Annual Meeting -Proceedings. Rajasekaran S, Rajasabapathy S, Kumar P.V Manoj, Naresh Babu J, Dheenadhayalan J, Ajoy Shetty Prasad, Maheswar Canjivaram.
06. Prospective Audit of Adverse events During Hospitalisation in a busy Orthopaedic Unit. Dr.J.Naresh Babu, Dr.K.Divakar Raju, Dr.B.C. Bhanu Prakash, Dr.S.Rajasekaran. Journal of Tamil Nadu Orthopaedic Association Vol:29-2003 Page 2- 5.
07. Posterior pedicular Instrumentation In Tuberculosis.
Dr.YK. Pithwa, Dr.S.Rajasekaran, Dr.T. Ajoy Prasad Shetty.
Journal of Tamil Nadu Orthopaedic Association Vol:29-2003 Page 65-68.
08. A Study of Diffusion Pattern in Human Lumbar Inter Vertebral Discs. An MRI Evaluation in Normal Volunteers and Low Backache Patients.
Dr.R.Arun, Dr.S.Rajasekaran, Dr. K.S.Murugan. Journal of Tamil Nadu Orthopaedic Association Vol:29-2003 Page 75-79.
09. Two Rare Cases of Tarsal Tunnel Syndrome. Dr.R.Arun, Dr.S.Rajasekaran.
Journal of Tamil Nadu Orthopaedic Association Vol:29-2003 Page 96-97.
10. Functional Outcome in Major Upper Limb Replantations. Dr.B.C. Bhanu Prakash, Dr.T. Ajoy Prasad Shetty, Dr.Hari Venkataramani, Dr.S.Rajasekaran, Dr.S.Rajasabapathy. Journal of Tamil Nadu Orthopaedic Association Vol:29-2003 Page 98-102.
11. Turn Graft Arthrodesis of Knee with Long Intramedullary Nail.
Dr. P. Dhanasekara Raja, Dr.T. Ajoy Prasad Shetty, Dr. J. Dheenadhayalan, Dr.S.Rajasekaran. Journal of Tamil Nadu Orthopaedic Association Vol:29-2003 Page 106-110.
12. Anaesthetic Consideration in a Polytrauma Patient. Dr. J. Balavenkatasubramanian.
Journal Of International Trauma and Critical Care Society of India.Vol:2,No:1, Feb 2003
13. Orthopaedic Management In a Polytrauma Patient. Dr. S. Rajasekaran
Journal Of International Trauma and Critical Care Society of India.Vol:2,No:1, Feb 2003
14. Surgical Treatment of Cervical Spondylotic Myelopathy.
Dr.S.Rajasekaran
SPINE Continuing Orthopaedic Education-2003 Page 95-102.
15. Kyphus Behavior in TB of the Spine
Dr.S.Rajasekaran
SPINE Continuing Orthopaedic Education-2003 Page 141-148.



Presentations - 2003

1. Hand Review Meeting, Ganga Hospital Auditorium,
Coimbatore 4th January 2004

Topic: Skeletal Fixation Problem in Upper limb Injuries
- **Dr. S. Rajasekaran**

2. ASSICON 2003, Varanasi 24th January 2003

Topic: Rationale of Internal Fixation in Spinal Trauma
- **Dr. S. Rajasekaran**

3. ASSICON 2003, Varanasi January 24th 2003

Topic: Isolated Posterior Pedicular Instrumentation in Spinal TB
- **Dr. Yogesh K. Pithwa**

4. ASSICON 2003, Varanasi 25th January 2003

Topic: Principles of Management of Injuries of Dorso Lumbar Spine
- **Dr. S. Rajasekaran**

5. CME of Department of Orthopaedic Surgery and Traumatology, Madurai 26th January 2003

Topic: Interlocking Nailing in Long bone Fractures.
Dr. J. Dheenadhayalan

6. TNOA 2003, 8th February 2003

Topic: Posterior Pedicular Instrumentation in Spinal TB
- **Dr. Yogesh K. Pithwa**

7. Global Update on PAIN Conference, Bombay Hospitals,
Mumbai 7th February 2003

Topic: Guest Lecture on Management Strategies of Pain Relief in Trauma
- **Dr. J. Balavenkatasubramanian**



8. TNOA Conference, Kodaikanal 8th February 2003

Topic: Prospective evaluation of adverse events in a busy Orthopaedic Unit.
- **Dr. J. Naresh Babu**

9. TNOA Conference, Kodaikanal 9th February 2003

Topic: A Study Of Diffusion Pattern In Human Lumbar Intervertebral Discs. an MRI evaluation in normal volunteers and low back-ache patients
- **Dr. R. Arun**

10. TNOA Conference, Kodaikanal 9th February 2003

Topic: Poster Presentation - Resection Arthrodesis of Knee with long Intramedullary nail
- **Dr. Dhanasekara Raja**

11. South Asian Confederation of Anaesthesiologists Conference, Dhaka, Bangladesh 19th February 2003, Guest Lecture

Topic: Role on Anaesthesiologists in Acute Trauma Care
- **Dr. J. Balavenkatasubramanian**

12. Indo German Orthopaedic Foundation, Hyderabad 26th & 27th March 2003

Topic: Global Reconstruction on Open injuries.
- **Dr. S. Rajasekaran**

Presentations - 2003



13. Indo German Orthopaedic Foundation, New Delhi 28th March 2003

Topic: Global Reconstruction in Open Injuries
- **Dr. S. Rajasekaran**

14. Indian Society of Anaesthesiologists, Coimbatore 12th April 2003

Topic: Peri-operative Considerations in Electrical Burns
- **Dr. Maheshwari S. Kumar**

15. APOA Trauma Section Meet, Coimbatore 25th April 2003

Topic: Compartment Pressure Measurement in Interlocking Nail Surgery
- **Dr. Naveen Kumar .B**

16. APOA Trauma Section Meet, Coimbatore 26th April 2003

Topic: Assessment and Prognostication in Grade IIIB Open Injuries
- **Dr. S. Rajasekaran**

17. APOA Trauma Section Meet, Coimbatore 26th April 2003

Topic: New Frontiers in Management of Open Injuries
- **Dr. S. Rajasekaran**

18. APOA Trauma Section Meet, Coimbatore 26th April 2003

Topic: Non Union Following Interlock Nails
- **Dr. J. Dheenadhayalan**

19. APOA Trauma Section Meet, Coimbatore 27th April 2003

Topic: Primary Bone Grafting in Open Fractures
- **Dr. Rajendra Babu A.B.**

20. Dr. M.S. Ramakrishnan Endowment Memorial Oration, Chennai 4th May 2003

Topic: Open Fractures of Long Bone in Children
- **Dr. S. Rajasekaran**

21. Public Forum, Periyar EVR Mission, Chennai 30th May 2003

Topic: Care of the Spine and Prevention of Spinal Problems
- **Dr. S. Rajasekaran**

22. Combined Instructional Course of IORAS Madurai and Ganga Hospital 8th June 2003

Topic: A New Scoring System for Prognostication of Grade III Open Injuries
- **Dr. S. Rajasekaran**

23. Combined Instructional Course of IORAS Madurai and Ganga Hospital 8th June 2003

Topic: An Interesting Case for Diagnosis of Management
- **Dr. A.B. Rajendra Babu**

24. Combined Instructional Course of IORAS Madurai and Ganga Hospital 8th June 2003

Topic: An Interesting Case of Hip Trauma Management
- **Dr. Dhanasekara Raja**

Presentations - 2003

25. Dr. T.V. Sivanandam's Indian Medical Association,
Coimbatore: Birthday Commemoration Oration 15th June
2003

Topic: Severe Osteoarthritis Management

- Dr. J. Dheenadhayalan

26. Public Forum on Joint Pain and Arthritis 22nd June
2003

Topic: Arthritis and Joint Pain

-Dr. S. Rajasekaran

27. Guest Lecture at Continuing Medical Education
Programme of (WFSA/ISA) World Federation Society of
Anaesthesiologist at Yercaud. 13th July 2003.

Topic: Newer Muscle Relaxants

- Dr. J. Balavenkatasubramanian

28. OASISCON 2003, Bangalore 25th to 27th July 2003

*Topic: A Study of Diffusion Pattern In Human Lumbar
Intervertebral Disc MRI Evaluation in Normal Volunteers
and Low Back Ache Patients*

- Dr. J. Naresh Babu

29. OASISCON 2003, Bangalore 25th to 27th July 2003

Topic: Primary Bone Grafting in Open Injuries

- Dr. J. Dheenadhayalan.

30. OASISCON 2003, Bangalore 25th to 27th July 2003

*Topic: Evaluation of Safety of Immediate Post
Debridement Closure in Open Injuries*

- Dr. J. Naresh Babu



31. OASISCON 2003, Bangalore 25th to 27th July 2003

*Topic: Primary Bone Grafting in Open Injuries for Limbs
with Bone Deficit A Prospective Study in 60 Patients*

- Dr. A.B. Rajendra Babu

32. OASISCON 2003, Bangalore 25th to 27th July 2003

*Topic: A Prospective Study of Surgical Management of
Club Foot Comparison between Suturing vs Non-suturing
of 'Z' Plasty Tendons*

- Dr. Durga Nagaraju

33. OASISCON 2003, Bangalore 25th to 27th July 2003

*Topic: Management of Major Post Traumatic Bone Loss by
Bone Transport Using Limb Reconstruction System. - A
Comparison of Immediate and Staged Bone Transport
Protocols*

- Dr. Shashi Kumar Y.

34. OASISCON 2003 Bangalore 25th to 27th July 2003

*Topic: Turn Graft Arthrodesis of Knee with Long
Intramedullary Nail*

- Dr. Dhanasekara Raja

Presentations - 2003



35. OASISCON 2003, Bangalore 25th to 27th July 2003

Topic: *Analysis of Changes in Compartment Pressure in Reamed Interlocking Nailing of Closed Tibial Fractures*
- **Dr. B. Naveen Kumar**

36. First Combined Instructional Course on Spinal Surgery, Coimbatore 1st to 3rd August 2003

Topic: *Spinal Deformity Basics*
- **Dr. S. Rajasekaran**

37. First Combined Instructional Course on Spinal Surgery, Coimbatore 1st to 3rd August 2003

Topic: *Anterior Cervical Microdiscectomy*
- **Dr. S. Rajasekaran**

38. First Combined Instructional Course on Spinal Surgery, Coimbatore 1st to 3rd August 2003

Topic: *Unstable Thoracolumbar Fractures - Management Principles*
- **Dr. Ajoy Prasad Shetty**

39. First Combined Instructional Course on Spinal Surgery, Coimbatore 1st to 3rd August 2003

Topic: *Role of Surgery in Tuberculosis - Current Trends*
- **Dr. S. Rajasekaran**

40. Tamil Nadu State Anaesthesiologist Conference Chennai 16th and 17th August 2003.

Topic: *Initial Assessment and Resuscitation of a Poly-Trauma Victim*
- **Dr. J. Balavenkatasubramanian**

41. IOARS, Madurai 17th August 2003

Topic: *Scoliosis Basics and Logics*
- **Dr. S. Rajasekaran**

42. APSICON 2003 OOTY

Topic: *Fracture Healing in Open Injuries*
- **Dr. J. Dheenadhayalan**

43. XXI COE Spine New Delhi, Salem - 18th to 21st September 2003

Topic: *Kyphus Behavior in TB Spine*
- **Dr. S. Rajasekaran**

44. National Pulmonology conference, Coimbatore. 12th November 2003. "Airway Workshop"
- **Dr. J. Balavenkatasubramanian**

45. National Pulmonology conference, Coimbatore 12th November 2003.

Topic: *Sedation and Muscle Relaxant in ICU.*
- **Dr. J. Balavenkatasubramanian**

46. Annual Conference of Indian Orthopaedic Association Dec 19th 2003, Chennai.
Sliver Jubilee Commemoration Lecture.

Topic: *Ganga Hospital Open Injury Severity Score*
- **Dr. S. Rajasekaran**

47. Annual Conference of Indian Orthopaedic Association -Dec 19th 2003, Chennai.

Topic: *Outcome of Skeletal Fixation in upper limb re-plantation. (Poster Presentation)*
- **Dr. Bhanu Prakash**

Presentations - 2003

48. Annual Conference of Indian Orthopaedic Association
-Dec 19th 2003, Chennai.

Topic : *The Indications and Safety of Primary closure in open injuries of limbs*

- **Dr. J. Naresh Babu**

49. Annual Conference of Indian Orthopaedic Association
-Dec 20th 2003, Chennai.

Topic : *Bone loss in open fracture simultaneous VS Staged long bone Transport using LRS (Poster Presentation)*

- **Dr. Shashi Kumar**

50. Annual Conference of Indian Orthopaedic Association
-Dec 20th 2003, Chennai.

Topic: *Primary bone grafting in high energy open injuries of limbs*

- **Dr. A. B. Rajendra Babu**

51. Annual Conference of Indian Orthopaedic Association
-Dec 20th 2003, Chennai.

Topic: *24 Hour normal diffusion pattern of human lumbar Discs*

- **Dr. Naresh Babu**

52. Annual Conference of Indian Orthopaedic Association
-Dec 20th 2003, Chennai.

Topic : *A Prospective study of surgical management of club foot comparision between suturing of "Z" plasty tendons*

- **Dr. Durga Nagaraju K**

53. Annual Conference of Indian Orthopaedic Association
-Dec 20th 2003, Chennai.

Topic: *Turn Graft Arthrodesis of knee with long Interlocking nail*

- **Dr. Dhanasekara Raja P.**



54. Annual Conference of Indian Orthopaedic Association
-Dec 20th 2003, Chennai.

Topic: *Prospective experimental study Analysis of compartment pressure changes in reamed interlocking nail of closed tibial fracture*

- **Dr. Naveen Kumar**

55. Annual Conference of Indian Orthopaedic Association
-ASSI section -Dec 20th 2003, Chennai.

Topic: *Low back pain in children*

- **Dr. S Rajasekaran.**

56. Annual Conference of Indian Orthopaedic Association
-Dec 19th 2003, Chennai.
Continuing Medical Education.

Topic : *Fusion Following lumbar discectomy necessity or OverKill ?*

- **Dr. S Rajasekaran**

57. Indian Society of Anaesthesiologist National conference Dec 26th - 29th 2003, Bhuvaneshwar.

Guest Lecture : *Anaesthesia for Reconstructive Spine Surgery*

- **Dr. J. Balavenkatasubramanian**

58. Indian Society of Anaesthesiologist National conference Dec 26th - 29th 2003, Bhuvaneshwar.

Guest Lecture: *Pain Relief in Trauma*

- **Dr. J. Balavenkatasubramanian**

R esearch

“The first and foremost attribute of a true surgeon is an insatiable curiosity and not to be content and stop at the obvious.”

- Charles H Mayer





Research

A surgeon's responsibility is not only in providing quality care to the patient but also involves documenting, analyzing and researching into methods that would improve the care and contribute to development of science. The unit has broken the taboo that busy clinical practice is not compatible with academics and research. The salient research projects done in the last year are as follows:

Research - Spine

A Study of Diffusion in Human Lumbar Discs

A Serial MRI study documenting the influence of the endplate on diffusion in normal and degenerate discs.

Abstract Study Design: An in-vivo serial MRI study of diffusion characteristics in human lumbar discs over 24 hours in normal volunteers and patients with low back pain. **Objectives:** To document the temporal pattern of diffusion in normal human lumbar discs and to study the influence of the vascularity of bone and the status of end plate on diffusion in the normal and degenerate discs. **Summary of background data:** Diffusion is the only source of nutrition to the discs, but no firm data is available on pattern of diffusion in humans. More data on this important subject is required to improve our understanding of disc degeneration and to probe research possibilities for preventing the same. **Methods:** The diffusion pattern over twenty four hours following Gadodiamide injection was studied in 150 discs (96 normal & 54 degenerate). Signal intensity values for three regions of interest in bone - vertebral body (VB), subchondral bone (SCB), endplate or tidal zone (TZ) and seven in the disc, were calculated and normal percentiles of diffusion for these regions derived. Enhancement percentage (EP) for each time period, peak EP (PEP) for each region and the time taken to achieve PEP (T_{MAX}) were used to define and compare diffusion characteristics and to plot a time-intensity curve to document the 24 hour temporal pattern. The correlation of blood flow of the bone as measured by PEP of vertebral body (VB), the status of the end plate or tidal zone as measured by the PEP and T_{max} of the TZ were correlated with the diffusion of the disc. Univariate ANOVA, multiple comparisons, appropriate tests for significance and step-wise linear regression analysis were used for analysis of the data using SPSS software.

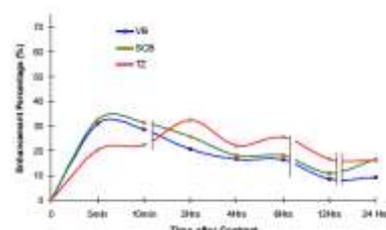
Results: In normal discs, a 'diffusion march' from the VB to the center of disc was noted with the S_{Imax} being observed at five minutes in VB and SCB; at two hours in TZ and at six hours in nucleus pulposus. A significant difference in mean PEP was observed between that of the body and the discs in those less than 10 years and those above the age of twenty ($p < 0.001$). Alterations in TZ produced distinct MRI signs of disturbance in diffusion, which offered a reliable noninvasive method of identifying endplate cartilage damage. Stepwise linear regression analysis showed that the significant variable influencing diffusion to the center of the nucleus pulposus of the total sample was PEP of TZ ($R^2 = 0.216$; $p < 0.001$); that of degenerate discs was PEP of TZ ($R^2 = 0.322$; $p < 0.001$) and that of normal discs was age ($R^2 = 0.324$; $p < 0.001$). **Conclusions:** Serial postcontrast MRI studies offer a reliable method of assessing the diffusion of the discs and the functional status of the endplate cartilage. Endplate cartilage damage increases with age and produces considerable changes in diffusion. The study has described reliable signs by which these damages can be identified in-vivo. Aging and degeneration have been shown to be two separate processes by documenting clear-cut differences in diffusion. The data of this study encourages use of diffusion studies as a non-invasive method to assess the physiological status of the disc and end plate and to study the effect of drugs, smoking, mechanical loading, exercises etc on the physiology of the disc.

Awards:

- ▶ **ISSLS Lumbar Spine research Award.**
International Society for Study on Lumbar Spine-Canada.
- ▶ **Brit Spine Best Paper Presentation Award.**
Britspine-Nottingham, England.
- ▶ **ASSI - Depuy Best Spine Research Award.**
Association of Spine Surgeons of India.
- ▶ **Prof. A. Subramaniam Gold Medal.**
Tamil Nadu Orthopaedic Association
- ▶ **Best Poster Award.**
Association of Spine Surgeons of India.



Time-intensity Curve of the Three ROI of the Bone in normals.

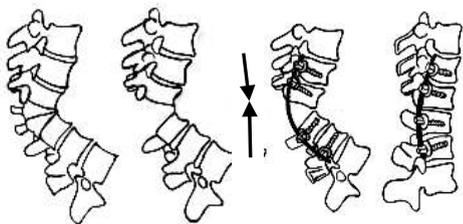


The 24-hour temporal pattern of diffusion characteristics of different regions of interest.

Spine

Single Stage Correction Of Post - Tubercular Kyphosis By Posterior Column Shortening

Spinal tuberculosis is the commonest cause for severe kyphosis in developing world. Kyphotic correction involving restoration of length of the spine is difficult and associated with major complications. We describe here a method of correction by posterior column shortening where the deformity is corrected in single stage and with high success rate. **Methods:** The study reports the results at an average follow up of 3.6 years (range 2 - 7 years) of seven patients (age ranged from 6 - 41 years) who had single stage correction of severe post tuberculous kyphosis. The average pre-operative kyphosis was 87.4 (range 60-130) degrees. Surgical procedure involved extensive exposure by posterior approach, stabilization of the two columns by pedicle screws, excision of posterior structures to match the anterior loss, excision of anterior kyphosis mass, careful mobilization of the cord, gradual and slow correction of kyphosis by suitably contoured rods. Care was taken not to distract the anterior column and the anterior deficit was filled by bone grafts from ribs in 4, iliac crest in one, fibula in one and using cage in one. **Results:** The average post-operative correction was 46.6 (range 39-60) degrees. At the final follow-up, the average loss was 5 (2-15) degrees. Average operating time was 3 hours with average blood loss of 650 ml (range 400-800). There were no complications specific to the procedure and no patient had neurological deterioration. One patient had implant breakage at 9 months follow up which needed revision with a long rod. **Conclusion:** Spinal shortening offers a reliable and safe method of correction of severe post tubercular kyphosis.



Surgical technique of single stage correction of kyphotic deformity by posterior column shortening.

Presented:
Annual conference of Association of Spine Surgeons of India. Annual Conference of Tamil Nadu orthopaedic Association.

Spine

Pre-emptive Analgesia For Post - Operative Pain Relief In Lumbosacral Spine Surgeries A Randomized Controlled Trial

Although pre-emptive analgesia is considered superior to other forms of analgesia, its role in postoperative pain relief following lumbosacral spinal surgery has not been fully investigated. We report the results of a double-blinded and randomized controlled clinical trial, the efficacy of pre-emptive analgesia with a single caudal epidural injection (20ml of bupivacaine and tramadol). **Methods:** Eighty-two patients undergoing lumbosacral surgeries by posterior approach, with or without instrumentation, were randomized to control (n=40) and study group (n=42). Control group received a single caudal epidural injection of 20ml of normal saline whereas the study group received a single caudal epidural injection of 15ml of 0.5% bupivacaine, 1ml (50mg) of tramadol and 4ml of distilled water. Patients were monitored for postoperative pain immediately following surgery when they had completely recovered and regained consciousness from general anaesthesia, and subsequently 4,8,12 and 24 hours thereafter. Pain was quantified by visual analogue score (VAS) and verbal rating score (VRS). The time, at which supplemental analgesic medication was first demanded (rescue analgesia) in the post-operative period by the patient, was also noted. **Results:** The two groups were comparable for age, sex, body weight and the type of surgery they underwent. As the data did not have a normal Gaussian distribution, one-tailed Mann-Whitney test being a non-parametric test was adopted for statistical analysis. Accordingly, VAS and VRS values at all time intervals were significantly lower ($p < 0.0001$) in the study group as compared to the control group. There was also a significant delay ($p = 0.0041$) in the first demand for supplemental analgesic medication in post-operative period in the study group. No complication specific to procedure was noted except for the development of transient postoperative urinary retention, which was appropriately managed with urinary catheterization. **Conclusions:** Pre-emptive analgesia with a single caudal epidural injection of bupivacaine and tramadol is a safe, simple and effective method for postoperative pain relief.

Presented:
Annual conference of International Society for Study on Lumbar Spine, Edinburgh
Published in The Spine Journal-2004 May-June;4(3):261-4.

Spine

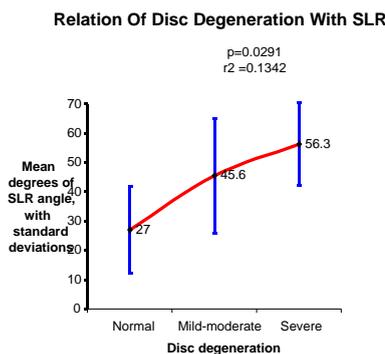
Association of radiological, MRI and Intra-operative findings in patients with lumbar disc herniation -Prospective study.

61 patients undergoing lumbar microdiscectomy were analyzed to study the correlation of clinical, radiological, MRI and intra-operative findings. Clinical findings were broadly classified under the categories of those related to pain, sciatic scoliosis and lumbar nerve root tension signs. Linear and angular measurements pertaining to disc height and features of spinal instability were studied on plain radiographs.

Disc degeneration, vertebral endplate status, disc herniation size and its location were studied on the MRI. Intraoperatively, the relations of lumbar nerve roots with herniated discs along with the containment of disc herniation were studied.

On analyzing these various factors for correlation and association, a number of observations came forth. Abnormal endplate changes were more likely to influence pain patterns than disc degeneration.

Patients with larger disc herniation size were more likely to report lower limb pain to be more severe than low back pain. Patients with sciatic scoliosis were more likely to report more severe back pain and more severe restriction of passive straight leg raising. Popular concept of a specific direction of sciatic scoliosis associated with a specific relation of disc herniation with nerve root was not replicated in our study. Patients with normal discs without evidence of degeneration were found to strongly manifest lumbar nerve root tension signs.



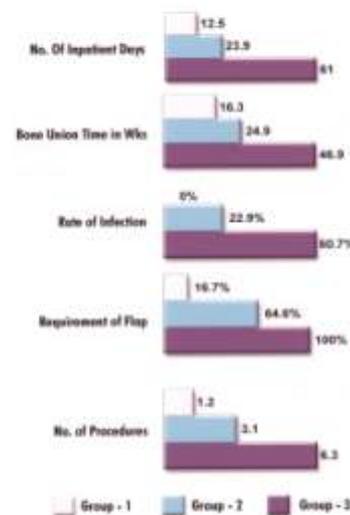
Trauma

A Comprehensive Score To Prognosticate Limb Salvage And Outcome Measures In Grade IIIB Open Tibial Fractures.

Gustilo's grade IIIB classification includes a wide spectrum of injuries and is limited by high inter and intra observer error rates. **Methods:** A trauma score for grade IIIB open tibial fractures was devised to assess injury to three components; the covering tissues, musculo-tendinous units and bone with the severity scale in each category from one to five. Seven comorbid conditions known to influence the prognosis were each given a score of two and summed up.

Results: 96 consecutive Grade IIIB open injuries of tibia were prospectively evaluated. At 3-5 year followup, of the 88 available, final score was less than five in 6 patients (Group I), between six and ten in 48 (Group II), eleven to fifteen in 29 (Group III) and above 16 in five (Group IV). All patients in Group IV and one in Group III with score of fifteen underwent amputation. There was a significant difference (p less than 0.001) between the three groups in the requirement for flap (16.7, 75 & 100 percent), time for union (16.3, 24.9 & 46.9), incidence of deep infection (0, 22.9 & 60.7 percent), number of surgical procedures (1.2, 3.1 & 6.3) and inpatient days (12.5, 22.6 & 59.4). A score of greater than three in any one component required special skills in management and interfered with healing of other structures.

Conclusion: The scoring system was found to be easy in application and accurate in prognostication of outcome.



The differences in the three groups for all the outcome measure were significantly different. All patients in Group IV underwent amputation.

Awards:
Silver Jubilee Commemoration Lecture Award
By Indian Orthopaedic Association-2003.

The Indications and Safety of Primary Closure in Open Injuries of Limbs.

-A Prospective Study of Two Hundred and Fifty Seven Open Injuries.

Background: Primary skin closure in open injuries is controversial and its safety is not yet clearly established. The results of a prospective study with an average followup of three years is reported here. **Materials and Methods:** Of 438 consecutive open injuries, 274 fractures were primarily closed as they fulfilled the following criteria: debridement performed within 12 hours; no skin loss primarily or during debridement; skin approximation possible without tension; no major contamination, no vascular insufficiency and no metabolic or systemic illnesses. Of the available 257, age varied from three to 70 years and the involved region was humerus in 19, elbow in eight, forearm in 50, wrist in four, femur in 46, knee in 10, tibia in 114, and ankle in six patients. By Gustillo's classification, the injuries were Type I in 140 (n=140), Type II in 65 (n=139), Type IIIA in 22 (n=51), and Type IIIB in 30 (n=108) injuries. Skeletal fixation was performed according to the necessity of fracture pattern **Results:** At an average follow up of 36.5 months, 249 of 257 (96.9%) injuries (all of 140 Type I, 62/65 in Type II, 21/22 in Type IIIA, 26/30 in Type IIIB) had uneventful wound healing. Primary bone healing was seen in 94.9% (244/257) of injuries. The infection rate was 2.3% (6/257) one of 140 in Type I, one of 65 in Type II, one of 22 in Type IIIA, three of 30 in Type IIIB injuries. Delayed union was seen in seven injuries (2.7%) and non-union in six injuries (2.3%). Wound dehiscence requiring secondary suturing was seen in one patient and revision to flap was needed in only three. **Conclusions:** Primary closure was possible in 58.7% (257/438) of injuries with an uneventful recovery in 91% (234/257). This protocol helps to decrease the hospital-acquired infections, secondary loss of tissues and a reconstructive procedure of greater magnitude. Proper indications and expertise in debridement techniques are a must. Level of evidence: Therapeutic study. Level IV (case series)



Grade IIIB open fracture of tibia treated with immediate debridement and skin closure.

Awards:
Best Paper of the Session Award Indian Orthopaedic Association Annual Conference 2003. Chennai.

Primary Bone Grafting in High energy Open injuries of Limb

Purpose: To study prospectively the role of primary bone grafting in grade3b open injuries of limbs with comminution or bone loss.

Materials & Methods: Out of 310 Gustilo GradeIII Open injuries managed over a 4 year period, 42 GradeIII injuries (GradeIIIA in 11 and GradeIIIB in 31) had bone grafting (immediately after debridement in 33(78.6%) and within 72hrs at the time of soft tissue cover in 9(21.4%)injuries). The soft tissue management by primary closure after debridement in 28(66.7%), by skin grafting in 7(16.7%) and by suitable flaps in 7(16.7%) injuries were performed. The bone involved was femur in 26, tibia in 4, forearm in 9 and humerus in 3. Bone stabilization with plate fixation in 34, interlocking nail in 5, reconstruction nail in 1, and external fixator in 2 injuries.

Results: At a mean follow up of 2.4(1-4) yrs all fractures had united except one which ended in infected nonunion (2.4%). Deep Infection was present in 4(9.5%) patients. The mean time for Union was 15(10-32) wks for Grade IIIA and 16.6(12-32) wks for GradeIIIB fractures. No complications specific to bone grafting were noted. Secondary procedures were needed in 4(9.5%) patients.

Conclusion: This study shows that, in a highly select group of patients with high energy open injuries, primary bone grafting is a safe procedure that can hasten the bone healing and reduce the treatment time without increased risk of complications.



Grade IIIB open fracture of tibia with bone loss treated with immediate debridement, interlock nailing, primary bone grafting and skin closure with good functional result.

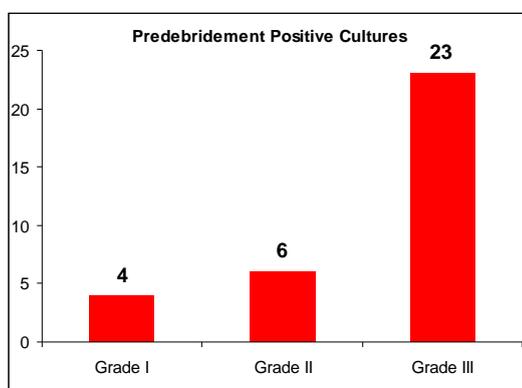
Presented at:
Asia Pacific Orthopaedic Association – Trauma Conference-2003
Annual Conference of Indian Orthopaedic Association-2003
Annual Conference of Tamil Nadu Orthopaedic Association-2002

Trauma

Wound Cultures In Open Injuries are they are of any value.?

Introduction & purpose: The management of open fractures includes initial wound cultures, antibiotics, operative debridement, and fracture fixation. The value of initial wound cultures is still unclear. The present study was conducted to know whether primary wound cultures predict wound infection and whether bacterial growth on primary wound cultures correlates with that of infected wounds.

Materials & Methods : This prospective study involved 101 consecutive patients presenting to us with open fractures. Pre-debridement cultures were taken on arrival in the emergency room. Post debridement cultures were taken in the operation theatre after debridement & irrigation. In patients who needed secondary soft tissue procedures, cultures were taken prior to soft tissue procedures in the ward. The results of these cultures were correlated with the development of a wound infection. The organism grown from the infected wound were compared with that of the primary wound cultures. **Results & Discussion:** 33% (33/101) demonstrated growth on pre-debridement cultures, 14% (14/101) on post-debridement cultures & 28% (8/28) in cultures prior to soft tissue cover. There were only 12 (12%) wound infections of these six did not grow any organisms in pre-debridement cultures. Of the isolates that grew from the initial cultures, none were the organisms that eventually led to wound infections. Neither culture was of value in predicting the identity of a potential subsequent infecting pathogen.



Awards:
Prof.A.Subramaniam Gold Medal
Tamil Nadu Orthopaedic Association

Paediatric Orthopaedics

Early Results of Assessment of Ponseti's technique of Clubfoot by Pirani Scoring system

Introduction and Background of the study The initial treatment of clubfoot is gentle manipulation and serial cast application. The success rates of different manipulation techniques are only 30-50%. Recently, Ponseti's technique became popular because of its 89% success rates and less recurrence rate. Pirani scoring system, which is used to compare the pre and post treatment results enables the treating person to evaluate the response of foot to manipulation. With this background we planned to evaluate the effectiveness of Ponseti casting technique in the management of clubfoot in Indian Scenario by using Pirani scoring system **Materials & Methods:** 16 Children with 24 primary idiopathic clubfeet with an average age of 4 months (range 3 wks-64 wks) were treated by Ponseti technique. Two children with bilateral clubfoot were excluded from the study. The children underwent 5 serial cast application and percutaneous tenotomy at the time of 5th cast application. The severity of the deformity was assessed during treatment by using Pirani six- point scoring system. **Results:**The results were evaluated using Pirani score at an average follow-up of 4 months (range 3-6 months).. The average Mid Foot Contracture Score was reduced from 1.57 (in 3 point scale) (range 0-2.5) to 0 at 3rd week. The average Hind Foot Contracture Score was reduced from 2.2 (in 3 point scale) (range 1-3) to zero by 8 week The average Total Score before application of 1st plaster is 3.78 in 6 point scale (range 1.5-5.5) was reduced to 0 at 8th week. Only one patient had relapse. **Conclusions:** Ponseti technique, because of its easy applicability, short duration of treatment, cost affectivity and low recurrence rate is ideal method in the conservative management of clubfoot. Pirani system of scoring the foot at each visit during treatment enables the treating person to evaluate the response of foot to manipulation and casting.



Before treatment total score 5.5



After treatment total score 0

Presented at
Annual conference of Tamil Nadu
Orthopaedic Association -Kanyakumari.

Academic Programs & Fellowships

*“Teaching affects eternity
You can never tell where its influence stops.”*

- Henry Brooks Adams





Academic Programs & Fellowships



Prof. Dr. M.V. Daniel and Dr. S. Rajasekaran

The academic work of the department is guided by **Prof. Dr. M.V. Daniel**, Academic Director and is supervised by the Head of the Department, **Dr. S. Rajasekaran**.

Prof. M.V. Daniel's clinical and academic experience in heading the illustrious orthopaedic unit of Christian Medical College, Vellore, for many decades and his passion for proper records and protocol have helped to transform this clinical unit into a good academic unit.

Diplomate of National Board (Dip.NB) Post Graduate Course in Orthopaedic Surgery

The unit is recognized for post graduate training in Orthopaedic Surgery by the National Board of Examinations (NBE) since 1997 and currently trains four candidates every year. Candidates are selected strictly on merit, by MCQ examination and interviews. Regular teaching programs include clinical demonstrations, Journal Club, Seminars, Symposiums and Sessions on Radiology and Orthopathology making this unit one of the best training centres in the country.



Dip.N.B postgraduates.



Clinical case discussion in progress

Dip. N. B. Postgraduates-2003

- Dr.Dhanasekara Raja.P.
- Dr.Durga Nagaraju.K.
- Dr.Shashi Kumar.Y.
- Dr.Poornanand.G.
- Dr.Uday Kiran. T.N
- Dr.Divakar Raju .K
- Dr.Chandra Shekara .C.M
- Dr.Mubarak Ali
- Dr.BRW. Armstrong.
- Dr.Ramalingam. K



Library

Academic Programs & Fellowships

Super Speciality Fellowship in Spine Surgery - National Board of Examinations, New Delhi

In 2000 the department became the first and only unit in the country to be recognized by the National Board of Examinations for super-speciality training in Spine Surgery. The fellows are selected by an All India Entrance Exam conducted by the National Board and the two year course is open to both Orthopaedic and Neurosurgeons. The selected candidate has both clinical and research tasks along with the responsibility for maintaining accurate and systematic documentation of clinical cases.

In the second year, hands-on surgical training is offered under supervision and guidance. Dr. Yogesh K Pithwa, Dr.J.Naresh Babu, Dr.Thomas J Kishen, are the current Spine Fellows.

Ganga - Johnson & Johnson Spine Fellowship for Research in Spine Surgery

The unit's expertise and vast clinical experience enable it to offer numerous fellowships in spine surgery. The department of spine surgery offers the Ganga Johnson & Johnson Spine Research Fellowship to neuro and orthopaedic surgeons who wish to pursue research work in the field of spine surgery.

This fellowship was started after the visit of Mr. William D.Dearstyne, and Mr.Supratim Bose, Vice Presidents of Johnson & Johnson to Ganga Hospital.

This programme facilitated the research in the following projects:

- 1.A Study of Diffusion in Human Lumbar Intervertebral Discs.
- 2.A Prospective Study of Role of Limited Internal Decompression in Lumbar Canal Stenosis.
- 3.A prospective Randomised Study of functional outcome after cervical discectomy with or with out fusion.

World Orthopaedic Concern - SICOT Fellowships in Orthopaedics, Trauma & Spine Surgery

The hospital is a Training Centre recognised for the WOC-SICOT Fellowship.Selected candidates are awarded a travel grant and subsidised accommodation. The candidates are greatly benefitted as they are exposed to a wide variety of surgeries in their fields of interest.

During the fellowship period of 6 weeks, the fellows take active part in the outpatient department, ward rounds, clinical teaching and surgical sessions.



Dr. Iqbal Qavi, Bangladesh
and Dr. M.Gulam Mohideen, Trichy.



Academic Programs & Fellowships

Trauma Fellowships:

The unit's rich experience in trauma has led to research in various topics of orthopaedic trauma such as primary closure, primary bone grafting and concomitant bone transport after immediate flaps in open injuries.. The department offers the Ganga Trauma fellowship enable young surgeons to pursue research activities in trauma and also gain valuable experience in trauma management. The trauma fellow is primarily responsible for accurate documentation and record maintenance of the large number of trauma victims.

The one year trauma fellowship receives ample funding and has performed important research on various management options in the fields of open injuries of limbs and interlocking nails since 1995. Dr. Pushpa Sekar and Dr.Ketan Khurjekare are the current trauma fellows.

In 2003, unit is also been recognized for Post-Doctoral fellowship in Trauma Care by National Board of Examinations New Delhi. First candidate will join in early 2004.

Orthopaedic Theatre Technician Course



Orthopaedic Theatre Staff

The Orthopaedic Theatre Technician Course trains four candidates every year. The curriculum involves lectures and demonstration classes in Anatomy, Physiology, basic sciences and relevant aspects of orthopaedic diseases.

Practical training is provided on the technique of plaster application, immediate management of the injured patient in the casualty, the basics of preoperative assessment, operating theatre procedures, autoclaving and operating the C-Arm for orthopaedic and spinal procedures.

Academic Programs & Fellowships



Teaching for nursing students

Trauma Nursing Course

Ganga Hospital started an unique course in ‘Trauma Nursing’ in 2001 to train 20 candidates every year. The course has been started recognising the fact that nursing the patients with major injuries requires special skills and techniques.

The students are taught the theoretical aspects by both the surgeons and the anaesthesiologists and undergo practical training in casualty, ward, intensive care unit and operation theatre. The three-year course emphasises on resuscitation of polytrauma patients, immediate care of the injured and basics of surgical procedures. Great emphasis is also given to preoperative and postoperative management of injured patients.

Physiotherapy Training

The department of physiotherapy offers training to candidates from R V S College of Physiotherapy & Cheran College of physiotherapy. The physiotherapy department of Ganga Hospital plays an essential and integral part in bettering the results of surgery and providing good functional outcome.

The department is well-staffed with 6 full-time physiotherapists and 2 physiotherapy assistants. The unit is well equipped with modern facilities like continuous passive motion machines for the knee, ankle and elbow and equipments like short wave diathermy, ultrasound, TENS for conservative therapy for patients with low back pain and other joint disorders. 17 students underwent part of their training and 44 did their internship in the department.



Physiotherapy Staff



Meetings Conducted

*“Medical men must discuss with other medical men-
for discussion increases knowledge, dispels doubts
and promotes science”*

- Charaka 6th Century BC



Sri Ramamohan Rao,
Honourable Governor of Tamil Nadu
lighting the lamp.



Mr. Gordon Findlay addressing the delegates.

Meetings Conducted



Inauguration of Trauma Section and First Conference on Trauma of Asia Pacific Orthopaedic Association.

The inaugural meeting of the Trauma Section of the Asia Pacific Orthopaedic Association was organized by Ganga Hospital from 25th to 27th of April, 2003. **Sri Ramamohan Rao, Honourable Governor of Tamil Nadu**, inaugurated the function. The Trauma Section was inaugurated by **Dato' Dr. K. S Sivananthan**, Malaysia, President of APOA and was attended by over 450 delegates from more than 17 member countries of APOA.

The conference had pioneers in the field of trauma from all over the world as faculty members and the scientific deliberations covered the cutting edge technology in fracture management and discussed in detail the controversies in current trauma practice. There were also many hands on workshops where delegates could practice complicated surgeries on bone models.

Faculty :

1. Dr. David Choon - Malaysia
2. Dr. Kenneth Boffard- South Africa.
3. Dr. Stephen Doig - Australia
4. Prof. Chritoph Josten - Germany
5. Dato' Dr. K. S. Sivananthan, Malaysia
6. Dr. K. Raveendran- Malaysia.
7. Dr. Philip F Stahel-Germany
8. Dr. Katsumi Sato- Japan.
9. Dr. Wolf Mutschler - Germany
10. Dr. Thomas K Hotz - Germany



Flags of the 17 participant countries



Dato' Dr.K.S. Sivananthan lighting the lamp



The Faculty



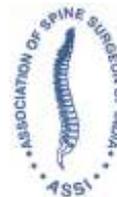
Active interaction of the delegates with the faculty.



Meetings Conducted



1ST Combined Instructional Course on Spinal Surgery; August 2003, Coimbatore, India



The first combined instructional course on spine surgery of **Association of Spine Surgeons of India** and **Spine Society of Europe** was organized from 8th to 10th of August 2003. Over 300 spine surgeons from India, Sri Lanka, Malaysia and Bangladesh participated in the course which discussed the current trends and controversies in spine surgery.

Interactive debates on current controversies, workshops on spinal instrumentation with hands on training sessions, plenary lectures and “How I do it” video sessions were the highlights of the meeting.

This was the first combined meeting of ASSI and SSE and the huge success of this meeting has prompted efforts to make this an annual feature.



Spine Society of Europe Faculty:

- 1.Mr.Martin Krismer-Austria
- 2.Mr.Gordon Findlay-UK
- 3.Mr. Mel Grainger-UK

Indian: Faculty

- | | |
|-------------------------|----------------------------|
| 1. Dr.S. Rajasekaran | 2. Dr. Shankar Acharya |
| 3. Dr. K.S. Murugan | 4. Dr. Satish Gore |
| 5. Dr.Shekhar Bhojraj | 6. Dr. V.T. Ingalthalikar |
| 7. Dr. Sajan Hegde | 8. Dr. Ram Chaddha |
| 9. Dr. Rajendra Prasad | 10. Dr. Gautam Zaveri |
| 11. Dr. Sriram | 12. Dr. Raghava Dutt |
| 13. Dr. M.S. Hardikar | 14. Dr. Rajamani |
| 15. Dr. Arvind Jayaswal | 16. Dr. Prashant Kekre |
| 17. Dr. K. C. Ramaswamy | 18. Dr. Ajoy Prasad Shetty |

Course Co-ordinators:

- | | |
|--------------------|--|
| Dr. S. Rajasekaran | - Association of Spine Surgeons of India |
| Mr. Gordon Findlay | -Spine Society of Europe |



Mr.Gordon Findlay and Dr. S.M. Hardikar inaugurating the meeting by lighting the lamp



Pre-conference discussion of challenging spine problems at Ganga Hospital

M Meetings Conducted

National Trauma Management Course



The national trauma management course, which teaches the principles of advanced trauma life support in trauma situations, was held on 23rd and 24th of April 2003. The course had a dramatic effect in saving the lives of severely injured patients by standardizing their resuscitations and providing a safe and systematic way for the initial care in the golden hour. This 2 days course consisted of core content lectures, case presentations, discussions, and development of life saving skills, practical laboratory experience and a final performance proficiency evaluation.



Air-way management

Course Faculty

Prof. Kenneth Boffard - South Africa

Prof. Stephen Deane - Australia

Dr. Frank Plani - South Africa

Prof. Pankaj Patel - India

Dr. Manjul Joshipura - India



Practice session on models

Course Director Dr Rajasekaran

Course Co ordinators Dr C. Sekar
Dr J. Balavenkatasubramanian



Active participation of delegates

Meetings Conducted

Workshop on Ponseti's Technique for Clubfoot correction



Dr. Shafique Pirani

A workshop on Ponseti's method was organized in Ganga Hospital on 28 June 2003. **Dr. Shafique Pirani**, Canada was the faculty and gave two excellent lectures on the philosophy of this method of treatment and the exact techniques to achieve success. He demonstrated the technique of cast application in babies with different grades of severity. He also donated teaching manuals and models on which students could practice plaster application.

Adoption of this technique has helped to significantly improve the results and reduced the rate of surgery in children with club foot.



Demonstration of ponseti's technique

Initiative of the National Plan for Prevention of Violence

The increase in the incidents and severity of community violence is a concern for the society and the police force who are responsible for containment of this ever growing menace.

Dr. Frank Plani, conducted a lecture on the epidemiology of this problem and the initiatives that need to be taken to prevent this problem from growing into huge proportion. The meeting was chaired by **Mr. Sanjay Arora, IPS**, Commissioner of Police, and was well attended by more than 80 Police Officers from the region.



Dr. Frank Plani



Dr. Frank Plani addressing the police officers at Ganga Hospital.

Special Events

If you want one year of prosperity, Grow grain.

If you want ten years of prosperity, Grow trees.

If you want a hundred years of prosperity, Grow people.

- Chinese proverb





Special Events

Ganga Orthopaedic Alumni Association

The highlight of the year was the inauguration of the Ganga Orthopaedic Alumni Association on the 24th of April 2003. In the 10 years since the department started, more than 65 trainees had passed through the department. These young surgeons spread far and wide through the length and breadth of the country and there was a need for this association.

All surgeons who have had a formal orthopaedic training programme through the National Board of Examinations, super speciality fellowships, registrar ship for at least one year or in the post of senior registrar for six months are eligible for the membership for this association. The objective of the association is to connect the alumni to the institute and to each other so as to provide a network to help in the institutes philosophy of teaching, research and service.

The association was inaugurated by **Prof. T.K. Shanmugasundaram**, Emeritus Professor of Orthopaedic Surgery, Madras Medical College. **Prof. W. Mutschler**, President of Indo-German Orthopaedic Foundation was the Chief Guest and **Dato' Dr. K.S. Sivananthan**, President of Asia Pacific Orthopaedic Association offered his felicitations.



Prof. T. K. Shanmugasundaram addressing the Ganga Orthopaedic Alumni.



Prof. T. K. Shanmugasundaram with Prof.W. Mutschler



Ganaga orthopaedic alumni

Special Events

Inauguration of "Prof. T. K. Shanmugasundaram Orthopaedic Library"

Prof.T.K.Shanmugasundaram, Emeritus Professor of Orthopaedic surgery, Madras medical college and former President of World Orthopaedic Concern donated his lifetime collection of books and journals to the Orthopaedic Library of Ganga Hospital. It is a matter of pride and great honour that Prof. Shanmugasundaram considered us most worthy recipient of this donation of the lifetime collection of two of the greatest dons of Orthopaedic surgery of our state. Prof. T.K.Shanmugasundaram said "Many of the earlier collections were given to me by Col. Thayumanaswamy and they are as old as my career in Orthopaedic surgery.

The library was named as "**Prof. T.K.Shanmugasundaram Orthopaedic Library**". It is our wish and fond hope that we and the future students using the library would be able to emulate his highest standards of ethics in orthopaedic practice and to stand up to his expectations.

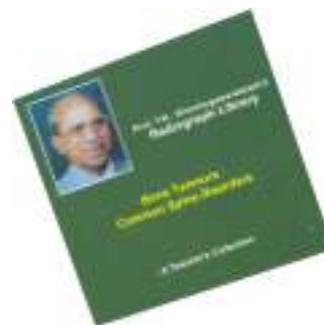
On the same occasion, a CD was released which had numerous radiographs of rare skeletal tumours and orthopaedic pathologies collected by this great teacher during his five decades of orthopaedic career.



A plaque was installed in commemoration of the generous donation

List of books and journals donated:

1. "Journal of Bone and Joint Surgery", A & B volumes; 1948-1983.
2. "International Orthopaedics", 1977-2002.
3. "Injury"; 1969-1993.
4. "Orthopaedics and Traumatology"; 1993-2000
5. "Paraplegia"; 1985-1990.
6. "Indian Journal of Orthopaedics"; 1967-2000.
7. "Annals of Royal College of Surgeons"; 1948-1967.
8. "Journal of Royal College of Surgeons"; 1969-2000.
9. "Mayo Clinic Proceedings"; 1990.



A CD was released containing the rare radiographic collections of Prof.T.K.Shanmugasundaram.



Special Events

Public Forum on 'Arthritis and Joint Pain'.

With increase in life span, arthritis of joints has become the commonest cause for the disability and pain for humans. Realising the importance of the adage, *“not to just add years to your life; but to add life to your years”* Ganga Hospital arranged a public forum on “Arthritis and Joint pain” in association with the **Rotary Club of Coimbatore Central** on 22nd of June 2003. The forum was attended by more than 300 patients and public who were suffering from the ravages of this disease. **Dr. V. Rajamani**, Consultant Rheumatologist, KMCH, **Dr. S. Rajasekaran**, Director and Head of the Department of Orthopaedic Surgery, Ganga Hospital and **Dr. J. Dheenadhayalan**, Consultant orthopaedic surgeon Ganga Hospital explained in lay terms the various types of arthritis, the possible treatment alternatives and how the disease could be completely cured even in late stages.

This meeting was a boon to dispel myths and superstitions that are prevalent amongst the public about this disease.



Dr .S. Rajasekaran explaining the causes and treatment options of arthritis and joint pain



Mr. Shankarsis Sen managing director, Johnson & Johnson Ltd handing over the cheque.

Details of last three years

Year	No of Surgeries	Value of the free Surgeries performed
2001	33	Rs. 415430.00
2002	86	Rs. 989100.00
2003	81	Rs. 1188685.00

Project Help Line - 'Help for the Helpless'

Johnson & Johnson Ltd. Joins hands with Ganga Hospital

Physical deformity in a growing child is more than just a physical disability. Unfortunately more than 90% of these deformities affect children from the lower socioeconomic group, whose families can hardly afford the treatment of these complex problems.

In 1998, Ganga Hospital has started the Project Helpline in association with Coimbatore City Round Table 31 to provide free surgeries for these children in need.

Johnson & Johnson Pvt. Ltd has joined hands with Ganga Hospital this year by donating 10,000 US dollars towards this project. A cheque for this amount was handed over on 28th August 2003 by Mr. Shankarsis Sen, Managing Director. Utilising this funds, the department has performed deformity correction surgeries to the value of Rs.11,88685.00.

This was possible by the medical staff treating entirely free of charge and the hospital subsidizing the cost heavily.



Special Events

Ganga Orthopaedic Education And Research Foundation

The department set up an education and research foundation on 22nd August 2002 to foster and promote educational and research activities for the staff and trainees of the department. The foundation was started with a nucleus of Rs.5 lakhs and this has now increased rapidly. The total outlay of the activities in the year 2003 was 2,03213.00

The foundation has sponsored the following research activities:

1. A Study of Diffusion of Human Lumbar Intervertebral Discs.
2. Endplate breaks can be identified by post contrast MRI.

In addition the foundation also has donated Rs. 80,448.00 for funding school and college fees of poor children in rural areas whose education is under threat due to financial constraints.



Ganga Orthopaedic Education And Research Foundation

Hospital Day



“All work and no play makes Jack a dull boy”. This adage holds validity not just in school life, but also in our busy professional life. Hospital day, which was celebrated on the November 8th of 2003, provided the right break for all the Hospital staff, medical as well as paramedical, from all the rungs of the Hospital.

Many a hidden talents were uncovered during the daylong celebrations. The memories of this day will forever be etched in the minds of one and all; will be cherished forever in the years to come.



Community Service

*"Beautiful hands are those that do
Work that is earnest and brave and true
Moment by moment
The long day through."*

- Shri A.P.J. Abdul Kalam.



'Abling the disabled'.



Project Help Line - "Help for the Helpless"



First aid awareness programmes.

Community Service

Accident & Emergency First Aid Care Project

Ganga Hospital in association with Rotary District 3200, launched the Accident & Emergency First Aid Care Project on 9th November 2001. District Governor, **Rtn. MPHF. K.A. Kuriachan & Sri Narinder Pal Singh, IPS**, Commissioner of Police, Coimbatore City, inaugurated the project. **Dr. S. Rajasekaran** is the District Chairman and **Dr. J. Balavenkatasubramanian** is the Project Co-ordinator.

The aim of this project is to teach first aid measures to public from all walks of life like school children, police, college students, bank officials, drivers, etc. In 2003, we have conducted 21 projects involving 350 police personnel, 1,400 school students, 200 bank employees and 1,800 college students. It is our earnest desire to educate more people in and around Coimbatore and make Coimbatore a model city in Trauma Care.



Fist aid teaching classes in progress



Sri. Sanjay Arora IPS receiving the computer.

Computer Donation to B3 Police Station Coimbatore

Ganga Hospital donated a computer with printer to B3 Police Station, Coimbatore. It was received by **Sri Sanjay Arora, IPS**. Commissioner of Police.

The computer is stationed in the Trauma Wing of B3 Police Station and is used to document trauma related events in B3 Police Station.



Community Service

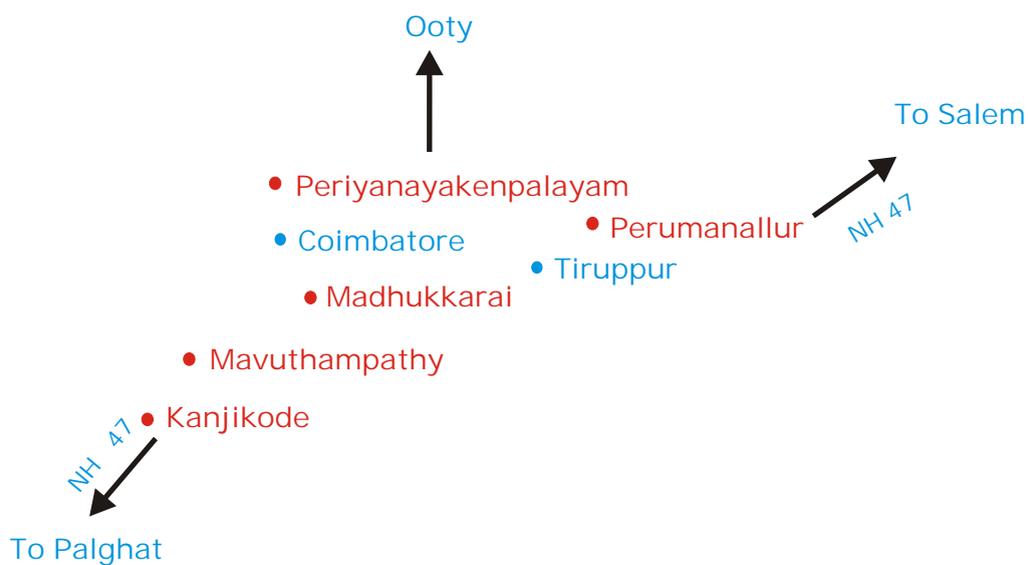


Rotary Road Accident Help-Line Centers of Ganga Hospital

Ganga Hospital in association with Rotary District 3200 has started Accident Helpline Centers at **Mavuthampathy, Kanjikode-Madhukarai bye pass, Periyanyakan Palayam, Perumanallur, Palghat**. The aim of these centers is to provide immediate aid to accident victims and transport them in the ambulance to an appropriate hospital. Ambulances are stationed at all these centers, which are manned round-the-clock by the paramedical staff of Ganga Hospital. Till date, 650 patients have been resuscitated via these centers and appropriate, timely treatment offered to them.

Ganga Free First Aid Centre with St John's Ambulance Centre, Tirupur

Ganga Hospital with St. John's Ambulance Services started a Centre for free first aid care at Tirupur on 27th May 2001. The center aims at providing emergency first aid care and ambulance service to transport the traumatized patient at the earliest to the parent center. Since its inception 22,789 cases had been attended. In 2003 alone 10,494 patients were treated.



Location of Accident Help line Booths.

Visitors-2003



*Dr. Raghu N. Natarajan
USA*



*Mr. Gordon Findlay
U.K*



*Dr. David Choon
Malaysia*



*Prof. Wolf. Mutschler
Germany*



*Datto' Dr. K. S. Sivananthan
Malaysia.*



*Dr. Jegan Krishnan
Australia*



*Dr. Shafique Pirani
Canada.*



*Mr. William Fairbank
U.K.*



*Mr. Martin Krismer
Austria.*



V isitors - 2003



*Dr. Katsumi Sato
Japan*



*Prof. Stephen Deane
Australia.*



*Dr. Philip F Stahel
Germany*



*Dr. Kent Samuelson
U.S.A.*



*Dr. K. Raveendran
Malaysia*



*Dr. Kenneth Boffard
South Africa*



*Prof. Christoph Josten
Germany*



*Dr. Frank Plani
South Africa*



*Mr. Mel Grainger
U.K*

V isitors



Johnson & Johnson, Robert Roaf, IOA Visiting Fellows with Dr. Jegan Krishnan, Dr. S. Rajasekaran and Dr. David V. Rajan at Ganga Hospital.



Dr. Feroze Ali WOC fellow
Orissa.



Dr. C.V. Mudgal Karnataka
Orthopaedic Association
fellow Hubli.



Dr. Tapan Banerjee WOC Fellow
Jaipur.



Dr. Mahesh Mone WOC fellow
Pune.



Dr. Prabakaran WOC fellow
Trichy.



Dr. M. Gulam Mohideen
WOC fellow-Trichy.

Team 2003 Department of Orthopaedic Surgery

Director & Head	Dr. S. Rajasekaran
Consultants	Dr. J. Dheenadhayalan Dr. Ajoy Prasad Shetty
Junior Consultant Spine Fellows	Dr. S. R. Sundararajan Dr. Yogesh K. Pithwa Dr. J. Naresh Babu Dr. Thomas Kishen
Arthroplasty Fellows	Dr. B. C. Bhanu Prakash Dr. P. Dhanasekara Raja
Trauma Fellows	Dr. S. Pushpa Sekar Dr. Ketan Khurjekar
Tutors	Dr. Mubarak Ali Dr. C. M. Chandrashekara Dr. Santhosh Chimmanakatti. Dr. Nallam Ramesh
DNB Postgraduates	Dr. Divakar Raju. K Dr. Uday Kiran T.N. Dr. Ramalingam. K Dr. B. R. W. Armstrong.



Orthopaedic Surgery Milestones . . .

1978 : THE JOURNEY BEGAN...

- 1978 : Ganga Hospital started as a 17 bed Poly Clinic.
- August 1991 : Establishment of Shanmuganathan Kanakavalli Super Speciality Centre for Trauma, Orthopaedics & Plastic Surgery. Expanded to 45 beds with 2 new Operating Theatres
- January 1992 : First major spinal deformity correction
- February 1992 : First free flap of major open injury
- March 1992 : First total joint replacement done
- January 1993 : Establishment of micro surgical facilities for spine surgery
- August 1994 : First International Course on Spine Surgery with live demonstration of surgeries
- June 1995 : Basic Nursing Course - Approved by the Department of Human Resource Development, Govt. of Tamil Nadu
- January 1997 : Recognized for DNB in Orthopaedic Surgery, National Board of Examinations
- June 1997 : "Helpline Project" in association with Coimbatore City Round Table 31
- August 1997 : Expansion with construction of New Block to include four new Operating Theatres, Spacious Outpatient Department, Trauma ICU, Library and Physiotherapy Department. Total bed strength increases to 110
- January 1999 : Recognized by World Orthopaedic Concern (WOC) for Inland Training Fellowships
- June 2000 : Recognized for Super-Speciality Fellowship in Spine Surgery by the National Board
- January 2001 : Ganga Trauma Fellowships
- June 2001 : Diploma in Trauma Nursing
- July 2001 : Accident Helpline Centre established at Tirupur
- June 2002 : "Ganga Johnson & Johnson Fellowships" - instituted for Spine and Hand Surgery
- August 2002 : Establishment of Ganga Hospital Blood Bank
- Dec. 2002 : Ganga Charitable Trust for Orthopaedic Research and Education
- March 2003 : 7th floor expansion. Total bed strength : 130
- April 2003 : Inaguration of Trauma Session and First Conference on Trauma of Asia Pacific Orthopaedic Association.
- April 2003 : Inaguration of Prof., T. K. Shanmugasundaram Orthopaedic Library
: Inaguration of Ganga Orthopaedic Alumni Association
- December 2003 : Silver Jubilee Oration Award by Indian Orthopaedic Association
- August 2003 : 1st Combined Instructional Course on Spine Surgery

2004 : THE JOURNEY CONTINUES...

- January 2004 : ASSI-Depuy Publication award and ASSI-Depuy Best Spine Research award by Association of Spine Surgeons of India
- June 2004 : ISSLS Lumbar Spine Research Award - 2004 by International Society for Study on lumbar Spine- Canada.
- July 2004 : Launch of Vector Vision Virtual 3D Computer Navigated surgery- First time in India.
Launch of ISO C 3D C-arm - Second machine in India.



"As a citizen of India, armed with knowledge and technical expertise and above all a great sense of patriotism for our country we must realise that small aim is a crime".

*Shri. A.P.J. Abdul Kalam
President of India*

Knee
Replacement

Fracture
Surgery

Spine
Surgery



Hip
Replacement

- *Strengthened by skills*
- *Powered by team work*
- *Guided by values*

Arthroscopy



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