

OPERATION STRAIGHT SPINE

4th KOLKATA SPINE DEFORMITY CONFERENCE

17th OSS SPINAL DEFORMITY WORKSHOP

18th – 22nd March 2024

Spinal Deformity Surgical Workshop

23rd March 2024, Conference

JIMSH

Budge Budge, Kolkata

FINAL PROGRAM WITH ABSTRACTS

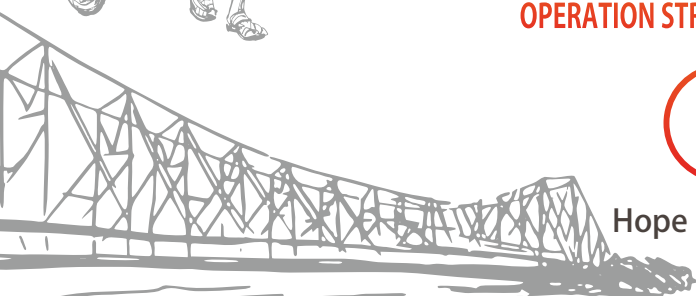
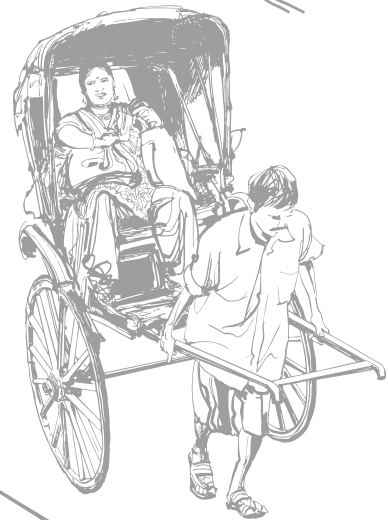
OPERATION STRAIGHT SPINE TRUST



Hope Lives here



Jagannath Gupta Institute of
Medical Sciences & Hospital





**Scoliosis patients & Doctors for OSS Surgical workshop
18-22nd Mar 2024, JIMSH, Kolkata**

Left to right

Dr Amitosh Pandey, Dr Shashank Srivastava, Dr Sumon Sen, Dr Ranit Ghosh, Dr Shubhadeep Chakraborty, Prof (Dr) Ujjwal K Debnath, Dr Adarsh Shaw

EDITORIAL

Prof (Dr) Ujjwal K Debnath,

Professor of Orthopaedics,

Consultant Orthopaedics & Spine Surgeon

JIMSH, Kolkata

Chairman, Operation Straight Spine



“Operation Straight Spine” program for last seventeen (17) years has succeeded in establishing the fact that Scoliosis surgery can be taken up as a Surgical mission project in developing nations. The primary goal of OSS was to provide modern spine care services in the underprivileged children who suffer from spinal deformities esp. scoliosis in Eastern India. Children are our future, and therapeutic decisions should reflect this fact. Adolescent idiopathic scoliosis (AIS) affects children in puberty. The diagnosis is made by exclusion, and is only reached when other causes of scoliosis, such as vertebral malformations and neuromuscular diseases and syndromes, have been ruled out. The severity of scoliosis is determined from the Cobb angle, visualized in an anterior-posterior x-ray. This measurement is probably the most decisive factor when determining the treatment strategy.

It has been in my mind that the educational meeting of “Kolkata Spinal deformity conference” where many international and national faculty and delegates take part must be documented. We have been organizing this one-day conference preceded by surgical correction of scoliosis deformity in children for six (6) days for the last 4years. This year I had the idea of writing the abstract book with the help of all who are involved in OSS program, so that we have a documentation for future reference.

Our annual conference is comprised of the latest science in the field of spinal deformity, presented as paper (podium) presentations, E-Point presentations and symposia of invited lecturers, debates, and case discussions.

I am thankful to all who have donated their valuable time in making OSS a great success. This abstract book is of educational value added to the advancement of spinal deformity correction will be beneficial for our future generation of Spinal deformity surgeons.





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To Whom It May Concern

World Orthopaedic Concern International would like to extend its congratulations to Prof (Dr) Ujjwal K Debnath, Consultant Orthopedic & Spine surgeon, for organizing the upcoming spinal deformity course at Jagannath Gupta Institute of Medical Sciences, Budge Budge, Kolkata 700137 starting 18th March 2024. Prof Debnath is the founder & chairman of the "Operation Straight Spine" (OSS) program– a global outreach project in spine surgery in a developing nation (India) since 2006. OSS has successfully completed its 17 years of annual charitable missions, providing surgical correction of spinal deformities to indigenous underprivileged children and young adults from remote areas of West Bengal and India.

Prof Debnath is a highly esteemed member of the Orthopedic Community, dedicating his time and efforts to serving relentlessly, thereby delivering compassionate, high-quality, and affordable musculoskeletal health care to the underprivileged. He is actively involved in teaching and training his residents, as well as Spine Fellows from around India. Prof Debnath has extended an invitation to members of WOC to participate in the annual Spine deformity mission, including Prof (Dr) Alaaeldin Ahmad, who has become an integral part of the program.

WOC fully endorses the upcoming course and has provided its logo to confirm the same.

Yours sincerely

President,
World Orthopaedic Concern International

PREAMBLE

Prof (Dr) Alaaeldin Azmi Ahmad

Professor pediatric orthopedic surgeon
Palestine Polytechnic University
Palestine



It is a privilege to be a part of the 'Operation Straight Spine (OSS)' group headed by Prof (Dr) Ujjwal K Debnath for the last four (4) years. I am doing many spinal surgical outreach programs all around the world. But I always look forward to joining 'OSS' every year which is a non-profit healthcare organization transforming the lives of underprivileged children with spinal deformity in rural West Bengal and India. I do this volunteer surgical work out of compassion and support to the surgeons and health workers who understand the necessity of treating spinal deformities in children esp. those who are underprivileged and will go untreated without our help.

I introduced the Active Apex Correction (APC) with a guided growth technique for controlling spinal deformity in this part of rural Bengal. We have already performed the APC technique of correcting scoliosis in six (6) children in the last 4 years. This technique was reliable, affordable safe technique within the context of the health system

Besides being a surgeon Dr Debnath finds time to do a lot of innovative scoliosis awareness programs in the rural towns & villages of West Bengal. This year he did many programs where children performed "sit and draw" with spinal deformity as the theme. Though surgical procedures for the correction of scoliosis are technically demanding, the OSS program is successfully training young surgeons and the team to do this complex surgery in a safe environment.

I am quite surprised at the excellent organizational abilities of Dr Debnath who manages the program with his residents splendidly and translates it to successful results when you compare it with other similar global programs.

MYTRIBUTETO OSS PROGRAM

Massimo Balsano

Director Spinal Regional Department
Professor of Spinal Pathology
University and Hospital Trust
Verona, Italy
President, ISASS



Dear participants of the OSS course and kind colleagues of the faculty,

It is a real pleasure to join you for this special event being held at JIMSH.

As past president of ISASS (International Society for the Advancement of Spine Surgery) and President elect of GIS&SICV (Italian Spine Society) I give you the warmest welcome to Kolkata.

The scientific program, very diligently drafted by Prof. Dr. Ujjwal Debnath, is of extreme importance and is very interesting with space for fruitful discussion in spinal deformity surgery.

The OSS is now a national reality, successfully treating patients from all Indian regions.

The results achieved should therefore be supported and I hope to see this program grow more and more, for the healthcare of patients affected by deformities.

MESSAGE FOR OPERATION STRAIGHT SPINE

Dr Girish Swamy,

MBBS, MRCS (Ed), FRCS (Tr&O), Advanced Eurospine Dip.

Consultant Spine Surgeon, Norwich, UK.



As a visiting faculty at the Operation Straight Spine week and as an executive Host of the British Scoliosis Society meeting in 2024, I take privilege in congratulating you along with my team for the wonderful effort you and the OSS trust has made in organising the Operation Straight Spine Charity Week. We had the pleasure of attending this Charity Scoliosis Week last year as well and both our team from Norwich and I have been overwhelmed by the care, dedication, energy and the extreme diligence the Operation Straight Spine has put in to organising this event and culminating the week of performing surgeries with a conference day.

Last year we had the privilege of seeing and treating extremely complex scoliosis children from far away states in India and from Nepal and Bangladesh.

Today we had the pleasure of meeting one of the children who had her surgery last year and we were overwhelmed with joy to know that she has fully recovered from her surgery and has taken up an admission in a university doing English major studies. The sheer gratitude from the family towards the OSS trust for changing the course of her life was indeed emotional.

All the patients and their families that we have interacted with, have been extremely grateful for the efforts that Operation Straight Spine has taking in order to get these children with extremely complex needs get world class treatment and I must congratulate the Jagannath Gupta Institute of Medical Sciences and their management for their philanthropical work and support provided towards the Operation Straight Spine.

We feel humbled and the entire Norwich Team regards this as an absolute privilege to have our association with the Operation Straight Spine Charity and we are eagerly awaiting a long collaboration and many more visits to be able to contribute our part in the visions of the organisation under your leadership. I also would like to point out that this truly is one-of-a-kind charity and I am not aware of any other similar efforts being made in India and this part of the world.

We would take this opportunity to also invite you and your associates to join us at The British Scoliosis Society meeting to be held in Birmingham in November 2024.

With the kindest regards and wishing you the greatest of success in this noble and charitable mission.

MESSAGE FROM PRESIDENT, WBOA

Dr. Amiya Kumar Bera

President WBOA

West Bengal Orthopaedic Association



Greetings from West Bengal Orthopaedic Association

It's a great pleasure to know that 4th Kolkata Spine Deformity Conference is being held at JIMS on 23rd March 2024 by Operation Straight Spine Trust under the leadership of Prof (Dr.) U. K . Debnath, preceded by Live surgical workshop on scoliosis and other deformities of spine of child and young adults - a great opportunity for learning. Experts from all over India and abroad will enrich with their knowledge, skill and experiences - which will help us to serve patients better. Compared to Western country, in India number of spine surgeons are very much less and correction of complex deformities is very much challenging. Therefore, such an academic meet over the years deserves great applause. It will improve quality of care.

Publication of abstract book on this occasion will document current thoughts, evidences and future directions - which is very much essential.

I wish the conference a great success and thanks to all the faculties, delegates and Organisers.

CHAIRMAN'S MESSAGE

Mr Krishna K Gupta,

Chairman, Jagannath Gupta Institute of Medical Sciences & Hospital



The main vision of our institute (JIMSH) is to conquer the pitch of medical science equipped with advanced technology and infrastructure to promote quality services to patients especially of West Bengal as well as other states. We should have commitment and we must try our level best to fulfil the commitment. Prof (Dr) Ujjwal K Debnath, had joined us nearly four (4) years ago and has become an integral part of our growing medical education in Orthopaedics & Spine surgery. I saw his single mindedness in developing our Orthopaedics department by all his skills and education abroad. I supported his endeavour to surgically treat underprivileged children with spinal deformity (i.e. scoliosis) under the wings of his Operation Straight Spine Trust (OSS).

OSS is the 1st Global Outreach in spine surgery in India started by him in 2006. This is the 17th OSS program being held at our institute. We have been able to provide the infrastructure and human resources to make this one-week long event of surgical workshop for needy children in this institute. This one-week program allows all medical staff esp. residents to learn from many famous surgeons from abroad (Palestine, Italy and UK) who are taking the pain to come all the way to Budge Budge everyday for the complex surgical procedures. This conference (4th Kolkata Spine Deformity Conference) allows many senior and junior surgeons to interact and make us more knowledgeable. We look forward to having these charitable yet educational endeavours by Prof (Dr) Ujjwal K Debnath and OSS in future.

MESSAGE FROM VICE-CHAIRMAN'S DESK

Dr Balram Gupta

Vice Chairman

Jagannath Gupta Institute of Medical Sciences & Hospital (JIMSH)



As the Vice Chairman of Jagannath Gupta Institute of Medical Sciences & Hospital (JIMSH), it is with great honour and enthusiasm that I present the abstract of the 4th Kolkata Spine Deformity Conference, scheduled for the 23rd of March 2024. This significant event, organised by Prof (Dr) Ujjwal K Debnath, Professor of Orthopaedics, JIMSH and Chairman of Operation Straight Spine (OSS) Trust, is set to be a landmark in the field of spinal deformity management, particularly in the surgical treatment of scoliosis.

This abstract represents a synthesis of the groundbreaking research, innovative surgical techniques, and the latest advancements in scoliosis treatment that will be showcased at the conference. As a beacon of knowledge and expertise, the 4th Kolkata Spine Deformity Conference is designed to foster a deep understanding and practical application of the most current approaches in the field.

The contributions to this abstract come from a diverse array of esteemed surgeons, researchers, and healthcare experts, each bringing forth their invaluable insights and experiences. From the fundamental principles of scoliosis to the cutting-edge in surgical interventions and post-operative care, the scope of this abstract is both broad and deeply specialised.

Additionally, these abstracts do not shy away from addressing the challenges and ethical dilemmas faced in the realm of scoliosis surgery. Emphasising a holistic approach to patient care, it aims to equip readers with the knowledge, skills, and sensitivity required to navigate these complexities effectively.

I express my sincere gratitude to Prof (Dr) Ujjwal K Debnath for his exemplary leadership in organising this conference, Mr K K Gupta, Chairman, JIMSH for his unconditional support and to all the contributors and participants whose dedication and expertise are the pillars of this event.

As you delve into these abstracts, I encourage you to immerse yourself in the wealth of knowledge it contains. May it serve as a pivotal guide in your journey through the intricacies of scoliosis surgery and inspire you towards greater heights in spinal health care.

WELCOME NOTE

Prof Dr Santanu K Tripathi, DM,
Principal, JIMSH, Budge Budge



It gives me immense pleasure and satisfaction to cordially welcome the learned delegates to the 4th Kolkata Spine Deformity Conference 2024 scheduled on 23rd March, 2024 at Jagannath Gupta Institute of Medical Sciences & Hospital, Budge Budge, Kolkata (JIMSH), organized under the aegis of Operation Straight Spine Trust, supported by West Bengal Orthopedic Association. The Conference is organized as a follow on to the week-long proceedings of the 17th Live Surgery Workshop and 8 Deformity (Scoliosis) Surgeries.

The Conference offers a wonderful learning ambience to the brightest minds and most skilled practitioners in the field of spinal surgery. This event serves as a testament to our commitment to excellence in patient care, innovation in surgical techniques, and collaboration among trans-discipline professionals. Through this Conference, participants shall have the opportunity to learn from each other, sharing their experiences, techniques, and research findings to advance the field of spine surgery. I am confident that the presentations, discussions, and interactions at this Conference shall be enlightening and inspiring.

The spine is a remarkable structure, providing both stability and flexibility, allowing us to stand tall and move with grace. However, when conditions such as degenerative disc disease, spinal stenosis, or spinal cord injury affect the spine, they can cause significant pain and disability. Treatment objectives in spinal surgery are threefold: relief of pain and discomfort, correction of deformity and improvement of quality of life.

On behalf of our institute, I take this opportunity to thank all the resource faculty and delegates for making this Conference possible. Together, we will continue to push the boundaries of what is possible in spine surgery, ultimately improving the lives of our patients.

Santanu K Tripathi

MESSAGE FROM MSVP'S DESK

Brig (Dr) Soumitra Chatterjee,
JIMSH, Budge Budge



I have witnessed Prof (Dr) Ujjwal K Debnath, Consultant Orthopedics Spine Surgeon, founder & chairman of OSS Trust (Operation Straight Spine Trust) for last consecutive three years organizing this weeklong spinal deformity surgery workshop at JIMSH, Kolkata. The whole team has grown from strength to strength with support from our institute. There are many International and national faculty who takes the initiative to visit us annually. We thank Prof (Dr) Alaaeldin Ahmad, MD, from Palestine and Prof (Dr) Massimo Balsano from Venice, Italy has been coming annually for three years and supporting the initiative by Prof (Dr) Debnath. We also appreciate the presence of Dr Girish Swamy, Consultant Spine Surgeon from UK and his team who has been supportive in the OT and the ward.

Dr Debnath, annually organizes a conference on the last day of the program which is attended by many Orthopedics & Spine surgeons, paramedics e.g. physiotherapists and nursing staff. This is a great teaching and training initiative by Dr Debnath and team for our Residents and Post Graduate trainees.

I wish OSS and JIMSH to support these underprivileged children with spinal deformity in future and continue training our residents, nurses, and other paramedics.


Brig (Dr) Soumitra Chatterjee. 19/03/2024

17th LIVE OSS WORKSHOP

8 Scoliosis surgeries from 18th-22nd Mar 2024

4th KOLKATA SPINAL DEFORMITY CONFERENCE (CME points)

Date: 23rd Mar 2024, 10:00 AM - 5:30 PM

Venue : Jagannath Gupta Institute of Medical Sciences, Budge Budge, Kolkata

Under the aegis of Operation Straight Spine Trust (OSS), Supported by West Bengal Orthopaedic Association (WBOA)
Speakers are given 8 +2 min to speak, time for Keynote lectures are 20min, Papers to be read in 5min

10:00 - 10:30AM – **Registration & Tea**

10:30 - 10:35AM – Welcome by Dr Soumitra Chatterjee (MSVP, JIMSH)

10:35 - 10:40AM – Introduction by Principal – Dr Santanu K Tripathi (Principal, JIMSH)

10:40 - 10:50AM – Dr Debasish Bhattacharya – Ex DME (WBME)

10:50 - 11:00AM – How can we do safe scoliosis surgery – Charlotte El Labony (UKI)

11:00 - 11:10AM – Case presentation from OSS24 – Prof (Dr) Ujjwal K Debnath

11:10 - 11:25AM – **Keynote** : Clinico - radiological outcomes after selective thoracic fusion for Lenke 1C AIS
– Prof (Dr) KK Mukhopadhyay (Kolkata)

11:30 - 11:50PM – **Debate** : Should we avoid selective fusions – Dr Girish Swamy vs Dr Massimo Balsano

11:50 - 12:00PM – **Keynote** : What has changed in the last ten years for Spine Surgery Training in India
– Prof (Dr) Amiya K Bera

12:00 - 12:20PM – **Keynote** : Have we improved anterior vertebral body tethering outcomes?
– Prof (Dr) Massimo Balsano (Italy)

12:20 - 12:40PM – **Special Guest Lecture** : 'The role of spiritual science in stress management'
– Swami Satyeshananda (Asst. General Secretary, Ramakrishna Math & Mission, Belur)

12:40 - 01:05PM – **Lamp Lighting ceremony & Saraswati Vandana**

01:05 - 01:15PM – Address by **Chairman, Krishna K Gupta**

01:15 - 02:00PM – Felicitations by JIMSH followed by

02:00 - 03:00PM – **Lunch**

Prof (Dr) R N Mitra Memorial E Poster award presentation during Lunch

(Judges: Prof (Dr) Nirmal De, Dr Chinmay Nath)

03:00 - 03:10PM – The surgical correction of scoliosis with asymptomatic syringomyelia – Dr Manoj Midha (New Delhi)

03:10 - 03:20PM – Latest strategy for spine surgery using autologous fibrin glue – Sergio Cechelli (UK)

03:20 - 03:30PM – Intra-wound vancomycin powder reduces deep infections in AIS patients – Emmanuel Gavan (UK)

03:30 - 03:40PM – Ponte's and apical discectomies are enough for severe AIS patients – Dr Prashant Baid (Kolkata)

03:40 - 03:50PM – Adult scoliosis: Tips, tricks and pitfalls – Dr Chinmay Nath (Kolkata)

03:50 - 04:00PM – Tips for cannulating Pedicle screws in deformed spine in AIS surgery – Dr A M Anzar (Kerala)

04:00 - 04:10PM – Long-term outcome after one level Low-Grade Spondylolisthesis – Dr Jaydeep Ghosh (Guwahati)

04:10 - 04:30PM – **Keynote** : Global Spinal outreach are an essential part of Global health – Girish Swamy (UK)

04:30 - 04:40PM – Early Onset Scoliosis : when to fuse – Prof (Dr) Ujjwal K Debnath

04:40 - 04:50PM – Spine surgeons can protect themselves against lawsuits with clear documentation – Dr Girish Swamy

04:55 - 05:00PM – Can Chat GPT answer questions by patients and families about Scoliosis?

– Dr Shubhadip Chakraborty (JIMSH, 3rdyrPG)

Total 6 papers for Best Paper Award (5min each) **presented by Residents**

(Judges: Dr Girish Swamy, Dr Massimo Balsano)

5:00-5:30PM

1. Posterior selective fusion with pedicle instrumented correction in AIS - Dr Amitosh Pandey.

2. Single stage posterior alone surgery with correction of congenital scoliosis - Dr Nabarun Mukherjee.

3. Outcomes of deformity correction in Patients with healed post-tubercular Kyphosis – Dr Vikas Hanasoge

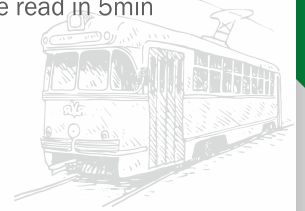
4. Contralateral radiculopathy after TLIF for lumbar L4/5 Spondylolisthesis - Dr Shashank Srivastava

5. Active apex correction in Early Onset Scoliosis (EOS) children in rural India- Dr Shubhadip Chakraborty

6. From deformity to recovery: The incredible journey of a teen's spinal transformation – Dr Debol Bhattacharya

05:40PM – Valedictory & vote of thanks by Prof (Dr) Ujjwal K Debnath

COCKTAIL WITH DINNER @ 800PM onwards at Tollygunj Club, Kolkata



HOW DO WE DO SAFE SCOLIOSIS SURGERY

Charlotte El Labany

Allied Healthcare,
Norwich, UK



Introduction

NHS England Commissioning Group has Complex Spinal Surgery Specifications for children and young people. Complex spinal surgery services include several specified procedures that should only be performed in Specialist Spinal Surgery Centres. This includes Paediatric Deformity Surgery – only in Specialist Paediatric Spinal Surgery Centres.

The team

MDT approach to include Spinal Surgeons, Paediatric Anaesthetists, Paediatrician, Scoliosis Nurse Specialists, Physiotherapists, Orthotists, Neurophysiologists, Radiologists, Learning Disability Nurse Specialists where appropriate and Patient Liaison Volunteers

How to implement the pathways and ensure safe surgery

Introduction of complex Scoliosis MDT clinics, early investigations i.e. bloods, LFT's etc to optimise patients, regular reviews/ priorities of pending scoliosis surgery, introduction of pre-op radiology MDT safety checks, POA and investigations, including med illustrations, outcome scores, neurophysiology assessments, MRI and dynamic images and regular anaesthetic pre-operative assessments, A point of contact for patients and family is crucial.

Post-operative care

Implementation of 'Spinal Surgery Neurology Observation Charts', review daily on the ward, protocols for mobilisation, information sheets and patient leaflets on recovery and commencement of sporting and regular activities, follow-up protocols and patient outcome scores.

CLINICO-RADIOLOGICAL OUTCOMES AFTER SELECTIVE THORACIC FUSION (STF) FOR LENKE 1C CURVE

Prof (Dr) K K Mukhopadhyay, MS(Orth)

Dept of Orthopaedic Surgery, NRS Medical College, Kolkata



Lenke 1C curves are challenging to manage surgically due to the structural thoracic deformity and non-structural lumbar curve. Selective thoracic fusion (STF) is considered the standard of care because it preserves motion of the lumbar segment, yet nonselective STF (NSTF) remains prevalent. Despite the recommendation to fuse only the structural thoracic curve in a 1C curve, only approx. 50 % are treated with STF. Contrary to established guidelines, larger MT (Main Thoracic) curve magnitudes and MT:TL/L Cobb angle ratios have not been found to influence the decision to pursue a selective thoracic fusion. Although overall both STF and NSTF groups are found to have effective postoperative coronal balance, the STF group has only modest improvements in the lumbar curve position as determined by a relatively unchanged TL/LAVT.

Therefore, the surgical strategy should aim for maximal three-dimensional spinal deformity correction with a solid arthrodesis while maintaining coronal and sagittal balance, sparing more mobile segments, and avoiding complications. In cases involving significant thoracic and lumbar curves that completely deviate from the midline, whether a selective fusion of the major curve or a fusion of both the thoracic and lumbar curves should be performed remains controversial. Long-term impacts of residual lumbar curve, coronal decompensation, and mild thoracolumbar kyphosis on clinical outcomes after STF, along with optimal indications and strategy for STF should be based on clinical and radiological findings.

SHOULD WE AVOID SHORT SEGMENT FIXATIONS IN AIS SURGERY?? (DEBATE IN FAVOUR)

Dr Girish Swamy,

MBBS, MRCS (Ed), FRCS (Tr&O), Advanced Eurospine Dip.

Consultant Spine Surgeon, Norwich, UK.



Preservation of mobile segments during surgery for AIS is sometimes the aim but debatable about the value of a short segment fixation, especially in the Lenke 5C curves. The criteria for the selection of the Lower Instrumented Vertebra [LIV] remains uncertain. Too proximal fixation can result in a decompensation needing add-on fixations, but also too long a fixation risks loss of lumbar motion.

Several selection criteria's are in practice including Cobb to Cobb Method, LBTV or LSTV [by the CSVL], Vertebra crossed by CSVL between pedicles or the Stable plus one Vertebra for the LIV.

While preserving the lumbar motion remains a significant consideration, the risk of add-on's can lead to greater distal segments needing fixations as revision procedures and hence a more careful selection in the index surgery is paramount.

SHOULD WE AVOID SELECTIVE THORACIC FUSIONS (DEBATE AGAINST)

M. BALSANO

Director Spinal Regional Department
Professor of Spinal Pathology
University and Hospital Trust
Verona, Italy



There is a great debate regarding the level of fusion in idiopathic scoliosis, especially for including or not the lumbar area.

In Lenke 1, 2 and 3 there is a great risk of 'adding-on phenomenon' (20%), so the selection of the proper fusion level is of crucial importance in the planning.

When the lumbar curve is higher structured, or skeletally immature patients, or decompensated curves, the selective thoracic fusion is not the best surgical option for these patients and an inclusion in the lumbar area should be considered.

HAVE WE IMPROVED ANTERIOR VERTEBRAL TETHERING OUTCOMES OVERTIME?

M. BALSANO

Director Spinal Regional Department
Professor of Spinal Pathology
University and Hospital Trust
Verona, Italy



Introduction : Vertebral Body Tethering (VBT) is a relatively novel surgical technique used to correct adolescent idiopathic scoliosis (AIS) through an anterior thoracic approach for mid-thoracic curves and a retroperitoneal lumbar approach for thoracolumbar/lumbar curves. The system employs screws on the convex side of the curve joined with a polyethylene terephthalate (PET) rope. The aim of this study is to determine the degree of three-dimensional curve correction achieved through VBT and evaluating the outcomes.

Materials : We included 79 patients treated with the VBT between 2020 and 2023. Preoperative and at one-month follow-up radiographic parameters were collected. SRS-22 and SF-36 questionnaires were administered.

Results : The analysis revealed an improvement in the coronal plane correction of all curves: PT (-34.67%, $p < 0.01$), MT (-39.97%, $p < 0.01$), TL/L (-47.48%, $p < 0.05$).

In addition, we also found amelioration of vertebral rotation at the apex in the MT curves measured by the NASH-MOE system (-16.67%, $p < 0.05$).

Other statistically significant post-operative improvements were observed in AVT (Apex Vertebral Translation), CL (Clavicle Angle), and trunk height (T1-L1). The questionnaires (SRS-22 and SF-36) also showed a significant improvement at least 1 year follow-up.

Complications : 1 screw dislodgment in T5 and 1 rupture of the rope, both reoperated (2.5%)

Conclusions: VBT, by avoiding arthrodesis, can enhance the quality of life of patients with AIS. Our study suggests that this technique directly correct the coronal and axial planes, potentially competing with more conventional instrumentation techniques.

The outcome is very positive and should be always considered as alternative to the 'non fusion' techniques

SURGICAL CORRECTION OF SCOLIOSIS WITH ASYMPTOMATIC SYRINGOMYELIA

Dr Manoj Midha

CMC Hospital, Hissar

Haryana



Introduction : The rate of scoliosis in syringomyelia patients ranges from 25 to 74.4%. In turn, syringomyelia occurs in 1.2% to 9.7% of scoliosis patients.

Aim : To evaluate benefit of prophylactic neurosurgery in scoliosis patients with asymptomatic Syringomyelia

Background : Treatment of asymptomatic Syringomyelia in scoliosis patient always remain controversial. There are many dilemmas are faced. How safe is the correction? What cases require neurosurgery before scoliosis correction. Will conservative method stop progression of scoliosis? Many surgical options are available for Syringomyelia treatment. Drainage of syrinx, syringio-subarachnoid , syringio-pleural, syringio-peritoneal shunt, resection of filum terminale etc.

Analysis : Analysis of literature show some surgeons prefer neurosurgical treatment less than 10 year age can completely eliminate the need of scoliosis correction. Other authors find neurosurgery decrease the risk of neurological complication during scoliosis correction. Number of reports of scoliosis correction without neurosurgery are limited.

Shortening Vertebrotony (VCR) and PSO has been shown to correct primary curve in scoliosis 63%-80 % safely without any neurological complications. Use of intra operative nerve monitoring is imperative in these surgeries.

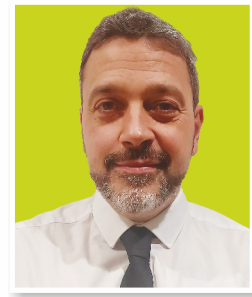
Increase in size of syrinx has been shown to predict neurological damage during scoliosis correction. It has been observed syrinx size < 4mm and Syrinx to cord ratio < 0.7 associated with less neurological complication and scoliosis correction can be safely performed in these patients. Patients with syrinx > 4mm or syrinx to cord ratio >0.7 should be performed neurosurgery first as scoliosis correction associated with significant deficit.

Conclusion : Prophylactic Neurosurgery is safer to perform if syrinx size > 4mm or syrinx to cord is >0.7. Syringo subarachnoid shunt is easier to perform and has least complication.

LATEST STRATEGY FOR SPINE SURGERY USING AUTOLOGOUS FIBRIN GLUE

Sergio Cecchelli,

Special OT Nurse, United Kingdom



Autologous fibrin glue has emerged as a promising adjunct in spine surgery, offering numerous advantages in wound healing, hemostasis and tissue sealing. Derived from the patient's own blood, it minimizes the risk of immunogenic reactions and transmission of infectious agents. In spine surgery, autologous fibrin glue serves as an effective hemostatic agent, reducing intraoperative bleeding and improving visualization of the surgical field. Additionally, its adhesive properties facilitate the sealing of dural and soft tissue defects, thereby reducing the incidence of postoperative cerebrospinal fluid leaks and wound complications. The application of autologous fibrin glue in minimally invasive spine surgery has shown promise, allowing for precise delivery and targeted use in more confined spaces. Moreover, its compatibility and bioresorbable nature contribute to favorable postoperative outcomes and reduce morbidity. Despite these benefits, further research is needed to elucidate optimal application techniques, dosage, and long-term efficacy in various spine surgical procedures. Overall, autologous fibrin glue represents a valuable adjunct in spine surgery, offering enhanced hemostasis, tissue sealing and potential improvements in patient outcomes.

Key words :

Autologous fibrin glue, Spine surgery, Cerebrospinal fluid leaks, biocompatibility

INTRA-WOUND VANCOMYCIN POWDER REDUCES DEEP INFECTIONS IN ADOLESCENT IDIOPATHIC SCOLIOSIS

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Special OT Nurse, United Kingdom



Infection is one of the most common complications in surgery and it impacts on patient's respond to treatment, hospital stay, costs and ultimately patient's recovery.

Vancomycin initial approval by the FDA was in 1958 and the used increased with the spread of MRSA in the 1970's. Vancomycin is a glycopeptide antibiotic medication used to treat a number of bacterial infections. Most common route of administration is through IV (intravenous infusion) and by mouth (per-orem).

With evolution in technique, there are modification in its method of application. Application of vancomycin powder in the wound in addition to standard prophylaxis can provide high concentration of antibiotics in the patient's surgical wound. Several studies have shown positive results in reduction of SSI in orthopaedic trauma, general surgery, neuro-surgery, and max-fax are just few examples.

After Spinal surgeries, there is a 0.7% - 12% chance of developing an infection at the operative site. Over the years, Spine surgeons started to adapt the practice of application of Vancomycin powder prior to wound closure. Intrawound vancomycin appears to be safe, and data suggests it is effective in reducing SSI's (surgical site infections) post-operatively. In 2011, the first large retrospective study investigating the clinical efficacy reviewed 1,732 spinal fusions and showed a reduction in infection rate from 2.6% to 0.2%. However, due to limited published studies and trials in use of Vancomycin powder in spinal surgery, much of it relies on the care and experience of the clinician.

Respective health institution adapting this practice should have an appropriate record keeping and data collection such as Surgical Surveillance must be in place to capture its efficacy and related risks and complications as well as highly considering development of drug resistance.

PONTE'S AND APICAL DISCECTOMIES ARE ENOUGH FOR SEVERE AIS PATIENTS

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Alberto Ponte et al (1984)¹ advocated a procedure consisting of removing the interspinous ligament and ligamentum flavum (an important tether to posterior lengthening) and resecting the entire facet (superior and inferior articular process) and ventral portion of the facet capsule and pars out to the foramen for correcting sagittal-plane deformity in the unfused spine in Scheuermann's kyphosis. The intended goal is to increase flexibility during three-dimensional deformity correction and restore normal sagittal plane parameters in the hypo-kyphotic thoracic spine by releasing the posterior tension band and lengthening the posterior column.

Shah et al conducted a study on 87 consecutive AIS patients with Lenke 1–4 curves who underwent Ponte's osteotomies and pedicle screw instrumentation and reported an improvement in the coronal and sagittal radiological parameters (2013).

Samdani et al conducted a study on 190 patients with AIS out of which 125 underwent Ponte's Osteotomy (2015). The results showed that greater deformity correction in all 3 planes may be possible when Ponte osteotomies are performed for the stiffer and more lordotic Lenke 1A and 1B curves.

Ponte osteotomy and apical discectomies for achieving coronal, rotational, and sagittal correction of major thoracic curves in AIS with pedicle screw instrumentation is an effective technique.

References :

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ADULT SCOLIOSIS- TIPS, TRICKS AND PITFALLS

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Abstract

Adult scoliosis is defined as a coronal plane deformity with coronal Cobb measurement $\geq 10^\circ$ in a skeletally mature patient. They can produce global sagittal imbalance.

The primary goal is to provide pain relief, restore spinal balance and to improve the quality of life- minimising chance of complications.

Selection of appropriate treatment for degenerative scoliosis is challenging because the condition is heterogeneous with diverse presentation. It should be individualised considering patients age, co-morbidity, expectation, magnitude of deformity and quality of bones.

Use of tobacco, history of asthma, chronic obstructive pulmonary disease, cerebrovascular disease, diabetes, poor nutritional status, osteoporosis, immune-compromised status, depression correlate with poor clinical outcome outcomes or increased risks.

Surgical options may include decompression alone- which may be open or minimal invasive- or decompression and instrumented fusion. Elderly patients with multiple medical problems having neurogenic claudication with or without radiculopathy with no or minimal back pain, instability or significant imbalance are the candidates for decompression alone.

Fusion is usually indicated if back pain is a leading symptom. The curves in adult scoliosis are rigid in comparison to adolescent scoliosis. So, an adequate posterior release is mandatory. Many cases may require additional anterior release. Some rigid deformities even require spinal osteotomies.

The lumbar sagittal profile is better restored with anterior interbody fusion techniques like traditional open retroperitoneal or minimal invasive approach with lateral lumbar interbody fusion or oblique lumbar interbody fusion.

Multiple level fusion causes excessive blood loss and often needs autologous transfusion. Multi-level lumbar or thoraco-lumbar fusion may also require spinopelvic fixation. Even after that, pseudoarthrosis, implant failure, adjacent segment disease, distal and proximal junctional failures are common. There is also high chance of post operative pulmonary, cardio-vascular, thrombo-embolic, renal and other medical complications along with severe bleeding and infection.

Fixation in weak osteoporotic vertebrae is also a real challenge. Use of PMMA augmentation, fenestrated or expandable or large diameter screws can be used to tackle this problem.

Only Cobb angle is not representative of the disease. Lateral Listhesis, spondylolisthesis, sagittal or coronal decompensation, shoulder imbalance and spino-pelvic parameters demand more importance in decision-making.

ABSTRACT

TIPS FOR CANNULATING PEDICLE SCREWS IN DEFORMED SPINE IN AIS



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Consultant Spine Surgeon, Kerala

Background : Cannulating pedicles in patients with deformed spine presents unique challenges for spine surgeons due to altered anatomy and increased risk of complications.

Objective : This presentation provides a comprehensive overview of tips and techniques aimed at optimizing pedicle screw placement in cases of spinal deformity.

Methods : Factors influencing successful cannulation such as anatomical knowledge, preoperative planning, patient positioning, intra-op navigation, various techniques of freehand pedicle screw placement, surgical instrumentation and known complications are discussed. Additionally, specific strategies for navigating anatomical variations are highlighted. Emphasis is placed on the importance of meticulous surgical technique, including proper trajectory, alignment, careful screw insertion and intra operative monitoring.

Result: To attain a safe and efficient spinal fixation in a deformed spine by minimizing the risk of neurovascular injury.

Conclusion : By integrating these tips into clinical practice, spine surgeons can improve the precision and outcomes of pedicle screw placements in patients with deformed spine.

LONG-TERM OUTCOME AFTER ONE LEVEL LOW-GRADE SPONDYLOLISTHESIS

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The long-term outcome after one level Low-Grade Spondylolisthesis can vary depending on various factors such as the severity of the condition, etiology of the spondylolisthesis, the age and health of the individual, treatment options pursued, and adherence to therapeutic recommendations, associated neurological symptomatology, spinal canal stenosis, pelvic morphology unique to the patient and other spinal deformity like scoliosis.

In many cases, individuals with low-grade spondylolisthesis can manage their condition effectively with conservative treatments such as physical therapy, anti-inflammatory medications, and activity modification. These measures can help alleviate symptoms and improve function.

However, if conservative treatments fail to provide relief or if the condition worsens, surgical intervention may be considered. Surgical options may include spinal fusion, decompression, or both, depending on the specific circumstances of the patient.

The long-term outcome after one level low-grade spondylolisthesis, typically at the L4-L5 or L5-S1 levels, can vary depending on several factors. Overall, with appropriate management, many individuals with one-level low-grade spondylolisthesis can experience relief from symptoms and maintain good quality of life in the long term.

EARLY ONSET SCOLIOSIS – WHEN TO FUSE?

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Abstract

Early-onset scoliosis is a diagnosis when a child is presenting with scoliosis before the age of 5 years. This excludes other causes of scoliosis (e.g., congenital, neuromuscular or syndromic). Radiographic criteria help in distinguishing the progressive curves from those that will resolve spontaneously. Minor nonprogressive curves can be managed with observation until growth is completed. Casting under general anaesthesia can be effective and may prevent or delay the need for surgery in curves of less than 60°. Untreated EOS or early spinal fusion resulting in a short spine is associated with increased mortality and cardiopulmonary compromise. Therefore, progressive curves must be addressed surgically. Surgical procedures continue to evolve and are primarily directed at correcting and maintaining the curve correction while simultaneously preserving spinal and trunk growth. 'Growing' rods (traditional or magnetically-controlled) represent the standard surgical treatment in progressive curves of 45° or greater. TGR is a non-fusion technique, which requires repeated surgical lengthenings and is associated with a high risk of surgical complications. MCGRs represent a new distraction-based spinal instrumentation for EOS, which allows non-surgical, outpatient construct lengthening with possibly a reduced risk of deep surgical site infection. When successful, the initial 'growing' rod surgery typically provides approximately half of the spinal length increase and the periodic lengthenings provide the remaining half in children with EOS treated with growing rods. A definitive spinal fusion is indicated once the thoracic spinal growth is nearing completion and remains reserved for patients ideally towards the end of their spinal growth. Final fusion is thought to be the end point for patients with early onset scoliosis following treatment with the use of growing rods. Patients and parents need to be counseled regarding the possibility of further surgery after final fusion. Independent risk factors for curve progression requiring reoperation during lengthening with traditional growing rods that require operative intervention include increasing number of levels spanned with traditional growing rods and longer duration of treatment with traditional growing rods.

SURGEONS CAN PROTECT THEMSELVES AGAINST LAW SUITS WITH CLEAR DOCUMENTATION

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Medical documentation issues play a role in 10–20% of medical malpractice lawsuits. Inaccurate, incomplete, or generic records undermine a physician's defence and make a plaintiff's lawyer more likely to take on a case. Despite the frequency of documentation errors in malpractice suits, physicians receive very little education or feedback on their documentation.

In the current day medical practice, the patient–doctor relationship has almost diminished its fiduciary character and has become more formal and structured. Doctors are no longer regarded as infallible and beyond questioning. Corporatization of health care has made it like any other business, and the medical profession is increasingly being guided by the profit motive rather than that of service. On the other hand, a well-publicised malpractice case can ruin the doctor's career and practice. The law, like medicine, is an inexact science. One cannot predict with certainty an outcome of cases many a time. It depends on the particular facts and circumstances of the case, and the personal notions of the judge concerned who is hearing the case.

A good modern clinician's focus is not on just providing care but also incorporating principles to enhance patient-caregiver relationships, being transparent and consistent, thorough informed consent, getting and dissipating information in writing, complete and robust documentation, being up to date with regular updates on current practice, MDT approach and ask for help, managing patient expectations and putting the one's own health a priority.

The axiom “you learn from your mistakes” is too little honoured in healthcare. The best way to handle medico-legal issues is by preventing them and with clear concise documentation to mitigate claims and claims of negligence.

CAN CHAT GPT ANSWER QUESTIONS FROM PATIENTS & FAMILIES ABOUT SCOLIOSIS?

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Introduction : The Generative Pre-trained Transformer (GPT), developed by OpenAI, represents the pinnacle of current achievements. It exhibits exceptional competence in generating texts characterized by coherence and relevance, enabling its application in a broad spectrum of fields.

What can it do ? : It can answer questions regarding diagnosis, knowledge, decision making. It is prompt and provides necessary updates. Chat GPT can classify scoliosis if information regarding Cobb's angle from AP radiographs is supplied to its software, gives appropriate answers based on existing literature and defines a list of treatment options but does not specify.

The new girl in town : Launched in December 2023, Gemini by Google can generalize and seamlessly understand, operate across and combine different types of information including text, code, audio, image and video. With a score of 90.0%, Gemini Ultra is the first model to outperform human experts on MMLU (massive multitask language understanding).

Gemini vs Chat GPT : In a study conducted in Feb 2023 Chat GPT provided a longer more comprehensive list of practical guidance and steps that the patient could take to reduce their discomfort. Bard and ChatGPT's responses were medically sound and in-line with current clinical guidelines.

Pitfalls : Pitfalls include it being non specific, ambiguous. It has data privacy and security concerns along with bias and fairness concerns in training data.

Take home message : Chat GPT is NOT a doctor. It is an excellent aid to the scoliosis surgeon. Handled with care and information, Chat GPT can remove confusion among patients and their families regarding scoliosis and its possible treatment.



"Moments & Memories"
OSS Spinal surgical deformity workshop, 18-22nd Mar 24

Blessings from Sri Sri Ramakrishna



Swami Satyeshananda

Asst. General Secretary
Ramakrishna Math and Ramakrishna Mission.

**“ The role of spiritual science in
stress management”**

FREE PAPER ABSTRACTS

POSTERIOR SELECTIVE FUSION WITH PEDICLE INSTRUMENTED CORRECTION IN THORACIC IDIOPATHIC SCOLIOSIS

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Introduction : The main goal in the treatment of scoliosis is to obtain a well balanced and mobile vertebral column with correction of the existing curvature. Currently, more than 95% patients require posterior only surgery with instrumentation.

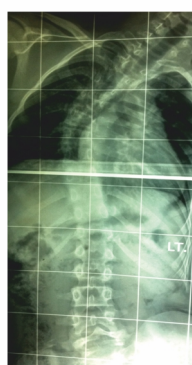
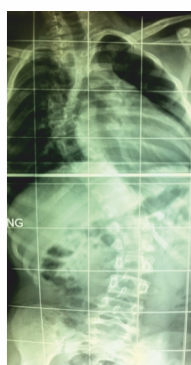
Aim of Study : evaluate clinical and radiological outcome of selective fusion for adolescent idiopathic scoliosis (AIS) in thoracic curves i.e., Lenke 1C curves.

Materials and Methods : 22 consecutive patients (14 females, 8 males) with Lenke 1 C curves were operated through posterior approach for AIS. Risser stage at the time of operation was 0–3 in 18 patients and more than 3 in 4 patients. Mean age was 15.4 ± (4.8) years. All patients underwent a selective fusion.

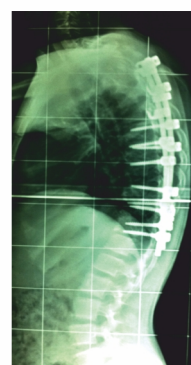
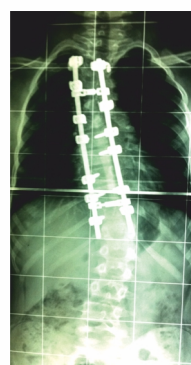
Results : The main thoracic curve correction in Lenke 1C was 66%, from 60° ± 12° preoperative to 20° ± 7° at 6 weeks. The Cobb angle was 20° ± 10° at 1 years and 24° ± 10° at 2 years. The apical vertebral rotation improved by 38%, the non-instrumented lumbar curves improved 50%. The SRS-22 total scores improved significantly from before surgery to 2 years after surgery ($p < 0.0001$).

Conclusion : Posterior correction of thoracic AIS with pedicle screw instrumentation is safe and produces a long-term stable correction and high patient satisfaction. In Lenke 1C AIS deformity patterns fused selectively, the un-instrumented compensatory curves do not seem to progress.

Keywords : Thoracic idiopathic scoliosis, Lenke 1C, Posterior selective fusion, correction.



Pre op AP Bending films



2yr Post op AP & Lat

SINGLE STAGE POSTERIOR HEMIVERTEBRAE RESECTION WITH INSTRUMENTED CORRECTION OF CONGENITAL SCOLIOSIS IN CHILDREN



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Introduction : Complete failure of formation of somites during osteogenesis results in a hemivertebra. Congenital scoliosis due to hemivertebra is difficult to control and may progress even after operative management.

Aim of study : To evaluate the clinical and radiological outcome of single stage posterior hemivertebrae resection with instrumentation for correction of congenital scoliosis in children.

Materials & Methods : 22 patients (14M:8F) with a mean age of 7.1 years (+/- 3.5 years, <5 years:9, >5 years: 13) with thoraco lumbar hemivertebrae related congenital scoliosis underwent hemivertebrae resection through posterior only approach & correction by gradual compression on the convex side with a mean follow-up time 2 years

Results : At the final follow-up visit, the main curve had been corrected to a mean of 12.7° (+/- 3.4°). The spontaneous correction rates of the compensatory cranial curve and compensatory caudal curve were 60 and 62 %, with a loss of 1.5° and 1.2° at the last follow-up, respectively. The mean operation time and blood loss were 245 min and 424 mls (+/- 130 mls) respectively.

Conclusion : Posterior alone technique is demanding but a safer method for lumbar hemivertebral resection with good correction of the spinal curvature.

Keywords : Hemivertebrae, congenital scoliosis, single stage posterior, correction.



Pre op AP



Pre op Lat



Post op Lat



Post op AP

11 Years old Female, with progressive curvature of lumbar spine (Cobb 30°); X-rays - L3 hemivertebra. Excision of L3 hemivertebra along with posterior stabilization done

TITLE : EFFICACY AND OUTCOMES OF DEFORMITY CORRECTION IN PATIENTS WITH HEALED POST-TUBERCULAR KYPHOSIS – RETROSPECTIVE ANALYSIS OF 45 PATIENTS MANAGED IN A SINGLE CENTRE



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Introduction : Sequelae of spinal tuberculosis manifest after eradication of tuberculosis eventually leading to kyphotic deformity. The risk is higher in children compared to adults due to the destruction of the cartilaginous vertebral body with the continued growth of the unaffected posterior column. The Kyphotic deformity will eventually cause cord stretching/compression leading to paraparesis/paraplegia. The aim of surgery in these patients is to correct/prevent spinal deformity progression and to relieve cord/canal compression. We present our efficacy and outcomes of surgical management of old healed post-tubercular kyphosis patients treated in our institute.

Materials and Methods : A total of 45 patients diagnosed with healed post-tubercular kyphosis who underwent deformity correction surgery in our center during the period 2007 to 2018 were retrospectively analyzed – including Demographic data, mean time of presentation from onset of neuro-deficits, Neurological status at presentation till final follow up, Radiological evaluation (Apex and Level of deformity, Pre & Post Operative Sagittal Cobb's angle, Functional outcome (SRS-22r), and complications.

Results : The mean age of the study group was 22.9 years (2-68). The mean follow-up period was 3.2 years (1.2 – 11). The mean time of presentation from the onset of deficits is 7.13 months (1-24).The apex of the deformity was in the thoracic, Thoraco-dorsal, or lumbar spine in 26, 13, and 6 cases respectively. The mean thoracic kyphosis significantly improved from pre-op Cobb's angle of 66.48 degrees (40-120) to post-op Cobb's angle of 21.9 degrees (8-45). All patients underwent deformity correction by PSO (19 cases), Trans-pedicular Decancellation osteotomy (17 cases), VCR (9 cases) with pedicle fixation cranial and caudal to the osteotomy site. Pre-operatively 71.1% of patients had neurological deficits of which ASIA D (24%) had complete recovery, ASIA C (35%) had either complete or improvement in one grade of neurology but ASIA A patients (6.6%) had no neurological recovery at the end of follow up. The overall complication rate was 20% including 2 neurological (intra-op drop in Neuromonitoring signals) and 7 non-neurological (PJK, Rod Breakage, Implant prominence). The functional score measured with SRS-22r questionnaire improved post-correction (preoperative: 2.2 ± 0.3 and at last follow-up: 4 ± 0.3).

Conclusion : Post-tubercular kyphosis corrections are safe and effective offering good clinic-radiological and functional outcomes. Neurological recovery can be expected of at least one grade from ASIA C, ASIA D and in some cases of ASIA B but no Neurological recovery occurred in patients of ASIA A. Complications are anticipated in these cases due to the severity of the deformity.

CONTRALATERAL RADICULOPATHY AFTER TRANSFORAMINAL LUMBAR INTERBODY FUSION (TLIF) FOR LUMBAR L4/5 DEGENERATIVE DISC DISEASE



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Introduction : TLIF (Trans lumbar Interbody fusion) is an effective surgical procedure for patients with painful lumbar degenerative disc disease. The techniques of TLIF is advantageous over PLIF (posterior lumbar interbody fusion) include the avoidance of the anterior approach, decreased need for nerve root retraction, and cauda equina as the facets on one side are totally resected. Moreover, a high fusion rate was reported using this technique. Contralateral radiculopathy, as a complication of TLIF, has been recognized but rarely reported.

Material & Methods : 64 patients who had undergone TLIF at L4/5 for degenerative disc disease in a span of 18 months were retrospectively reviewed. Radiological parameters including lumbar lordosis, anterior disc height, posterior disc height (PDH), foraminal height (FH) and foraminal width were measured. Preoperative and postoperative visual analog scale scores were also recorded. The symptomatic group comprised patients who presented with new leg symptoms including pain, hypoesthesia, paresthesia, and motor weakness in the leg contralateral to the incision side within 1 week after surgery.

Results : The incidence of contralateral radiculopathy after unilateral TLIF procedure was 6% (4/64). The most common cause was contralateral foraminal stenosis. One patient had slippage of the interbody fusion cage after one month. Unilateral TLIF could increase the lumbar lordosis, and anterior disc height but decrease the PDH, FA, and FH in patients with symptomatic contralateral radiculopathy. Intra-operatively stenosis on the contralateral side could be exaggerated by the distraction maneuver and trial insertion of cage wedges. All the 4 patients had undergone revision surgery.

Conclusion : Opposite side radiculopathy is a potential complication in TLIF surgery which can be avoided. Where stenosis exists on the opposite side, it should be decompressed. Revision surgery is recommended immediately to partially resect the contralateral superior facet to relieve the nerve root and avoid possible long-term impairment.

ACTIVE APEX CORRECTION BY MINI OPEN APPROACH IN EARLY ONSET SCOLIOSIS (EOS) CHILDREN IN RURAL INDIA

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Introduction : Active apex correction (APC), is performed by placing pedicle screws on the convex side, above and below the wedged vertebrae. The pedicle screws are then compressed before final tightening, to gradually allow its remodulation (reverse modulation) and reduction in the wedging over time.

Aim of this study : To present the clinical and radiological outcome of Active Apex correction through a mini open approach in young girls with early onset scoliosis in rural setting in India.

Methods and Materials : Four (4) girls with EOS underwent APC through mini open technique in a rural hospital. A 9 year old girl with EOS underwent APC technique 2years ago. A 5 year old girl was treated previously with traditional growth rods. She had multiple surgeries. When she was 14 years of age, she had APC and reinsertion of growth rods 2years ago and definitive fusion done 1 year back. A 10 year old girl with EOS with thoracic scoliosis and another 5 year old girl with EOS with thoraco-lumbar scoliosis was operated by APC technique.

Results : All the girls were growing with well-maintained Apical vertebral translations and sagittal balance with significant correction of the Cobb angle and kyphosis at follow-ups (compared with the pre-op values). Apical Vertebral translation improved 35 to 28mm, coronal balance 15 to 11mm, coronal cobb angle 54° to 40° and the spinal length 255 mm to 280 mm. Correction with APC at 2 years follow up also revealed substantial improvement in apex wedging compared to the preoperative data.

Conclusion : The immediate benefits of the procedure alone are avoidance of risky osteotomies required to insert screws at the concave end of the apex, and more economical surgery for underprivileged patients globally with no added risk. Furthermore, in presence of more than one curve, this procedure is still applicable.

Keywords : EOS, TGR, Active Apex Correction, Mini approach, Economical.



5 year old



TGR at 5 yr



TGR at 11 yr



APC
at 14 years



Definitive fusion in 2023



FROM DEFORMITY TO RECOVERY : THE INCREDIBLE JOURNEY OF A TEEN'S SPINAL TRANSFORMATION

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Introduction : Progressive kyphotic deformity and pseudoarthrosis of the spine are serious complications that can arise following tubercular infection. These conditions can significantly impair a patient's quality of life and functionality. Surgical intervention is often necessary to correct the deformity and alleviate associated symptoms. Here, we report a case of successful surgical management in a 16-year-old girl presenting with these complications.

Case Presentation : A 16-year-old girl presented with implant prominence on her back and a progressive kyphotic deformity that rendered her unable to lie flat on her bed. Imaging studies revealed post-tubercular pseudoarthrosis of the spine. Given the severity of her condition and its impact on her daily life, surgical intervention was deemed necessary.

Surgical Technique : The surgical approach involved an Apical Disc Bone Disc Osteotomy, combined with Smith Peterson Osteotomy of the proximal two spinal segments. Bone grafting and substitution were utilized to augment the osteotomies and promote spinal stability.

Outcome : At the one-year follow-up, the patient demonstrated significant improvement. The kyphotic deformity was corrected, and the Sagittal Vertical Axis Deviation (SVAD) decreased from 9cm at presentation to 2.6cm at the last follow-up. The patient reported improved functionality and a better quality of life following surgery.

Conclusion : Surgical intervention, including Apical Disc Bone Disc Osteotomy and Smith Peterson Osteotomy, supplemented with bone grafting, proved effective in correcting post-tubercular progressive kyphotic deformity and pseudoarthrosis of the spine in this case. Long-term follow-up and further studies are warranted to assess the durability and efficacy of this surgical approach in similar cases.



PROF (DR) RATHINDRA NATH MITRA
E- POSTER AWARD
ABSTRACTS

EARLY ONSET SCOLIOSIS DEFORMITY CORRECTION: A CASE REPORT

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Dr Subhadip Mondal

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This case report discusses the management of early onset scoliosis deformity in a ten-year-old girl. The patient initially presented with a progressive spine deformity, with a Cobb's angle measuring 48° . Despite a two-year observation period, the deformity continued to progress, reaching a Cobb's angle of 70° , with a Risser index of 3/4. Imaging studies, including MRI and CT scans, were utilized to assess the condition. Ultimately, deformity correction was achieved using rod rotation and the cantilever method. This case highlights the importance of early detection and intervention in managing scoliosis deformities in pediatric patients.

POSTERIOR EPIDURAL MIGRATION OF LUMBAR DISC HERNIATION PRESENTING WITH ACUTE CAUDA EQUINA SYNDROME AND PARAPARESIS: A RARE CLINICAL CASE

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Dr T.Unmesh Singh

Asst Professor & Consultant Spine Surgeon, RIMS, Imphal.



Posterior epidural migration of lumbar disc fragment (PEMLDF) is a very rare condition which may present with neurological deficit including cauda equina syndrome. The mechanism is poorly understood and diagnosis is challenging. Magnetic Resonance Imaging (MRI) often misdiagnoses them as extradural masses of other pathological origins. In our case a 54 year male presented to casualty with sudden onset of severe pain in lower back and radiating to both lower limbs associated with bilateral weakness and numbness. Plantar reflex was mute in both sides. He also had difficulty in passing urine with retention. After careful clinical evaluation and investigations he was diagnosed with cauda equina syndrome with PEMLDF. Patient was operated upon in emergency and L2-L3 decompression done with pedicle screw fixation. There were neurological improvements following surgery with left knee flexors gradually improved to grade 3 at 3 weeks post op. Early diagnosis and surgical treatment is critical in achieving the best postoperative outcome.

Keywords: back pain, cauda equina syndrome, posterior epidural mass, lumbar disc herniation

SCOLIOSIS AS A SOCIAL CURSE- PATIENTS, FAMILIES AND SOCIAL STIGMA

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Introduction : During the adolescent stage of life, patients are dealing with normal pubescent stresses, the diagnosis of scoliosis adds another layer of burden. Patients experience scoliosis stigma that can affect self-esteem, self-worth, self-image, stress, anxiety, and social friendships.

Aim of Study : To determine the predictors of emotional maladjustment in adolescent patients suffering from scoliosis.

Materials and Methods : A formal systematic review of the literature for post treatment mental health status of scoliosis patients was done. PubMed and Google Scholar electronic databases were searched focused on parameters concerning the diagnosis of adolescent idiopathic scoliosis and its effect on adolescent mental health.

Results : A total of 4 studies were reviewed from indexed journals. Joshua D Auberbach et al, conducted a study on 147 patients with AIS. They concluded greater back-related body image disturbance compared with healthy controls. Jiaying Li et al, conducted a study on 12 patients to come to a conclusion that adolescents with idiopathic scoliosis experienced a variety of physical and psychological stressors. Vladyslav Deputatov and Mariana Velykodna conducted a study on specifics of the body Image of adolescents with scoliosis, they concluded that adolescents with scoliosis and labeled as 'scoliotics' face additional obstructions in their psychic body development compared to their peers. Zebracki et al conducted a study on 233 juveniles, and 909 adolescents, who underwent surgical correction for idiopathic scoliosis and concluded that, adolescents reported poorer mental health preoperatively and 2 years postoperatively than juveniles; however, both groups reported improved mental health and self-image postoperatively.

Conclusion : Self-image and mental health are significantly negatively affected following a diagnosis of Adolescent Idiopathic Scoliosis. However, consistent with normative development, adolescents are at higher risk for emotional maladjustment than juveniles. Surgical decision making in scoliosis correction should take the emotional status of the patient into consideration.

Keywords : Scoliosis, Adolescent, Stress, Anxiety, Mental Health, Mindfulness

SUDDEN ONSET TRANSIENT PARAPARESIS IN A POST OPERATIVE CASE OF DORSAL ANGULATED KYPHOSCOLIOSIS WITH NEUROFIBROMATOSIS IN A 10 YEAR OLD GIRL

Dr Ranit Ghosh

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Introduction : Neurofibromatosis (NF) is an autosomal dominant genetic disorder. NF-1 or von Recklinghausen is a peripheral type of NF. Scoliosis is the most common orthopaedic manifestation in NF-1. We are reporting a case of a 10 year old female with NF who developed sudden onset paraparesis two years after scoliosis deformity correction surgery.

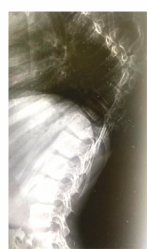
Aim of Study : To study the clinical outcome of sudden onset transient paraplegia in a post operative patient of severe dorsal kyphoscoliosis due to Neurofibromatosis treated surgically by anterior discectomy and posterior spinal fixation surgery.

Materials and Methods : Clinical history, physical examination, pre and post operative radiographs of a 10 year old female. Clinical and radiological recovery was assessed and reported.

Results : A 10 year old girl, previously diagnosed with Neurofibromatosis type 1, presented with history of progressively increasing deformity of upper back since birth. Clinical and Radiological evaluation lead to the diagnosis of pronounced Dorsal Angulated Kyphoscoliosis (D5-D7) with Dural Ectasia. She underwent a 6 hour long, 2 stage surgery (a)Anterior approach resection of right 5th and 6th ribs (b)Posterior approach spinal fixation at D2 - D12. At 1-year follow-up, the patient remained asymptomatic with no loss of correction and implant breakage on X-ray. 2 years post operatively, she presented with sudden onset paraparesis. She was admitted and kept under observation. However no intervention was required, and the transient paraparesis resolved on its own within 10 days, after which she was discharged.

Conclusion : Large dystrophic proximal thoracic kyphoscoliosis, managed with a posterior approach spinal fixation, can lead to good cosmetic and neurological outcomes. As demonstrated by this case, there can rarely be some degree of neurological deficit, but without any major complications.

Keywords : Neurofibromatosis type 1, dorsal kyphoscoliosis, transient paraparesis, spontaneous



Pre-op clinical photos

Pre-op radiological images

Post-op radiological images

A 15YEAR GIRL WITH AIS (LENKE 1C CURVE) TREATED WITH POSTERIOR SELECTIVE FUSION WITH PEDICLE INSTRUMENTATION

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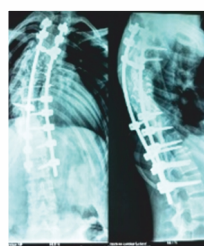
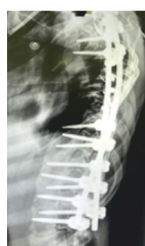
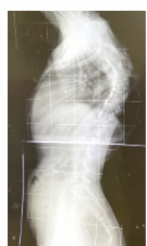
Introduction : Posterior instrumentation was first reported by Harrington in 1962. Since then, the instrumentation and techniques have improved greatly, and posterior fusion surgery has become a standard and widely used treatment for adolescent idiopathic scoliosis (AIS). Posterior is more effective than anterior SLF in correcting lumbar hypolordosis and thoracic hypokyphosis and in restoring the sagittal curvature.

Aim of Study : To evaluate the clinical and radiological outcomes of selective fusion of AIS in Thoracic Lenke-1C curve in a 15 year old female with 95° Cobb's angle.

Materials and Methods : Clinical history, physical examination, pre and post operative radiographs of a 15 year old female. Cobb's angle, thoracic flexibility, lumbar flexibility, apical vertebral translation (AVT), apical vertebral rotation (AVR) were measured. Posterior selective fusion with pedicle instrumentation was done.

Results : A 15 year old female with. Deviation of spine with convexity towards right. Radiographs revealed a thoracic AIS Lenke 1 C curve extending from T3-T12 having a Cobb's angle 95°. After proper clinical examination and radiological evaluation, she was operated with posterior selective fusion. Apical vertebral derotation and translation on concave side were performed for correction. Clinical and radiological improvement was seen at 3 months. Post operatively, Cobb's angle reduced to 18°. AVT improved by 30 mm , AVR improved by 0.2 on Nash-Moe grade. On 10 years follow up, patient is healthy, married and leading a quality family life.

Conclusion : Posterior correction of thoracic AIS with pedicle screw instrumentation is safe and produces a long-term stable correction and high patient satisfaction. In Lenke-1C AIS deformity patterns fused selectively, the un-instrumented compensatory curves do not seem to progress. Selective fusions when successfully performed will optimize mobile segments of the spine in AIS patients.



PRE OP

POST OP

10 YEARS FOLLOW UP



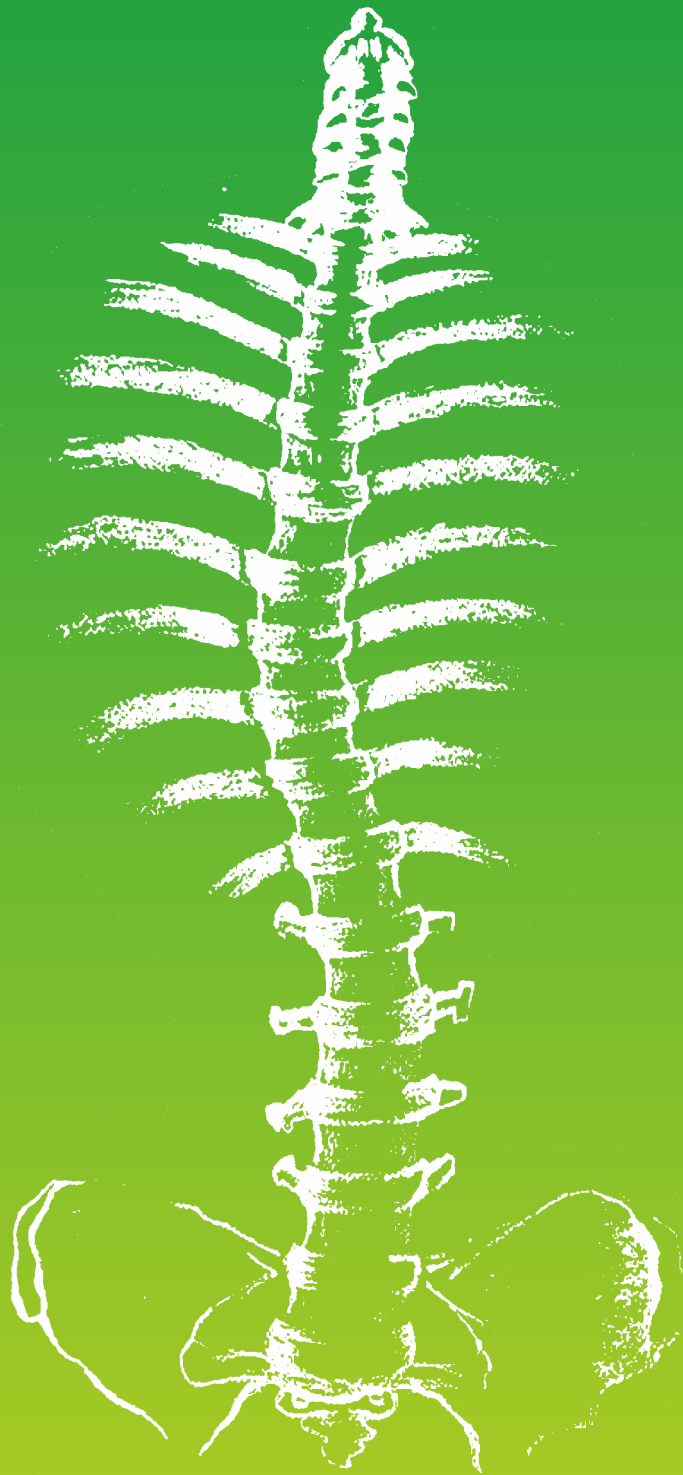
OSS TEAM 2024 in OT at JIMSH, Kolkata

Front : Left to right

Afsana (Sister), Asma (Tech), Dr Sumon Sen (PGT), Dr Shubhadip Chakraborty (PGT),
Dr Adarsh Shaw (PGT), Dr Amitosh Pandey (PGT)

Back standing : Left to right

Dr Barnava Pal (Anaesthesia), Dr Rakesh Prasad (SR), Suchi (Sister), Dr Massimo Balsano, Santu
(Tech), Dr Ujjwal K Debnath, Dr Alaaeldin Ahmad, Amit (Neuromonitorist), Dr Sudip Deb,
Dr Nabarun Mukherjee, Prinil Joseph



Art by Sagar Majumdar 16y,
at "Sit N Draw" competition theme "Spinal deformity"
organised by OSS Trust
at Kulpi, South 24 Parganas, West Bengal