

Chiari malformation, syringomyelia, and Ehlers-Danlos syndrome at Niagara Falls, June 25 – 29, 2019

Hyatt Regency Buffalo Hotel and Conference Center

2 Fountain Plaza, Buffalo, NY 14202, USA

<https://csfflowsatniagarafalls.org/>

Program as at 16 April 2019

Tuesday, June 25

Afternoon **Niagara Falls sight-seeing**

6 pm **Welcome reception**

Wednesday, June 26

07:00 – 07:45 Registration and coffee

07:45 – 08:00 Introduction, Goals of meeting
Lynne Bilston
Marcus Stoodley
Mark Kane

SESSION 1

08:00 – 10:00

Chiari malformation: Session I

08:00 – 08:30 Surgical goals in treating Chiari headache *John Oro*

08:30 – 08:55 Chiari morphometrics: what changes after surgery and does this relate to headache resolution? *Cormac Maher*

08:55 – 09:20 Headache in Chiari I Malformation: Assessment Using Real-Time MR CSF Flow Imaging *Rafeeqe Bhadelia*

09:20 – 09:45 Management of persisting headache after surgery *Paolo Bolognese*

09:45 – 10:00 Chiari I malformation - neuropsychological functions and quality of life *Fawaz Almotairi*

10:00 – 10:20 MORNING TEA

SESSION 2**10:20 – 12:20****Chiari malformation: Session II**

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|---------------|--|------------------------|
| 10:20 – 10:45 | Cognitive changes in Chiari and effects of surgery | <i>Jeff Rogers</i> |
| 10:45 – 11:10 | Structural Integrity (DTI) and Functional Connectivity (Resting-State fMRI) in Chiari Malformation Type I: The Effects of Pain and Cognition | <i>Phil Allen</i> |
| 11:10 – 11:40 | Scoliosis in Chiari patients with and without syringomyelia | <i>Doug Brockmeyer</i> |
| 11:40 – 12:05 | Mechanisms and management of sleep and breathing disturbances in Chiari | <i>Indra Nerang</i> |
| 12:05 – 12:20 | Swallowing dysfunction in adult patients with Chiari I malformation | <i>Fawaz Almotairi</i> |

12:20 – 13:00**LUNCH****SESSION 3****13:00 – 15:00****Chiari malformation: Session III**

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|---------------|---|--|
| 13:00 – 13:25 | Mechanisms and management of balance and hearing disturbance in Chiari | <i>Roger Kula</i> |
| 13:25 – 13:45 | Management of Chiari in children | <i>Renee Reynolds</i> |
| 13:45 – 14:00 | Patients with “benign” Chiari I malformations require surgical decompression at a low rate | <i>Brandon Rocque</i> |
| 14:00 – 14:15 | Can we Predict the Outcome of Decompression Surgery in CM-I?: A pilot Study | <i>Noam Alperin</i> |
| 14:15 – 14:30 | Regional Brain Tissue Displacement and Strain is Higher in Chiari Malformation Subjects than Control Subjects: A Study with DENSE MRI | <i>John Oshinski</i> |
| 14:30 – 14:45 | Brain Tissue Deforms Differently Following Decompression Surgery | <i>Rouzbeh Amini</i> |
| 14:45 – 15:00 | <i>Consensus and future research: Chiari malformation</i> | <i>Marcus Stoodley and Lynne Bilston</i> |

15:00 – 15:20**AFTERNOON TEA**

SESSION 4**15:20 – 17:40****Cranio-vertebral junction**

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|---------------|---|------------------------------|
| 15:20 – 15:45 | Craniocervical junction hypermobility | <i>Fraser Henderson</i> |
| 15:45 – 16:10 | Craniovertebral Junction disorders and Chiari malformation. Myth and truth in pathophysiological and neurosurgical implications | <i>Massimiliano Visocchi</i> |
| 16:15 – 16:40 | Craniocervical junction hypermobility | <i>Jeff Wilson</i> |
| 16:40 – 16:55 | Is C1/2 fusion required for all patients with Chiari I Malformation or basilar invagination? | <i>Jorg Klekamp</i> |
| 16:55 – 17:10 | Endoscopic endonasal decompression for Chiari malformation type I with basilar invagination | <i>Tatsushi Inoue</i> |
| 17:10 – 17:25 | Abnormalities of the CVJ and spine in EDS: a systematic review of diagnosis | <i>Lindsay Wilson</i> |
| 17:25 – 17:40 | ME/CFS associated with hypermobility, tonsillar ectopia, craniocervical narrowing and intracranial hypertension? | <i>Björn Bragée</i> |

Thursday, June 27

SESSION 5

08:00 – 10:00

Ehlers Danlos Syndrome

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|---------------|---|--|
| 08:00 – 08:25 | Chiari and EDS: association and investigation | <i>Jeff Wilson</i> |
| 08:25 – 08:45 | Chiari morphometrics in EDS patients | <i>Frank Loth</i> |
| 08:45 – 09:00 | Identification of rare genetic variants associated with Chiari malformation type I, with and without symptoms of connective tissue disorders. | <i>Melanie Garrett</i> |
| 09:00 – 09:25 | Surgical approaches for EDS patients – are they different? | <i>Jeff Greenfield</i> |
| 09:25 – 09:40 | Neuro-imaging of craniocervical / cervical instability in EDS and other hereditary connective tissue disorders | <i>Myles Koby</i> |
| 09:40 – 09:55 | The EDS Expert Panel Recommendations for neurosurgical intervention: a critical appraisal using the AGREE II | <i>Lindsay Wilson</i> |
| 09:55 – 10:05 | <i>Consensus and future research: EDS and cranio-vertebral junction</i> | <i>Marcus Stoodley and Lynne Bilston</i> |

10:05 – 10:25

MORNING TEA

SESSION 6

10:25 – 12:30

Chiari malformation and Syringomyelia

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|---------------|---|------------------------|
| 10:25 – 10:50 | Mechanisms of syrinx formation A: clinical clues | <i>Andy Brodbelt</i> |
| 10:50 – 11:15 | Mechanisms of syrinx formation B: laboratory studies | <i>Sarah Hemley</i> |
| 11:15 – 11:40 | Mechanisms of syrinx formation C: engineering studies | <i>Rob Lloyd</i> |
| 11:40 – 12:05 | Mechanism of syrinx formation D: what can we learn from dogs | <i>Clare Rusbridge</i> |
| 12:05 – 12:30 | Surgical treatment of Chiari syrinx: goals and outcome assessment | <i>Sumit Thakar</i> |

12:30 – 13:10 LUNCH

SESSION 7

13:10 – 15:00

Syringomyelia/CSF physiology

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|---------------|---|------------------------|
| 13:10 – 13:25 | Management of persistent or recurrent syringomyelia after Chiari decompression | <i>Kaishin Tanaka</i> |
| 13:25 – 13:50 | Brain and spinal CSF physiology: laboratory studies | <i>Humberto Mestre</i> |
| 13:50 – 14:15 | The drainage of cerebrospinal fluid: new insights into lymphatic clearance pathways | <i>Steven Proulx</i> |
| 14:15 – 14:40 | What drives fluid flow in and around the spinal cord | <i>Shinuo Liu</i> |
| 14:40 – 15:00 | Chiari malformation and CSF flow: observations from upright MRI | <i>Scott Rosa</i> |

15:00 – 15:20

AFTERNOON TEA

SESSION 8

15:20 – 17:40

Chiari malformation and Syringomyelia

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|---------------|--|---------------------------|
| 15:20 – 15:40 | Chiari malformation combined with syringomyelia in minimally invasive surgery in different forms of cerebrospinal fluid circulating fluid dynamics | <i>Yongli Lou</i> |
| 15:40 – 15:55 | Foramen magnum decompression in pediatric Chiari I malformation without dural repair – uncommon complications and how to avoid them | <i>Arthur R. Kurzbuch</i> |
| 15:55 – 16:10 | Pitfalls in Chiari malformation type 1 treatment: possible causes of surgical failures and indications for reoperation | <i>Marika Furlanetto</i> |
| 16:10 – 16:25 | Comparison of dural grafts in Chiari malformation type I decompression surgery | <i>Tomasz Dziezic</i> |
| 16:25 – 16:40 | Chiari malformation in adults: outcome after surgical treatment, with a special attention for the results on headache | <i>Marika Furlanetto</i> |

- 16:40 – 16:55 Treatment of Myelopathy caused by Chiari malformation type I and cervical stenosis; is resource scarcity a limitation? *Steven Nshuti*
- 16:55 – 17:10 Dural histopathology in Cavalier King Charles Spaniels with Chiari-like malformation *Marissa O'Donnell*
- 17:10 – 17:25 A descriptive overview of neurological symptoms and their associated healthcare burden in Canadian patients with EDS and HCTD *Adena Gustin*
- 17:25 – 17:40 A shunt procedure for post-traumatic and tuberculous syringomyelia treatment *Hao Li*

Friday, June 28

SESSION 9

08:00 – 10:00

Non-Chiari Syringomyelia: pathogenesis

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|---------------|---|-----------------------|
| 08:00 – 08:30 | Mechanisms of syrinx formation in SAS pathology A: clinical clues | <i>Jorg Klekamp</i> |
| 08:30 – 08:55 | Mechanisms of syrinx formation in SAS pathology B: laboratory studies | <i>Izumi Koyanagi</i> |
| 08:55 – 09:20 | Mechanisms of syrinx formation in SAS pathology C: engineering studies | <i>Lynne Bilston</i> |
| 09:20 – 09:45 | Mechanism of syrinx formation in spinal cord pathologies (tumours, tethered cord) | <i>John Heiss</i> |
| 09:45 – 10:00 | The causal role of spinal cord pulsation in the development of syringomyelia | <i>Uwe Max Mauer</i> |

10:00 – 10:20

MORNING TEA

SESSION 10

10:20 – 12:25

Chiari malformation/Syringomyelia

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|---------------|---|-------------------------|
| 10:20 – 10:45 | Surgical treatment of non-Chiari syrinx: goals and outcome assessment | <i>Jorg Klekamp</i> |
| 10:45 – 11:10 | Management of non-Chiari syringomyelia in children | <i>Laura Valentini</i> |
| 11:10 – 11:25 | The dilemma and burden of incidental and asymptomatic syrinxes | <i>Kush N Bhatt</i> |
| 11:25 – 11:40 | Novel use of Telemetric CSF reservoir access port in management of CSF disorders causing Hydrocephalus & syringomyelia. | <i>Mansoor Foroughi</i> |
| 11:40 – 11:55 | Spinal cord ultrastructure and the distribution of aquaporin-4 in a rodent model of post-traumatic syringomyelia. | <i>Joel Berliner</i> |
| 11:55 – 12:10 | Arachnoidolysis versus shunting in the management of post-traumatic syringomyelia | <i>Kevin Jang</i> |

12:10 – 12:25 Investigation of the role of betaine synthesis and transport in syrinx osmoregulation *Nic D. Leipzig*

12:25 – 13:05 LUNCH

**SESSION 11
13:05 –15:30**

Chiari malformation and Syringomyelia

13:05– 13:20 Surgical treatment of spinal cord and rootlet tethering *Scott Falci*

13:20 – 13:35 Foramen Magnum Decompression with Cranioplasty for Treatment of Chiari-like Malformation in 126 Cavalier King Charles Spaniel with long-term follow-up (2005-2017) *Dominic Marino*

13:35 – 13:50 Chiari1000- A Database for Chiari Malformation Research *Dorothy Loth*

13:50 – 14:05 Ankle Joint Stiffness during Quiet Unperturbed Standing in Chiari Malformation *Brittany N. Sommers*

14:05 – 14:20 Effects of Surgical Decompression on Ankle Stiffness During Gait: Biomechanical Differences within a Cohort of Chiari Patients *Brian L. Davis*

14:20 – 14:35 Abnormalities in the spinal cord ultrastructure in a rat model of post-traumatic syringomyelia *Magda Lam*

14:35 – 14:50 Three-dimensional CT morphometric Image Analysis of the Clivus and Sphenoid Sinus in Chiari Malformation Type I *Blaisee Simplicie Talla Nwotchouang*

14:50 – 15:05 Resistance to CSF Motion in the Spinal Canal for Chiari Patients w/ Specific and Nonspecific Symptoms *Alaaddin Ibrahimy*

15:05 – 15:20 Intraoperative MRI in patients with syringomyelia and / or Chiari malformation *Uwe Max Mauer*

15:20 – 15:30 *Consensus and future research: Syringomyelia* *Lynne Bilston, Marcus Stoodley*

CLOSE

Saturday, June 29

SESSION 12
09:00 – 13:00

Information session for patients