

The influence of concomitant syringomyelia on patient reported outcome following hind brain decompression

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BACKGROUND & METHODS

- **Background:** To evaluate the impact of concomitant syringomyelia on patient reported outcome measures and complications in patients undergoing hindbrain decompression for a Chiari 1 malformation.
- **Methods:** Prospective data collection of 95 patients undergoing Foramen magnum decompression between March 2011 and March 2015. Outcome evaluation was performed using the Core Outcome Measure Index questionnaire for neck (COMI-neck) and Gestalt impression (to assess improvement of headaches). Patients were retrospectively split into two cohorts, those with and those without syringomyelia. Both cohorts were compared in all domains of the COMI neck questionnaires, headache, and complications. Non-parametric data were analysed with Wilcoxon signed rank, Mann-Whitney U and Fisher exact tests. Parametric data were analysed with Student T-test. SPSS Software was used for analysis.

RESULTS

79 patients returned 1 year follow-up COMI-neck questionnaires. Thirty three had concomitant syringomyelia and 46 had no syringomyelia present. There was no statistically significant difference in patient reported outcomes (COMI-neck index median 4.5 +/- 3.3 vs 4.2+/-3.2; p=0.376) between the syrx and non-syrinx cohorts. However postoperative neck pain (median 4 +/- 3.35 vs 1 +/- 3.17; p 0.041) and arm/ shoulder pain scores (2 +/- 3.38 vs. 0+/- 2.628; p 0.049) were significantly lower in the non-syrinx cohort. In both cohorts 57% patients had an improvement in headache. 92% patients were 'satisfied' with treatment and 63% stated that the operation 'helped'. 54% patients in the syrx and 59% in the non-syrinx cohort self-reported complications. There was not statistical difference in outcomes of the patients with and without self-reported complications (p=0.121).

DEMOGRAPHICS

Table 1: Patients Demographics

	Syrinx	Non - Syrx	p value
Patients	33	46	-
Number of surgeries	35	46	-
Redo surgery	11 out of 33	4 out of 46	0.0186*
Male / Female ratio	6 / 29	8 / 38	1.00*
Age (years)	38 +/- 13	34 +/- 11	0.2**
ASA grade 1	19	33	0.186*
grade 2	15	11	
grade 3	1	2	

*Fisher exact test; **T-test

SURGICAL CHARACTERISTICS

Table 2: Surgical Characteristics Syrx vs. Non-Syrinx cohorts

	Syrinx	Non - Syrx	P value*
SOC	17%	11%	0.334
SOC + C1 laminectomy	83%	89%	
Durotomy	97%	95%	0.31
left open	83%	87%	
duraplasty	14%	4%	
sutured	-	4%	
Arachnoid release	83%	85%	1
Tonsils volume reduction	66%	59%	0.6453
VP shunt	31%	15%	0.1077

SOC sub-occipital craniectomy; VP ventriculo - peritoneal; * Fisher exact test

OUTCOMES

Table 3 Comparison of the COMI, Neck & Arm / Shoulder pain scores at 12 months

	Syrinx**	Non-syrinx**	P value*
COMI neck index	4.5 +/-3.34	4.2+/-3.16	0.376
Neck pain	4.0 +/- 3.35	1+/-3.17	0.041
Arm / shoulder pain	2 +/- 3.38	0+/- 2.628	0.0049

*Mann-Whitney U test; ** median +SD

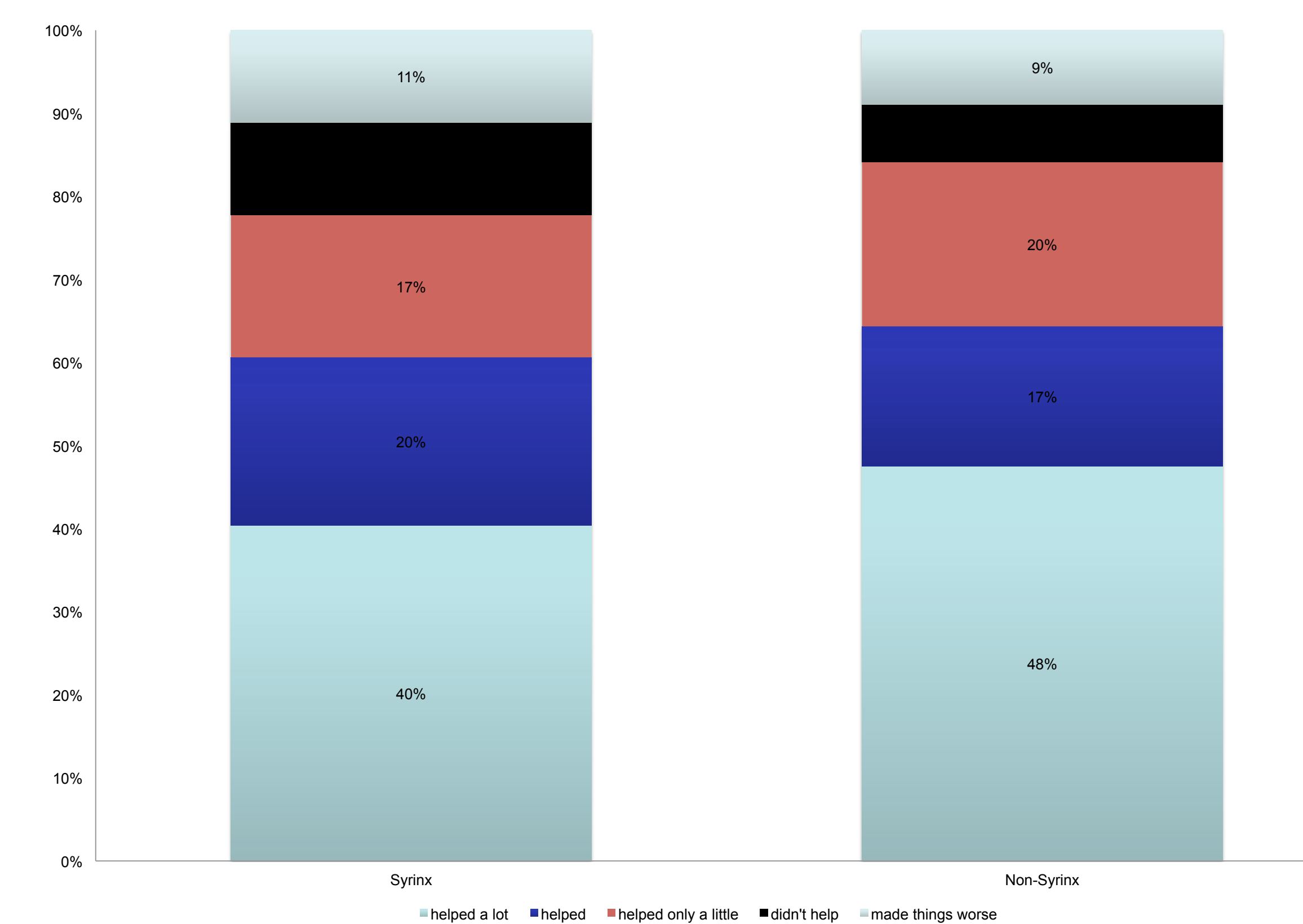


Figure 1 'overall outcome' domain of the COMI neck (1 year Follow-up). There was no significant difference between syrx and non-syrinx cohort.

SATISFACTION

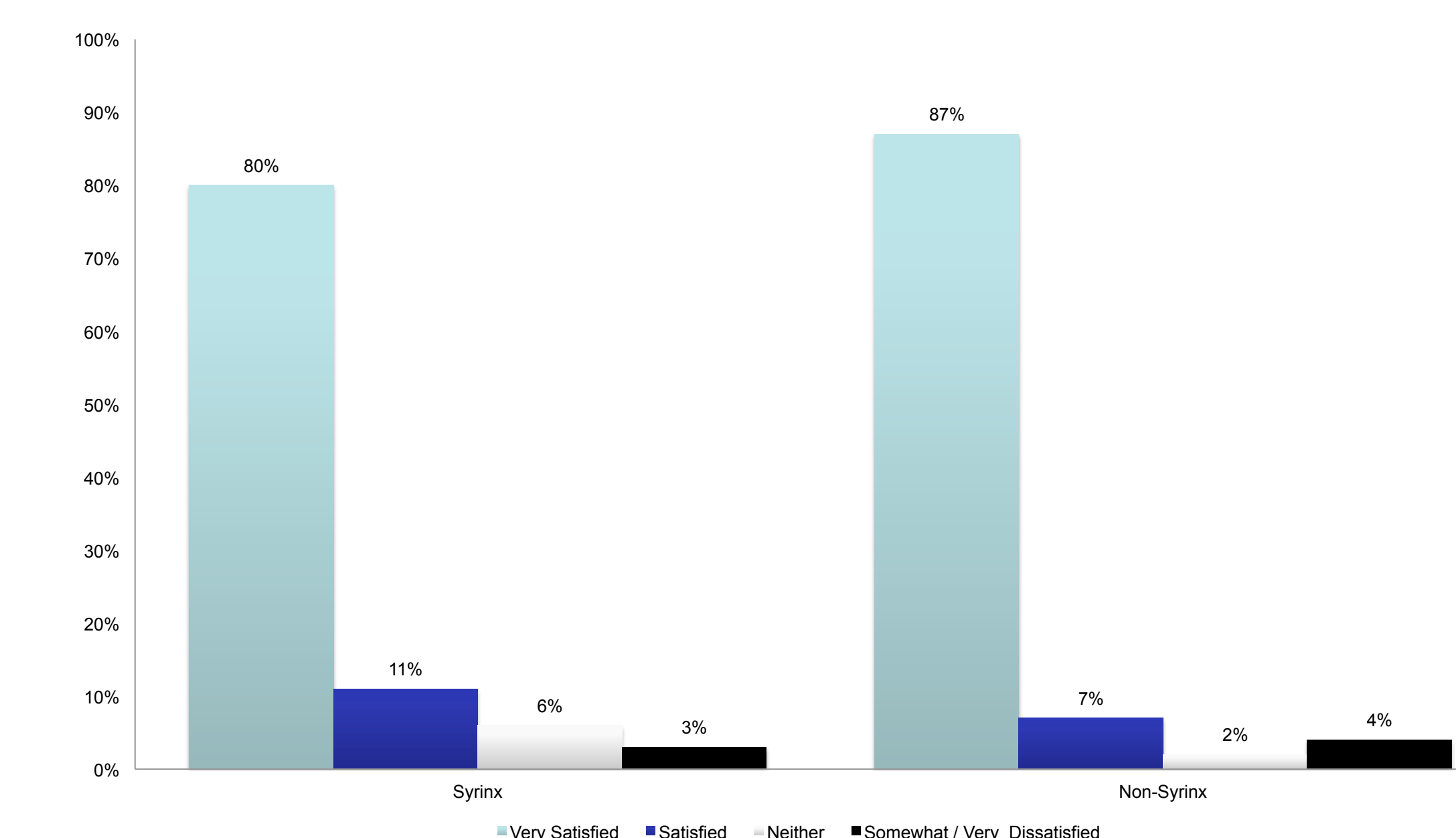


Figure 2 'Satisfaction with treatment' domain of the COMI neck (1 Y Follow up). There was not significant difference between cohorts

SELF-REPORTED COMPLICATIONS

Overall 46 patients (19 syrx and 27 non-syrinx) self-reported complications as a consequence of the operation. This represents a 54% and 59% self - reported complication rate in syrx and non-syrinx cohort (the difference is not statistically significant, p = 0.821; Fisher exact test). Overall COMI-neck index did not show significant difference in 1 year follow-up between patients with and without complications (p=0.121)

HYDROCEPHALUS

Hydrocephalus required permanent cerebrospinal fluid (CSF) diversion in 18 (23%) patients. Three patients had ventriculo-peritoneal shunt inserted prior FMD and 15 patients thereafter. The patients requiring permanent CSF diversion did not show significantly worse 1 year outcome in comparison to patients without hydrocephalus (COMI-neck indexes mean 5.35 +/- 3.09 vs. 3.95+/-3.23 ; p = 0.083) . However the patients with permanent CSF diversion reported significantly worse headaches (p=0.0009) than patients without in 1 year follow up.

SYRINX REGRESSION

In 29 out of 35 cases syrx regressed on postoperative MRI scan. It represent 84% syrx regression rate.

CONCLUSIONS

This study demonstrates that the clinical effectiveness of FMD is lower and reported complications are higher when evaluated by patient reported outcome measures. Patients with and without concomitant syringomyelia showed equal overall outcomes, although neck and arm pain was worse in syrx patients.

- Disclosure declaration
- none of the authors has any potential conflict of interest