

O-14

Impact of Cervical Disc Herniation Size on Clinical Outcomes in Cervical Radiculopathy after Surgical or Conservative Treatment

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Background: This study aimed to evaluate whether the size of herniated disc material is correlated to baseline symptom severity and/or clinical outcome in patients suffering from cervical radiculopathy, either being treated surgically or conservatively.

Research question: Is there an association between cervical disc herniation size and clinical outcome?

Design: Multi-centre Retrospective Cohort

Methods: MRI scans of the cervical spine of 206 patients with cervical radiculopathy due to a herniated disc were analysed to classify the size of the disc herniation. Clinical outcome was assessed using the VAS for arm and neck pain, the NDI for functional impairment and the EuroQol VAS for patient satisfaction at baseline and one year after treatment. Binary logistic regression models were used to evaluate associations between hernia size and clinical outcome, adjusting for treatment type, gender and age.

Results: 107 patients presented with a small herniation and 99 had a large herniation. At baseline, the mean NDI scores were 39.1 ± 15 for the surgical group (n=165), and 32.9 ± 16 for the conservative (n=41), no association was observed between herniation size and clinical outcome (OR 1.010, p=0.323). After one year, the mean NDI scores were 16.2 ± 15 (surgical group) versus 19.6 ± 22 (conservative group). No association was demonstrated between baseline, herniation and NDI one year later, neither in the surgical (OR 1.001 p=0.925) nor in the conservative (OR 1.538 p=0.608) group. Similar patterns were observed for VAS arm pain, VAS neck pain and the EQ-VAS.

Discussion: The size of disc herniation assessed on baseline MRI's revealed no correlation to the severity of symptoms at presentation nor to the clinical outcomes observed one year after treatment, indicating no predictive value. This adheres to the hypothesis that inflammation processes impacting the cervical nerve root play a significant role in radiculopathy, rather than mechanical compression.

Fig. 1

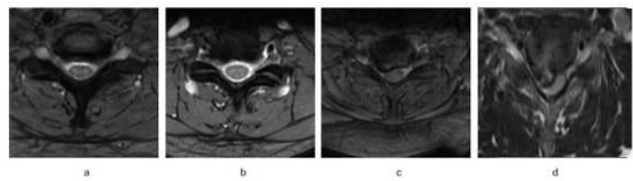


Fig. 1

Classification of cervical disc herniation, a) Normal, b) mild, c) moderate, and d) severe.

Figure 1: Classification of cervical disc herniation

Fig. 2

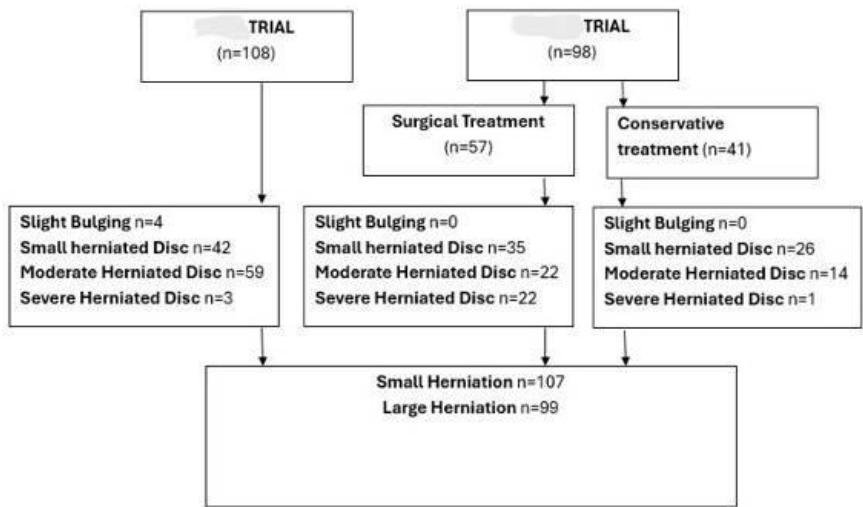


Figure 2: Distribution of patients

Fig. 3

Table 2: Mean Values given with Standard Deviation

	Trial (Surgical)		Trial (Surgical)		Surgical	Trial (Conservative)	
NDI [*] Baseline	44.2 (15)		37.4 (14)		39.1(15)	32.9 (16)	
NDI 1 yr FU	19.0 (17)		17.3 (14)		16.2(15)	19.6 (22)	
VAS [*] Arm Pain Baseline	61.2 (21)		60.9 (25)		61.1(23)	49.8 (28)	
VAS Arm Pain 1 yr FU	19.7 (26)		17.0 (23)		18.7(25)	13.0 (22)	
VAS Neck Pain Baseline	53.6 (26)		55.9 (26)		54.6(26)	47.8 (29)	
VAS Neck Pain 1 yr FU	23.9 (25)		21.7 (24)		23.1(25)	21.7 (28)	
EQ [*] -VAS Baseline	48.3 (24)		51.8 (23)		49.9(23)	52.7 (23)	
EQ-VAS 1 yr FU	72.7 (22)		74.1 (21)		73.2(21)	66.2 (28)	

^{*}Neck disability Index
^{*}Visual Analogue Scale
^{*}EuroQol

Fig. 4

		TRIAL (surgical)			TRIAL (surgical)			Surgical (merge)			conservative)					
		Odds	95% CI	p	Odds	95% CI	p	Odds	95% CI	p	Odds	95% CI	p	Odds	95% CI	p
NDI	baseline	1.003	0.98;1.03	0.858	1.000	0.95;1.05	0.992	1.007	0.98;1.03	0.551	1.010	0.97;1.05	0.629	1.010	0.99;1.03	0.323
	1 yr FU	0.999	0.97;1.02	0.968	0.766	0.14;4.11	0.756	1.001	0.98;1.02	0.925	1.538	0.30;3.08	0.608	1.000	0.96;1.02	0.989
Vas	baseline	0.990	0.97;1.0	0.338	1.001	0.98;1.03	0.959	0.994	0.98;1.01	0.476	0.991	0.97;1.02	0.487	0.995	0.98;1.01	0.405
	1 yr FU	1.006	0.99;1.02	0.511	0.681	0.13;3.48	0.645	1.009	0.99;1.02	0.262	1.003	0.96;1.04	0.901	1.009	0.99;1.02	0.221
Vas	baseline	0.999	0.98;1.02	0.890	1.001	0.98;1.03	0.959	1.000	0.99;1.01	0.987	0.991	0.97;1.02	0.584	0.999	0.99;1.01	0.885
	1 yr FU	0.989	0.97;1.0	0.222	0.681	0.13;3.48	0.645	0.999	0.99;1.01	0.941	1.006	0.98;1.03	0.660	1.001	0.98;1.01	0.691
Eq vas	baseline	1.005	0.99;1.02	0.586	1.003	0.98;1.03	0.836	1.003	0.99;1.02	0.706	0.988	0.96;1.02	0.475	0.999	0.99;1.01	0.885
	1 yr FU	0.989	0.98;1.0	0.616	0.558	0.10;3.23	0.513	0.986	0.97;1.00	0.128	0.975	0.88;1.08	0.690	1.001	0.99;1.01	0.891

Adjusted for Age, Sex, Body Mass Index