



LONG-TERM MANOMETRIC ASSESSMENT IN PATIENTS SUBMITTED TO NISSEN FUNDOPLICATION DUE TO NUTCRACKER ESOPHAGUS ASSOCIATED TO GASTROESOPHAGEAL REFLUX DISEASE

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Introduction

This article aims to evaluate the symptomatology, manometry, and pHmetry of patients submitted to Nissen’s gastro-fundoplication for gastroesophageal reflux disease, associated with nutcracker esophagus, to prove their long-term efficacy.

Methods

a retrospective cohort study of seven out of thirteen patients with nutcracker esophagus, who have been submitted to Nissen’s anti-reflux surgery (360° gastro-fundoplication), and are clinically being followed for a variable period of four years and seven months to nine years and nine months. All the patients were submitted to clinical examination and manometry preceding the gastro-fundoplication and after three months. In the late evaluation, after four to nine years of surgery, the patients were submitted to clinical examination, manometry, and acid pHmetry.

Signs and symptoms	f	%
Heartburn	7	100.0
Regurgitation	6	85.7
Chest pain	4	57.1
Dysphagia	4	57.1
Hoarseness	4	57.1
Pitching	4	57.1
Cough	3	42.9
Asphyxia	1	14.3
Canker sores	1	14.3
Halitosis	1	14.3
Throat	1	14.3
Snore	1	14.3

Table 1 - Distribution of signs and symptoms of seven patients predating gastro-fundoplication at Nissen - October 2003–January 2008

Note: Percentages calculated on the total number of patients

Number	Sex	Average pressure of the body of the esophagus			Mean pressure of the IES		
		previous	after 3 months	Follow-up	previous	At 3 months	Follow-up
1	F	263.0	180.8	125.1	11.1	8.2	5.9
2	F	283.2	261.6	235.0	5.4	23.7	15.5
3	M	214.3	133.7	184.0	8.9	10.2	5.9
4	F	266.2	153.3	135.6	5.7	5.9	11.0
5	M	212.3	121.2	163.6	4.6	6.5	9.7
6	F	257.3	215.9	139.6	5.1	11.0	3.5
7	F	177.2	96.4	101.0	6.0	8.6	15.8

Table 2 – Demonstration of manometric evaluations of seven patients submitted to gastro-fundoplication at Nissen - October 2003–January 2008. IES: Inferior esophageal sphincter

Manometric assessments	Mean ± MSE	IC 95%	Minimum/maximum	P value
Distal pressure amplitude				
Before surgery	239.07 ± 14.43	203.76–274.,38	177.20/283.20	< 0.001
after 3 months	166.13 ± 21.77	112.86–219.40	96.40/261.60	< 0.001
In the late follow-up	154.84 ± 16.72	113.94–195.75	101.00/235.00	< 0.001
IES pressure				
Before surgery	6.90 ± 1.10	4.21–9.59	4.60–11.10	0.001
after 3 months	10.58 ± 2.29	4.98–16.19	5.90–23.70	0.004
In the late follow-up	9.62 ± 1.82	5.16–14.08	3.50–15.80	0.002

Table 3 – Manometric parameters according to the period of evaluation of seven patients submitted to gastro-fundoplication at Nissen - October 2003–January 2008.

Note: P-values calculated by Student’s t-test

Variations in manometric assessments	Mean ± MSE	IC 95%	Minimum-maximum	p value
Variation of distal pressure amplitude				
After 3 months - before	-72,94 ± 11,71	-101.60- -44.27	-112.90 -21.60	0.001
Late - before	-84.23 ± 16.68	-125.04- -43.41	-137.90 -30.30	0.002
Late - after 3 months	-11.28 ± 17.86	54.99-32.42	76.30-50.30	0.551
Variation of distal pressure amplitude per year				
Late - before	-13.11 ± 2.20	-18,49- -7.73	-19.89 -5.19	0.001
late - after 3 months	-1.18 ± 3,02	-8.57- 6.21	-13.46 9.01	0.710
Variation of IES pressure				
Late - before	2.72 ± 1.94	-2.04 – 7.48	-5.20 9.80	0.211
late - after 3 months	-0.96 ± 2,33	-6.67- 4.74	7.20 15.40	0.694
after 3 months – before	3,66 ± 1,81	-0.76- 8.14	-2.90 12.60	0.089
Variation of IES pressure per year				
Late - before	-0,09 ± 0,42	-1.11- 0.92	-1.33 1.57	0.830
late - after 3 months	0.23 ± 0.10	-0.01- 0.47	-0.10 0.71	0.056

Table 4 – Mean differences in manometric parameters between the three evaluations in patients submitted to gastro-fundoplication at Nissen-October 2003–January 2008.

Note: P-values calculated by Student's t-test for paired samples MSE: Mean Standard Error

Results

seven patients, predominantly female (71.4%), and a mean age of 51.71 ± 4.58years. Of the seven patients studied, three were found to be asymptomatic and four had mild, mixed symptoms consisting of flatulence, abdominal distension and difficulty in eructation (2; 50.0%). There was also a complaint of throat cleaning, nocturnal coughing, or sporadic nocturnal choking (2; 50.0%).

Conclusion

Nissen surgery for nutcracker esophagus associated with gastroesophageal reflux proved to be efficient in maintaining controlled pressure range of the esophagus body, promoting improvement of patient’s symptoms.