

Chronic Pain Outcomes and Nerve Management in Open Inguinal Hernia Repair – an ACHQC Analysis

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Background

Chronic pain is the most common complication following open inguinal hernia repair. The importance of intraoperative nerve identification, preservation, prophylactic resection, or pragmatic resection has been debated.

The purpose of this project is to evaluate different nerve management strategies and chronic pain outcomes in widespread practice using an international hernia surgery registry. before and after ERAS protocol implementation.

Methods

Using the Abdominal Core Health Quality Collective (ACHQC), we identified patients from 2014 to 2023 who had an open inguinal hernia repair with mesh and any nerve identified at time of surgery.

Patient and surgical characteristics, 30-day post operative outcomes, as well patient reported outcomes (PROs) were collected. Patient and surgical characteristics were compared for significant differences relating to the different nerve management techniques performed. Propensity score matching was used to compare chronic pain for different nerve management while controlling for patient and surgical variables.

Results

Table 1. Operative Details							
		Protected – Left in Situ (n = 4823)	Replaced in Situ (n = 348)	Partially Excised (n = 540)	Fully Excised (n = 777)	Total (n = 6493)	P value
OR Time	No	2968 (62%)	230 (66%)	265 (49%)	362 (47%)	3825 (59%)	<0.001
> 1 Hour	Yes	1855 (38%)	118 (34%)	275 (51%)	415 (53%)	2663 (41%)	
OR time	No	4616 (96%)	337 (97%)	502 (93%)	698 (90%)	6153 (95%)	<0.001
> 2 Hour	Yes	212 (4%)	11 (3%)	38 (7%)	79 (10%)	340 (5%)	

Table 2. 30 Day Outcomes							
		Protected – Left in Situ (n = 4823)	Replaced in Situ (n = 348)	Partially Excised (n = 540)	Fully Excised (n = 777)	Total (n = 6493)	P value
SSI/SSO	No	4653 (96%)	336 (97%)	502 (93%)	736 (95%)	6227 (96%)	<0.001
	Yes	175 (4%)	12 (3%)	38 (7%)	41 (5%)	266 (4%)	
Procedure	No	4806 (100%)	346 (99%)	536 (99%)	769 (99%)	6457 (99%)	0.22
	Yes	22 (0%)	2 (1%)	4 (1%)	8 (1%)	36 (1%)	
Re-Admit	No	4790 (99%)	344 (99%)	533 (99%)	763 (98%)	6430 (99%)	0.046
	Yes	38 (1%)	4 (1%)	7 (1%)	14 (2%)*	63 (1%)	

Table 3. Patient Reported Outcomes						
	N	Protected – Left in Situ	Replaced in Situ	Partially Excised	Fully Excised	P value
Baseline pain (0-30)	3587	6 [2, 13]	9 [4, 14]	6 [2, 13]	11 [5, 18]	<0.001
30d pain (0-30)	4729	3 [0, 7]	4 [1, 9]	4 [0, 8]	4 [1, 10]	<0.001
1 year pain (0-30)	1634	0.0 [0.0, 2.0]	0.0 [0.0, 2.0]	0.0 [0.0, 2.8]	0.0 [0.0, 4.0]	0.047

Pain: In rest (0-10), during activities (0-10), worst pain felt during the last week (0-10)

Table 4. Nerve Management and Chronic Pain				
		Pain < 6 (n = 302)	Pain ≥ 6 (n = 109)	P value
Ilioinguinal	Protected	156 (52%)	46 (42%)	0.002
	Replaced	45 (15%)	6 (6%)	
	Partially Excised	12 (4%)	9 (8%)	0.003
	Fully Excised	89 (29%)	48 (44%)	
Iliohipogastric	Protected	127 (75%)	31 (53%)	0.28
	Replaced	11 (6%)	4 (7%)	
	Partially Excised	5 (3%)	1 (2%)	0.003
	Fully Excised	27 (16%)	23 (39%)	
Gen Br. of GF	Protected	48 (41%)	13 (31%)	0.28
	Replaced	3 (3%)	1 (2%)	
	Partially Excised	30 (26%)	8 (19%)	0.003
	Fully Excised	36 (31%)	20 (48%)	

Conclusions

This review demonstrates a lower likelihood of chronic pain with preservation of the inguinal nerves compared to excision. Excision of the inguinal nerves is associated with longer operative times and higher rates of SSI/SSO compared to nerve preservation. Our study supports current guidelines recommending identification and preservation of inguinal nerves during open inguinal hernia repair