



Surgical Treatment of Painful Abdominal Wall Neuromas

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BACKGROUND

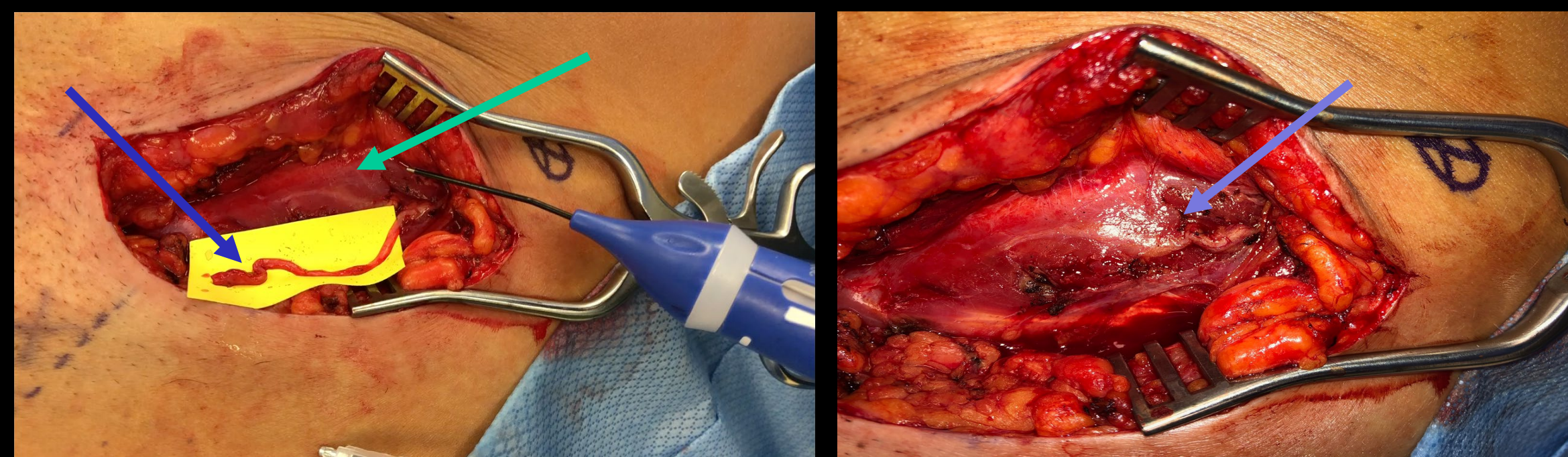
Abdominal wall neuroma pain is an under-recognized significant contributor to chronic abdominal wall pain (CAWP) that affects approximately 1:1800 people⁽¹⁾. An estimated 15-30% patients suffer from CAWP post abdominal and pelvic surgery^(2,3).

As it can lead to significant disability and decreased quality of life for many people, effective methods of treatment are indicated. To date, no gold standard of care exists.

The success of nerve allograft reconstruction and Targeted Muscle Reinnervation (TMR) in the treatment of chronic neuroma pain syndromes suggests that these methods may be effective in CAWP when due to a painful neuroma.

The aim of this study is to review the outcomes of surgical interventions employing nerve allograft reconstruction and/or TMR for painful abdominal wall neuromas.

Figure 1 A/B. A (left) Identification of ilioinguinal end neuroma and motor nerve to internal oblique prior to TMR nerve transfer and B (right) coaptation of freshened ilioinguinal nerve to internal oblique motor nerve



METHODS

- ❖ We conducted a retrospective and prospective review
- ❖ Our inclusion criteria involved all patients who underwent surgical treatment for painful abdominal wall neuromas by one surgeon at Northwestern Memorial Hospital, from 1/2009-1/2020
- ❖ Follow up pain surveys were given to all patients who met inclusion criteria
- ❖ This study was approved by the Northwestern University IRB

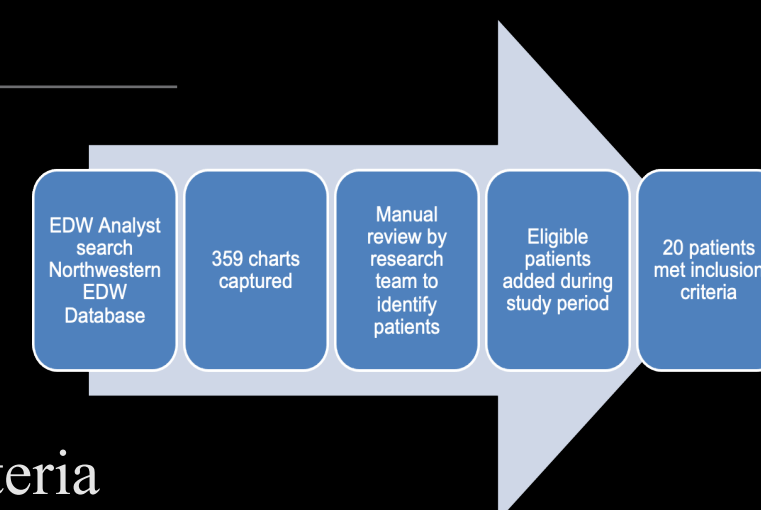


TABLE 1. PATIENT DEMOGRAPHICS

Table 1. Demographics		n = 20
Age, mean (SD)		46.5 (14.4)
Gender		
Men		7 (35%)
Women		13 (65%)
BMI, mean (SD)		28.5 (6.4)
Smoking status		
Never		13 (65%)
Former		6 (30%)
Current		1 (5%)
DM		
Yes		0 (0%)
No		20 (100%)
PVD		
Yes		1 (5%)
No		19 (95%)
History of massive weight loss		
Yes		2 (10%)
No		18 (90%)
Use of narcotics preoperatively		
Yes		8 (40%)
No		12 (60%)
Nerve affected		
Intercostal		13
Ilioinguinal		10
Genitofemoral		3
Iliohypogastric		1
Surgical treatment		
Allograft		18
TMR		8
TMR + allograft		2
Length of follow-up, months		18.9 (14.5)
Mean (SD)		
Median		14.6

Figure 2 A/B. A (top) Reported prior abdominal procedures, B (bottom) Reported prior interventions for chronic abdominal wall pain following abdominal procedures

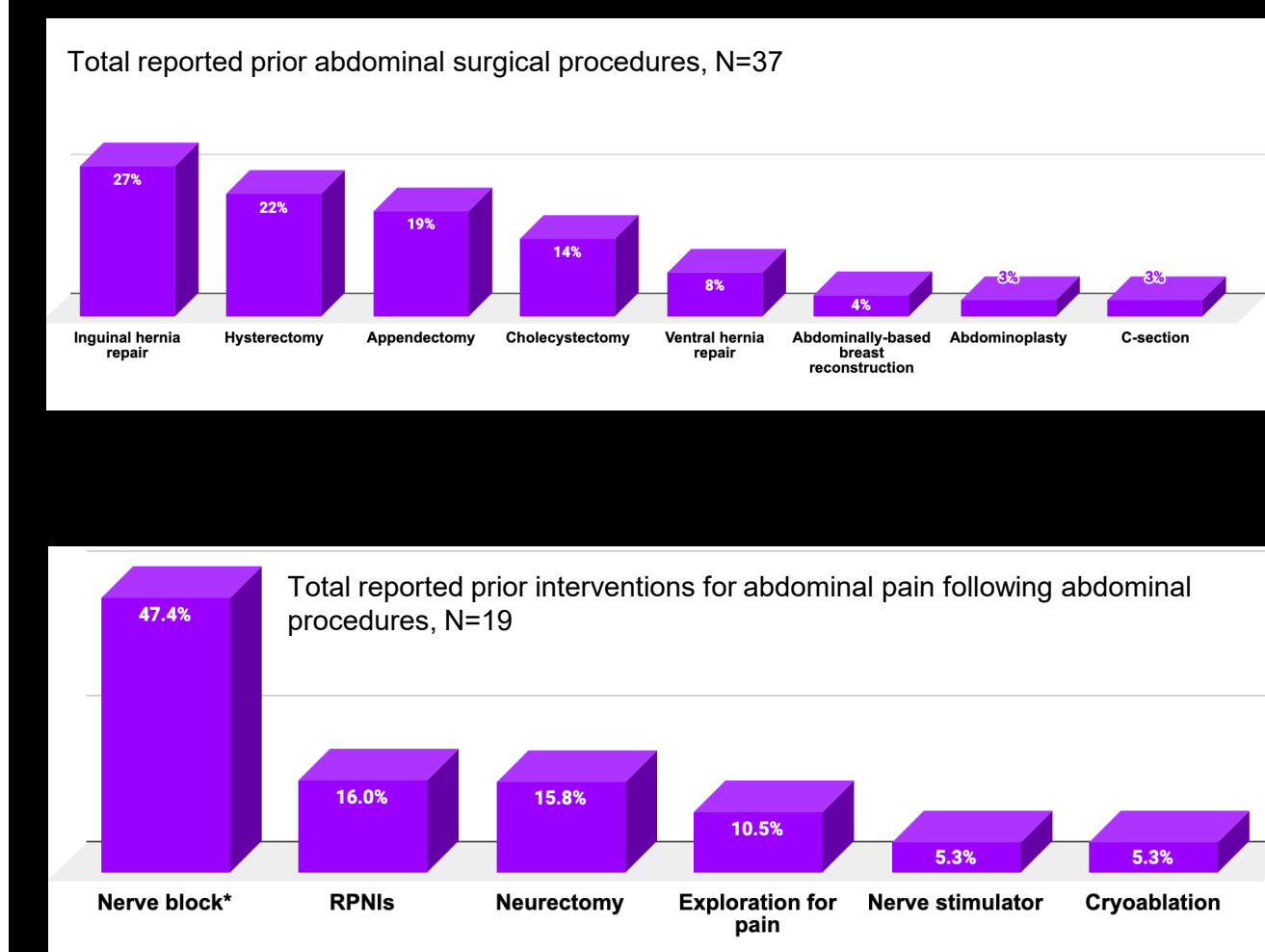


TABLE 2. POST OP ABDOMINAL WALL PAIN SURVEY RESPONSES

Survey question responses, rated on a scale from 0 to 10		n = 15
Worst abdominal pain in the past week (0 = none), mean (SD)	4.6 (2.9)	
Average abdominal pain in the past week (0 = none), mean (SD)	2.8 (2.3)	
Current abdominal pain (0 = none), mean (SD)	2.5 (2.1)	
Frequency of feeling emotionally upset in the past week (0 = never), mean (SD)	2.4 (2.2)	
Sleep quality in the past week (0 = worst), mean (SD)	6.7 (2.6)	
Interference of abdominal pain in ability to do ADLs/activities of enjoyment (0 = none), mean (SD)	4.3 (3.2)	
Current pain medications		
Opioids	4 (26.7%)	
NSAIDs	2 (13.3%)	
Tylenol	1 (6.7%)	
Topical agents (lidocaine, CBD)	2 (13.3%)	
Occupation status		
Working full-time	8 (53.3%)	
Retired	5 (33.3%)	
Unable to work	2 (13.3%)	

RESULTS

- ❖ 20 patients met inclusion criteria
- ❖ 27 nerves treated with TMR and/or allograft nerve reconstruction
 - intercostal nerves 48% (13)
 - ilioinguinal nerves 37% (10)
- ❖ 28 total procedures
 - all TMR to IO motor branch
- ❖ 75% completed the survey
 - mean post op pain score 2.8
 - 26.7% reported using opioid pain medications
 - 3 patients required repeat surgery
- ❖ 18/20 patients with improvement after surgical treatment
- ❖ Mean follow-up: 18.1 months

CONCLUSIONS

- ❖ Painful abdominal wall neuromas can be improved with surgery
- ❖ 90% of patients had significant improvement
- ❖ Nerve allograft reconstruction seems preferable for upper abdomen intercostal neuromas
- ❖ TMR preferred for ilioinguinal neuromas
- ❖ More patients with long term data needed, including preop pain surveys
- ❖ Increased awareness of painful neuromas following abdominal surgery may lead to:
 - Efficient work up
 - Cost effective care
 - Improved quality of life

REFERENCES

- 1) Koop H, Koprdova S, Schürmann C. Chronic Abdominal Wall Pain. Dtsch Arztebl Int. 2016 Jan 29;113(4):51-7
- 2) Simanski CJ, Althaus A, Hoederath S, Kreutz KW, Hoederath P, Lefering R, Pape-Köhler C, Neugebauer EA. Incidence of chronic postsurgical pain (CPSP) after general surgery. Pain Med. 2014 Jul;15(7):1222-9.
- 3) Gupta, A., Gandhi, K., & Viscusi, E. R. (2011). Persistent postsurgical pain after abdominal surgery. Techniques in Regional Anesthesia and Pain Management, 15(3), 140-146

