

Abstract: 2735

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Mastectomy ERAS Utilizing PEC1/PEC2 and Continuous ESP Blocks Decrease Perioperative Opioid Requirements and Chronic Pain

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Introduction

Breast cancer is the most common cancer affecting women in the United States. The low mortality rate and the elevated incidence of chronic pain following mastectomy surgery reported between 20 and 50 percent proves the importance of developing strategies to optimize these patient's quality of life. It has been theorized that inadequate acute pain management is associated with a higher incidence of chronic pain and opioid requirements and could result in increased cancer metastasis and recurrence. The opioid crisis in the United States must be addressed utilizing non-opioid pain management strategies for acute and chronic pain. A knowledge gap exists on how to best control patient long term outcomes without the primary treatment being opioid analgesics especially in this patient population with high survival rates and related chronic pain requiring long term opioids. Evidence-based anesthetic and analgesic recommendations have been adapted into enhanced recovery after surgery(ERAS) protocols for patients undergoing surgery. However, mastectomy surgical patients in the United States have had a limited number of ERAS protocols utilizing regional anesthesia techniques along with multimodal non-opioid pharmacological regimens to decrease opioid requirements as well as the development of chronic pain.1-5

Materials and Methods

The purpose of this study was to evaluate the effects of an enhanced recovery after surgery protocol (ERAS) that included pectoral nerve blocks I and II along with continuous erector spinae plane blocks on postoperative outcomes. This study aimed to evaluate the acute pain management strategies on opioid requirements during the immediate postoperative period and then re-evaluate after six months the incidence of chronic pain. A Retrospective chart review of all mastectomy surgical cases performed at a USA community hospital in rural Missouri from January 2018 to December 2020. IRB exempt approval was obtained due to no patient identifiers were collected. A total of 76 patients were included in this study. The control group included 30 patients that received ERAS anesthesia management that included utilizing esmolol, ketorolac, dexamethasone, ketamine, and ondansetron along with local infiltration by the surgeons. The experimental group of 46 patients received the same ERAS anesthesia management as the control, but included a preoperative placement of continuous erector spinae plane blocks at T1 or T2 with a 10 ml bolus of 0.5% ropivacaine and a postoperative infusion of 0.2% ropivacaine for three

days along with single injection PEC1/PEC2 blocks utilizing 20 ml of 0.5% ropivacaine. The following data was collected from the medical records: age, sex, BMI, ht., wt., surgical duration, opioids consumed during the perioperative period in IV morphine equivalents, anesthesia technique, asa classification, estrogen, progesterone, and HERS2 receptor data, admissions, PACU times, acute pain follow up data, complications, readmission, and emergency department visits.

Results/Case Report

The experimental group that received the ERAS protocol including regional anesthesia techniques required significantly less opioids with an average of 2.3 mg compared to the 6.8 mg of IV morphine in the control group ($p=0.002$). The incidence of chronic pain six months following surgery was four fold higher in the control group compared to the experimental group (0.016). The experimental group had lower lengths of stay with an average of 8.5 hours compared to 18.67 hours for the control group, but lacked statistical significance ($p=0.059$). Both groups had similar PACU and demographical data.

Discussion

ERAS protocols including regional anesthetics along with adherence to intraoperative opioid avoidance techniques decrease opioid requirements during the immediate postoperative period as well as the development of chronic pain six months following mastectomy surgery. The addition of continuous erector spinae plane blocks appear to be a safe and effective continuous alternative to more invasive continuous postoperative pain control modalities such as thoracic epidural or paravertebral blocks.

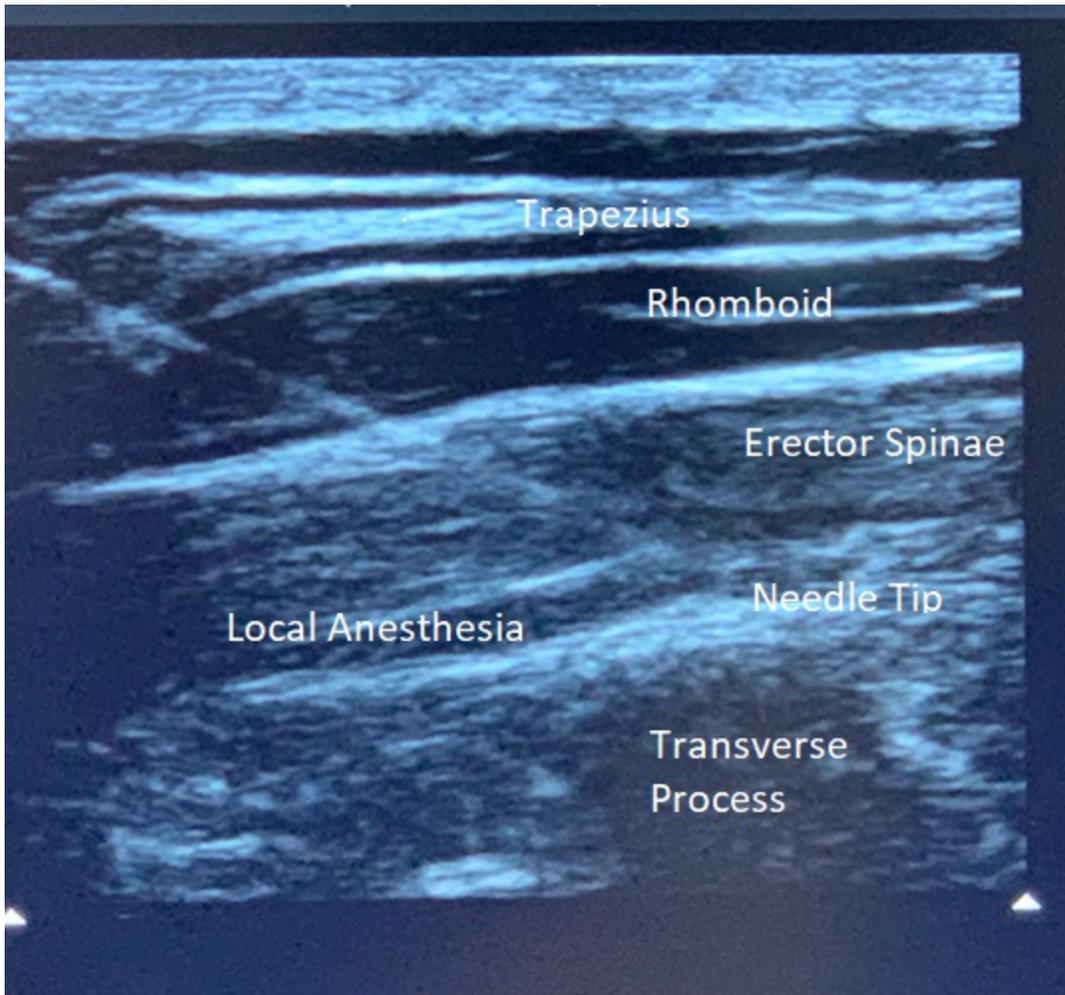
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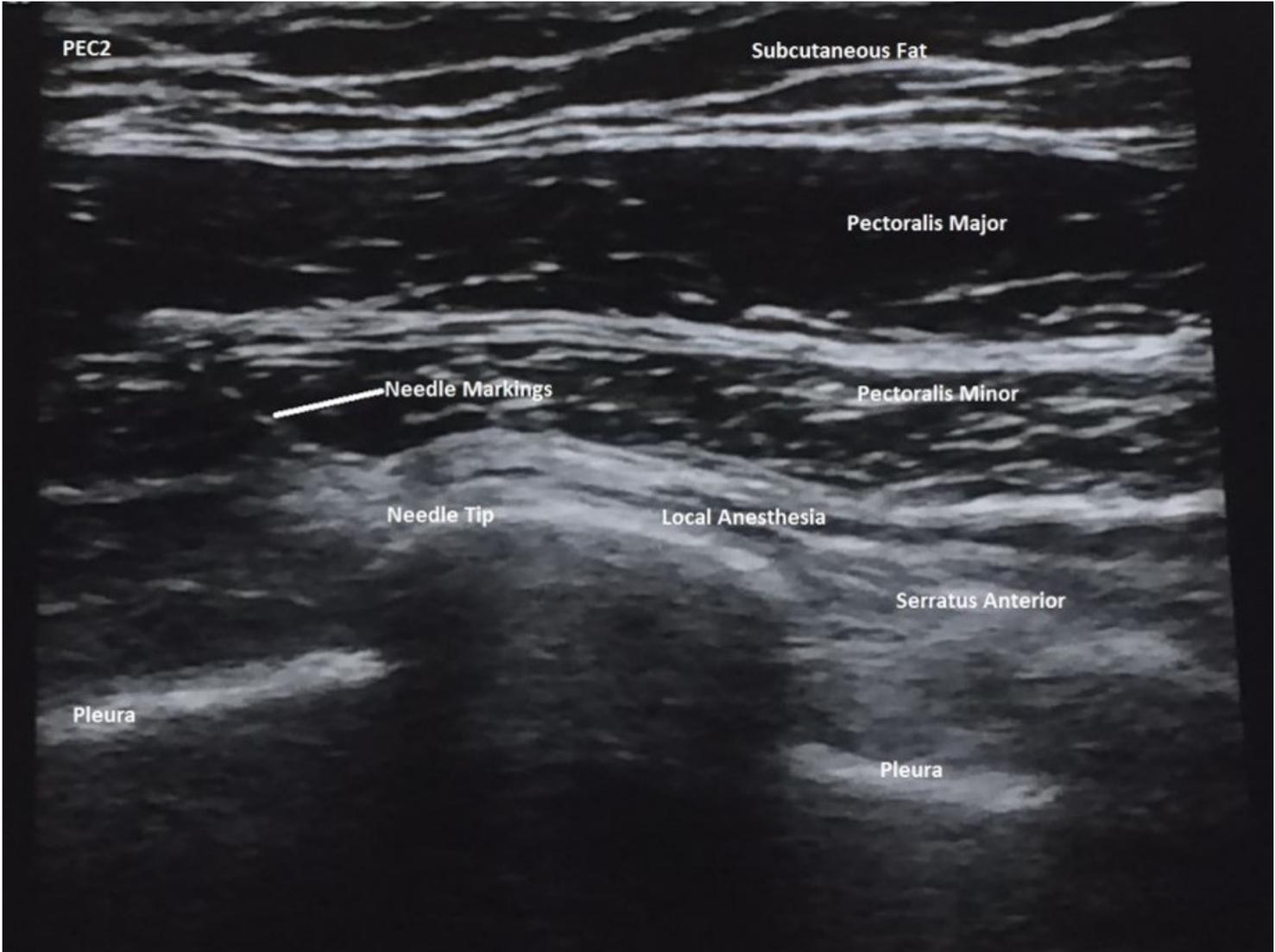
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Disclosures

Yes

Tables / Images





PEC2

Subcutaneous Fat

Pectoralis Major

Needle Markings

Pectoralis Minor

Needle Tip

Local Anesthesia

Serratus Anterior

Pleura

Pleura

T-Test Mastectomy Study 2021

Independent Samples T-Test

Independent Samples T-Test				
		t	df	p
Age		-1.436	74	0.155
Ht (cm)		0.916	74	0.363
Wt (kg)		1.791	74	0.077
BMI		0.796	74	0.428
ASA		-0.926	74	0.357 ^a
MME (IV)		3.187	74	0.002 ^a
PACU time (mins)		-0.411	74	0.682
Length of Stay (mins)		1.920	74	0.059 ^a
Chronic Pain		2.475	74	0.016 ^a

Group Descriptives

		Group N	Mean	SD	SE
Age	1	30	64.300	14.025	2.561
	2	46	68.543	11.571	1.706
Ht (cm)	1	30	163.944	5.950	1.086
	2	46	162.511	7.089	1.045
Wt (kg)	1	30	85.930	21.529	3.931
	2	46	78.046	16.738	2.468
BMI	1	30	31.327	7.012	1.280
	2	46	29.945	7.626	1.124
ASA	1	30	2.700	0.651	0.119
	2	46	2.826	0.529	0.078
MME (IV)	1	30	6.678	8.422	1.538
	2	46	2.348	3.067	0.452
PACU time (mins)	1	30	67.567	28.542	5.211
	2	46	70.500	31.569	4.655
Length of Stay (mins)	1	30	1120.038	1669.895	304.880
	2	46	512.529	1091.414	160.920
Chronic Pain	1	30	0.300	0.466	0.085
	2	46	0.087	0.285	0.042