

Pericapsular Nerve Group (PENG) Block Catheter: A Novel Technique for Analgesia and Palliative Care in Geriatric Hip Fractures

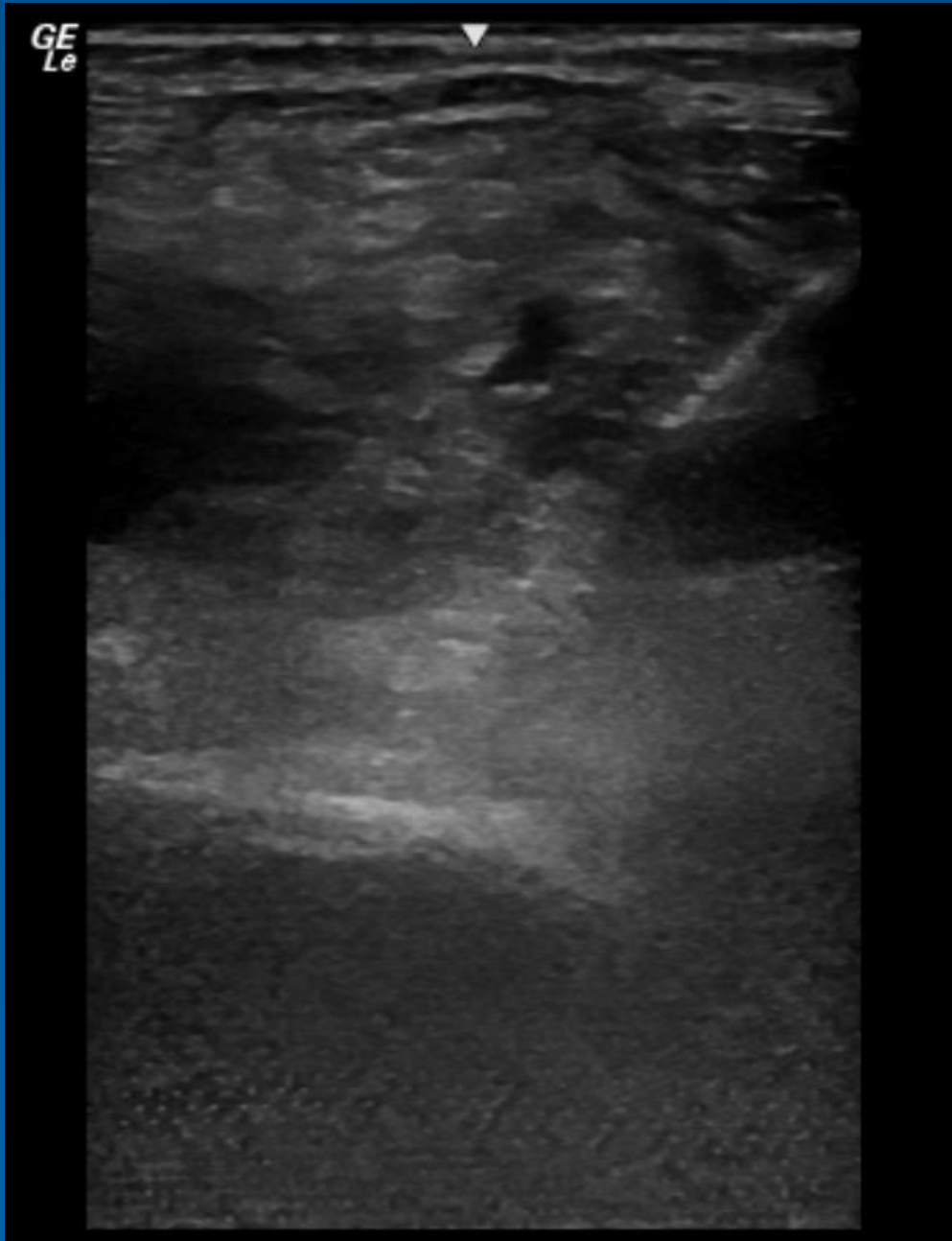
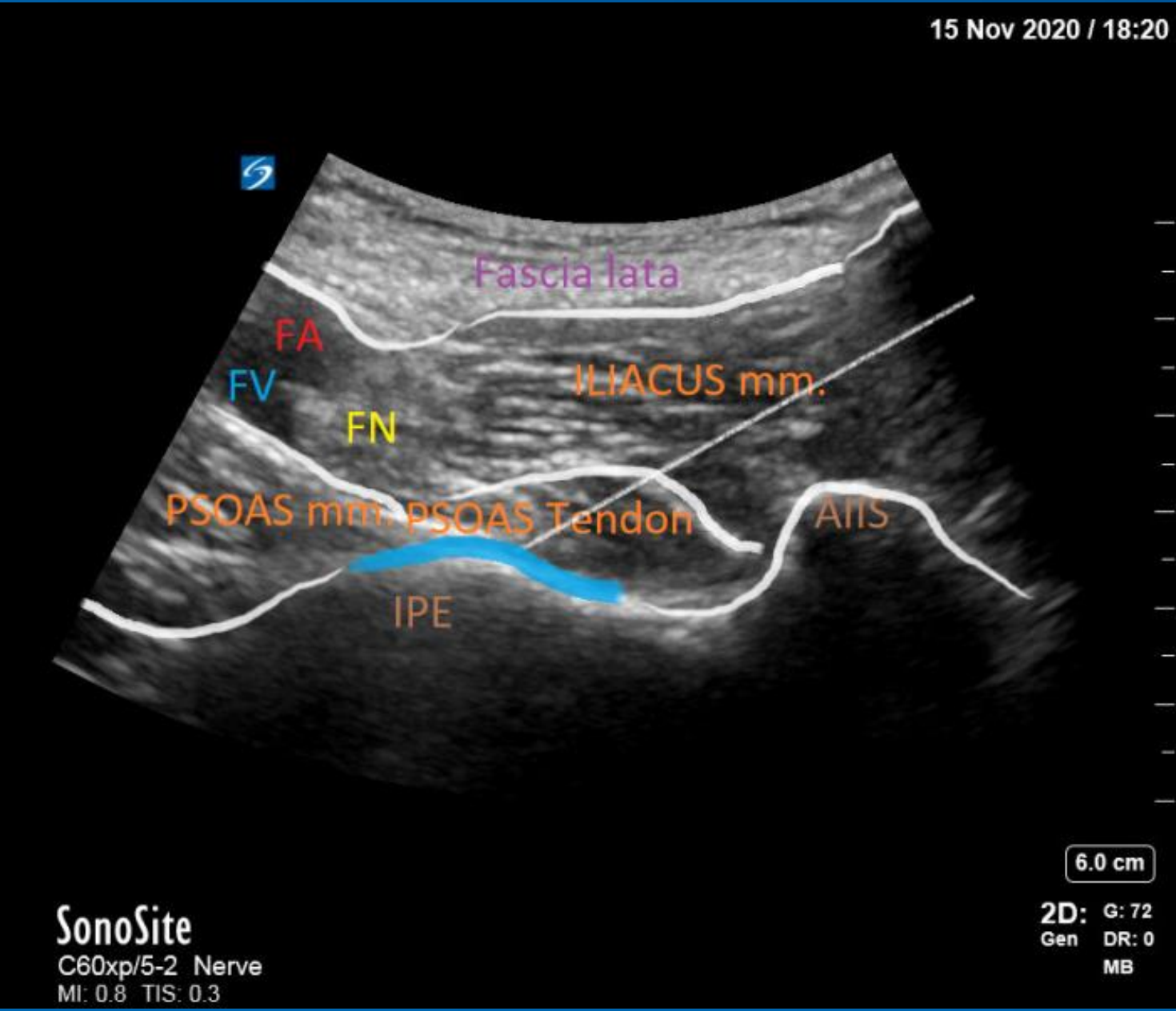


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- Case:**
- An 85-year-old female (49kg) sustained a left hip fracture from a mechanical fall at her nursing home. Past medical history was pertinent for dementia, thoracic and abdominal aortic aneurysms s/p prior endovascular repair, COPD and diabetes.
 - During evaluation, an incidental endoleak of her thoracic aneurysm repair was found. Patient was ultimately transferred to the surgical ICU until a decision could be made for next steps either with vascular or orthopedic surgery.
 - After interdisciplinary assessment and family discussion, the decision was made to forego hip surgery for the patient given her vascular condition and frailty.
 - Although this was no longer a perioperative case, the APS (acute pain service) was consulted as patient was in severe pain radiating into her groin and thigh, with increasing opioid requirements that were causing side effects.
 - As patient’s family moved towards comfort measures with Palliative Care, the APS team was able to place a continuous PENG catheter with the goal of reducing opioid needs and limiting further invasive interventions, in keeping with the comfort goals.

Introduction:

- The PENG block represents an emerging and promising regional anesthetic technique for hip fracture management¹.
- Peripheral nerve blocks like femoral or fascia iliaca blocks have been traditional mainstays for perioperative analgesia, although they may provide incomplete coverage of the hip joint.
- The PENG block targets the sensory articular branches of the femoral, obturator and accessory obturator nerves².
- Geriatric patients with hip fracture often have multiple co-morbidities, and in select cases a decision to forego surgery to pursue comfort measures may constitute the goals of care³.



Sonoanatomy of PENG block and catheter placement with tuohy needle



	08/07 0700 - 08/08 0659						08/08 0700 - 08/09 0659		
	07-11	11-15	15-19	19-23	23-03	03-07	07-11	11-15	15-19
✓ Vitals									
Temp		36.2	...						
Heart Rate	77*	86*	89*						
RR	13*	15*	14*				18	16*	18*
BP	91/71	102/67	94/63						
✓ Oxygen Therapy									
SpO2	98*	98*	92*				95	100	
✓ Stool Assessment									
Stool Occurrence	0	0	0						
✓ Current Pain Assessment									
Pain Assessment / Reassessment	Asse. + 0-10. *	Asse. + NVP. *	Asse. + 0-10. *	Asse. + Slee. *	Reas. + Slee. *	Asse. + Slee. *	Asse. + 0-10. *	Asse. + 0-10. *	Asse. + 0-10. *
0-10 Scale	10*	0*	8*	0*	5*	9*	6*	0*	0*
NVPS (Critical Care) - Face		0							
NVPS (Critical Care) - Activity/M...		0							
NVPS (Critical Care) - Guarding		0							
NVPS (Critical Care) - Physiolo...		0							
NVPS (Critical Care) - Respiratory		0							
NVPS (Critical Care) - Score		0							
Pain Location/Orientation	Hip L...		Hip ...*				Hip ...*	Hip L...	
Pain Descriptors	Const...		Crus...*				Crush...		
(T) Pain Intervention(s) for cure...	OB C...		O...	Repo...*	Repo...*	Repos...*	Repos...*	No I...*	Cont...*
No Intervention/MAR Intervento...	Medi...*	No I...*	Medi...*	No I...*	Medi...*	Cont...*	Medi...*	No I...*	Cont...*
✓ Analgesics									
Acetaminophen (mg)			30*				1,000		1,000
bupivacaine IJ (mL)			1*				10		
HYDROMorphone HCl IJ (mg)	0.25	0.25	1*	0.5	0.5	2*			
OxycODONE (mg)						5			

Catheter dressing and pain scores during, before and after catheter placement

Discussion & Conclusion:

- This case demonstrated the challenge geriatric hip fractures present in terms of pain control and the value of regional anesthesia when surgery is not a viable option.
- In this palliative scenario, the APS team aligned treatment with the family’s goals: non-sedating pain control with minimal invasive procedures.
- The PENG catheter, which delivered 0.125% bupivacaine at 6ml/hr with 5ml 0.25% boluses as needed, provided comfort for our patient and significantly reduced opioid requirements.
- The PENG block can be an effective continuous nerve block via catheter to uniquely facilitate both analgesia and palliative care in select geriatric patients.
- Further research is needed to explore optimal pharmacologic strategies for continuous PENG catheters, and to standardize technique for placement, tunneling, and securement^{4,5}.

References:

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