

Clean Catheters for Nasty NOFs: Do Fascia Iliaca Blocks and Catheters contribute to Surgical Site Infection

A Retrospective Analysis

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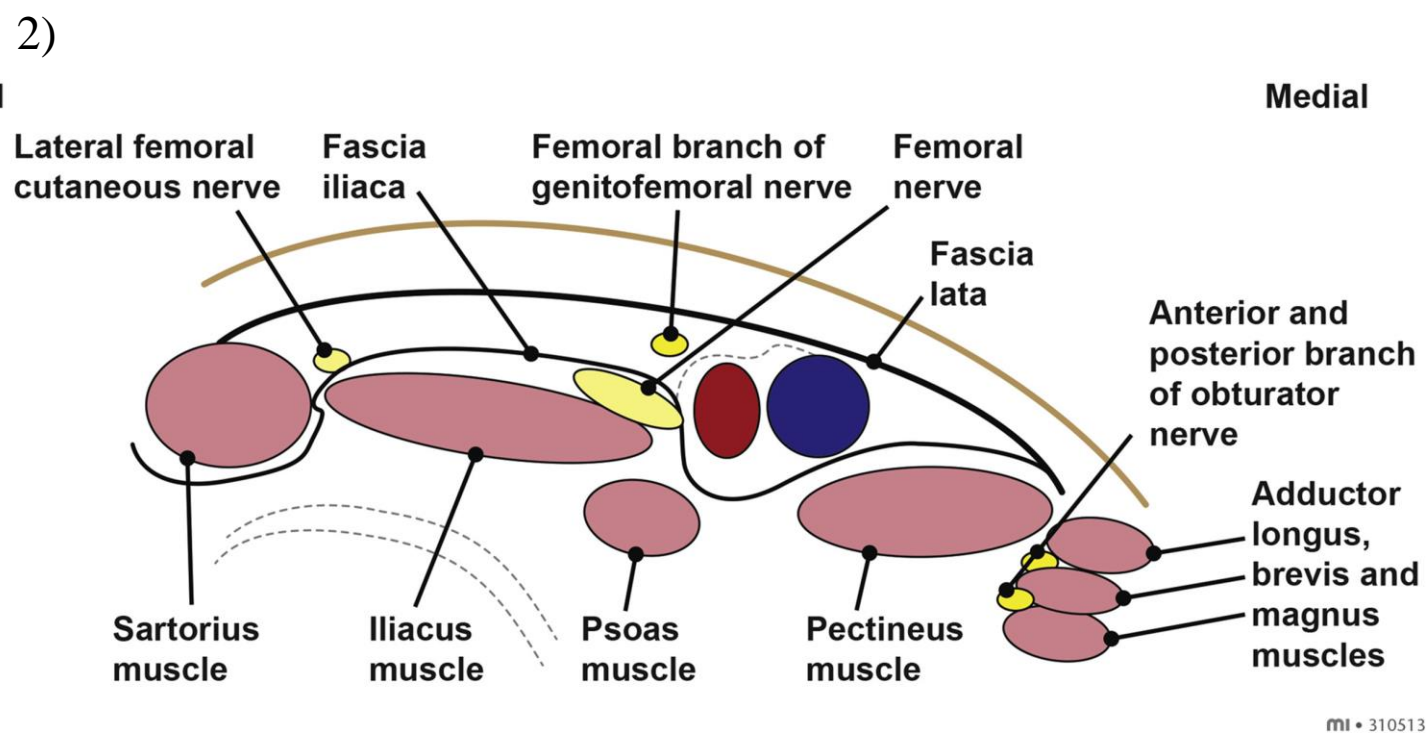
Introduction – This retrospective analysis looked at 356 patients with fractured neck of femurs that came through the Princess Alexandra Hospital Emergency Department over a 2 year period. These patients are often very advanced in age and highly comorbid and reducing requirement of systemic opioid analgesia through the use of ultrasound guided¹ local anaesthetic Fascia Iliaca² single shot blocks and continuous infusion catheters can be very beneficial. However are these blocks, particularly the continuous catheters, contributing to post operative surgical site infection?



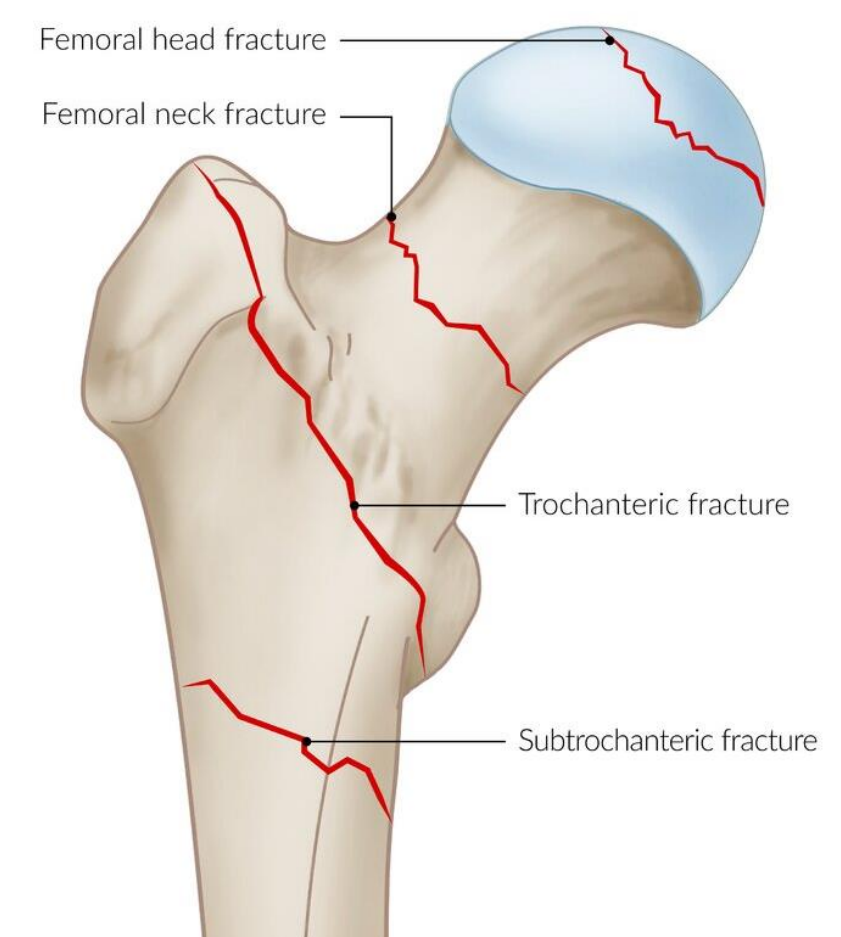
3)



Cannulated Screw Dynamic Hip Screw Intermedullary Nail Hemiarthroplasty Total Hip Arthroplasty



4)



Methods – Electronic medical records of all patients who came through the PAH ED with a neck of femur fracture were reviewed. Patients pre and post operative X-rays were also reviewed as well as their medication charts. Data collected included

- Age and gender
- Potential Risk factors for infection (alcohol dependence, smoking, diabetes and current immunosuppression)
- Time to surgery from triage
- Type of femoral neck fracture⁴
- Type of surgical fixation and incision site³
- Type of local analgesia provided in the ED and the ward pre operatively
- Presence of a post operative surgical site infection

Results – The primary question of this retrospective analysis was if the continuous Fascia Iliaca catheters were contributing to post operative infection. Analysis of this dataset showed no significant correlation (T2). The only variable with a significant correlation with post operative infection is type of surgical fixation and incision site with an overrepresentation of infections in patients who received Hemiarthroplasties with a lateral incision site (T1).

Procedure	Infection Y/N	Total	Infection Y/N	
			No	Yes
Anterior THR	Count	16	15 _a	1 _a
	% within Infection Y/N	4.5%	4.4%	8.3%
	Adjusted Residual	-7	.7	
Lateral THR	Count	2	2 _a	0 _a
	% within Infection Y/N	.6%	.6%	0.0%
	Adjusted Residual	.3	-.3	
Posterior THR	Count	30	30 _a	0 _a
	% within Infection Y/N	8.4%	8.7%	0.0%
	Adjusted Residual	1.1	-1.1	
Anterior Hemi	Count	44	42 _a	2 _a
	% within Infection Y/N	12.4%	12.2%	16.7%
	Adjusted Residual	.5	-.5	
Lateral Hemi	Count	45	40 _a	5 _b
	% within Infection Y/N	12.6%	11.6%	41.7%
	Adjusted Residual	3.1	-3.1	
Posterior Hemi	Count	10	9 _a	1 _a
	% within Infection Y/N	2.8%	2.6%	8.3%
	Adjusted Residual	1.2	-1.2	
IM Nail & Screw	Count	181	180 _a	1 _a
	% within Infection Y/N	50.8%	52.3%	8.3%
	Adjusted Residual	-3.0	3.0	
Dynamic Hip Screw	Count	18	17 _a	1 _a
	% within Infection Y/N	5.1%	4.9%	8.3%
	Adjusted Residual	.5	-.5	
Cannulated Screws	Count	7	6 _a	1 _a
	% within Infection Y/N	2.0%	1.7%	8.3%
	Adjusted Residual	1.6	-1.6	
ORIF Plate	Count	3	3 _a	0 _a
	% within Infection Y/N	.8%	.9%	0.0%
	Adjusted Residual	-.3	.3	
Total	Count	356	344	12
	% within Infection Y/N	100.0%	100.0%	100.0%

Each subscript letter denotes a subset of infection Y/N categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	18.679 ^a	9	.028
Likelihood Ratio	17.445	9	.042
Linear-by-Linear Association	.847	1	.357
N of Valid Cases	356		

a. 11 cells (.05%) have expected count less than 5. The minimum expected count is .07.

T2)

Fascia Iliaca Catheter Y/N	Infection Y/N	Total	Infection Y/N	
			No	Yes
No	Count	178	173 _a	5 _a
	% within Infection Y/N	50.0%	50.3%	41.7%
	Adjusted Residual	.6	-.6	
Yes	Count	178	171 _a	7 _a
	% within Infection Y/N	50.0%	49.7%	58.3%
	Adjusted Residual	-.6	.6	
Total	Count	356	344	12
	% within Infection Y/N	100.0%	100.0%	100.0%

Each subscript letter denotes a subset of infection Y/N categories whose column proportions do not differ significantly from each other at the .05 level.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	.345 ^a	1	.557		
Continuity Correction ^b	.086	1	.769		
Likelihood Ratio	.347	1	.556		
Fisher's Exact Test				.771	.385
Linear-by-Linear Association	.344	1	.558		
N of Valid Cases	356				

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.00.

b. Computed only for a 2x2 table

Conclusions - The main conclusion that can be made from this retrospective chart review is that there is no evidence that Fascia Iliaca catheters or blocks are contributing to post operative surgical site infection. Interestingly none of the risk factors that were identified prior to the study such as immunosuppression and diabetes were associated with infection either. Only certain fixation methods were shown to be associated with infection. Fascia Iliaca blocks and catheters are a safe method of preoperative analgesia in this patient group and help reduce the need for systemic opioids.

1. https://www.researchgate.net/figure/a-Infra-inguinal-fascia-iliaca-block-and-femoral-nerve-block-The-image-shows-the-probe_fig1_341652609
2. [https://www.bjaed.org/article/S2058-5349\(19\)30043-5/fulltext#relatedArticles](https://www.bjaed.org/article/S2058-5349(19)30043-5/fulltext#relatedArticles)
3. https://link.springer.com/chapter/10.1007/978-3-030-48126-1_9
4. https://www.amboss.com/us/knowledge/Hip_fractures