

Does a Delay to Surgery for Pre-operative Echocardiogram in Patients with known Aortic Stenosis Effect Outcomes in Hip Fracture Patients?

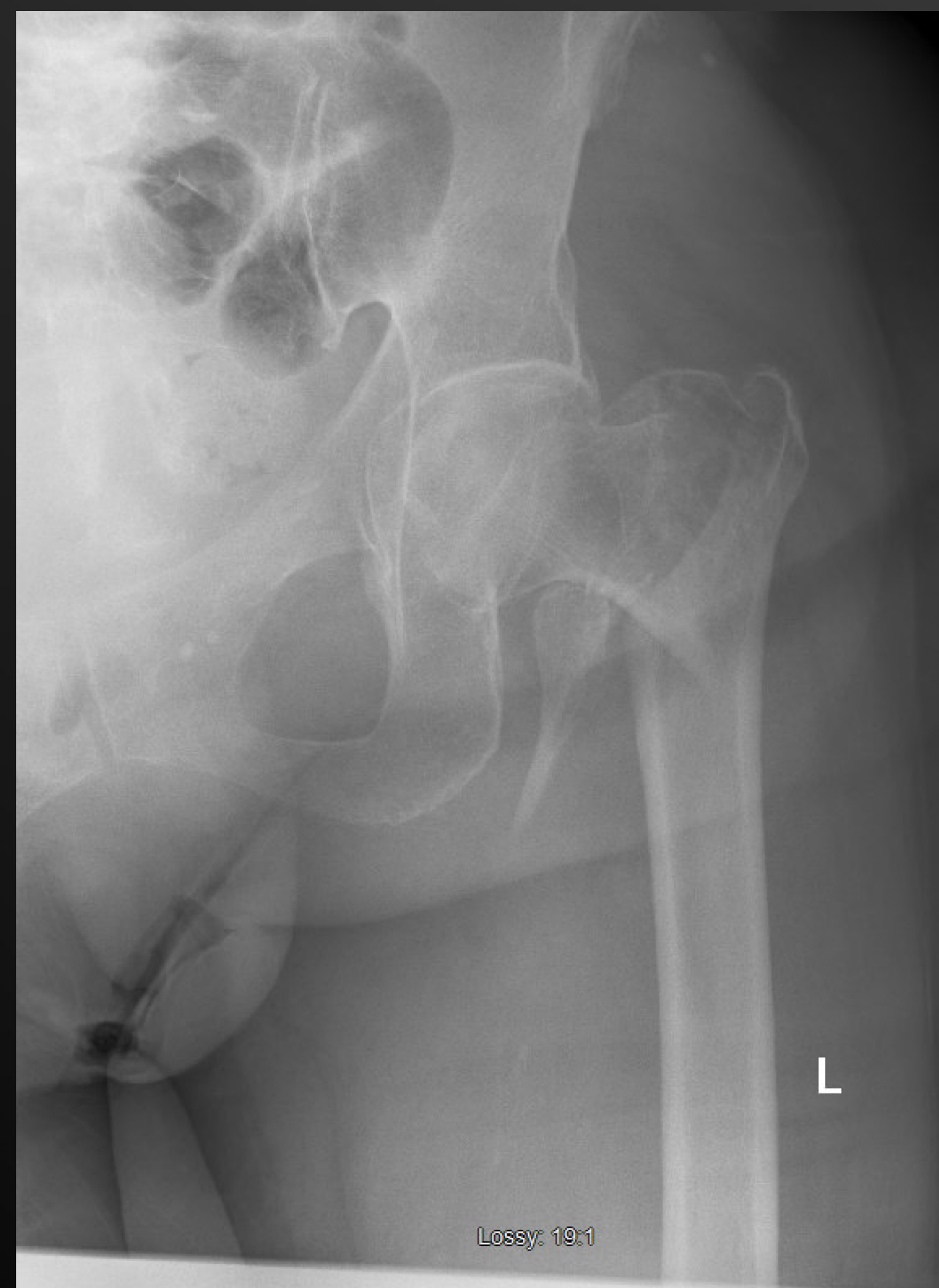


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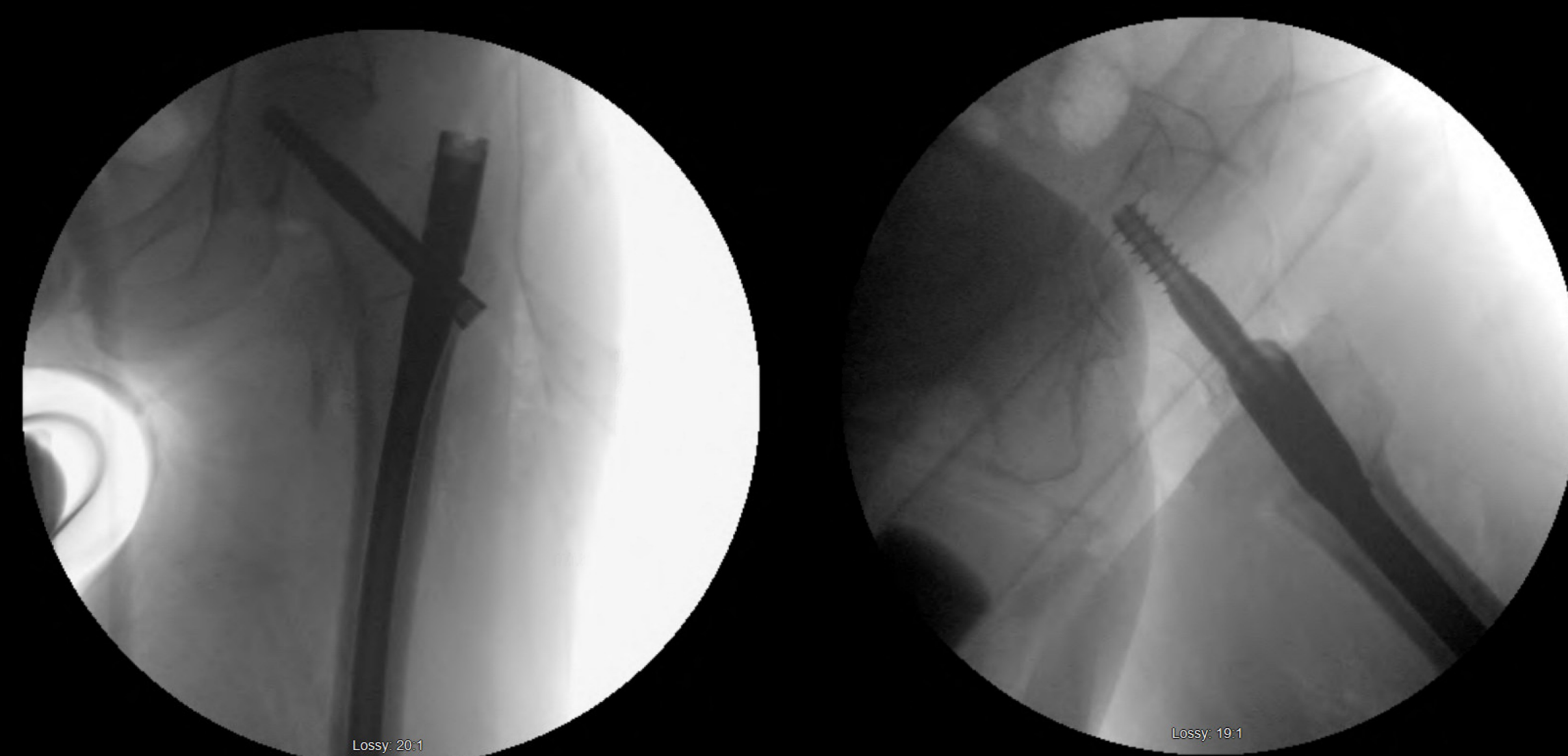
Background

- Time to surgery has been shown to directly influence 30- and 90-day mortality rates when hip fractures are left untreated for longer than 24 hours.
- The purpose of this study is to examine whether pre-operative echocardiogram use in the setting of known aortic stenosis has an increased rate of complications/mortality.



Methods

- Retrospective Institutional hip fracture registry database review was performed to identify all hip fractures diagnosed at two academic medical center for inclusion over a 2-year period.
- The patients who had pre-operative echocardiogram (yECHO) for operative clearance were compared to those who did not (nECHO).



Results

- A total of 299 patients were evaluated, 32 of the 136 patients who had AS received ECHO.

	Total (N=299)	Mortality at 30 days			Mortality at 90 days			Mortality at 1 year		
		No (N=10)	Yes (N=285)	P-Value	No (n=282)	Yes (N=11)	P-Value	No (N=278)	Yes (N=14)	P-Value
Length of Stay (days)	5.9 ± 5.4	5.9 ± 5.4	6.7 ± 5.1	0.67	6.0 ± 5.5	6.3 ± 5.0	0.86	6.0 ± 5.5	6.0 ± 4.6	0.99
Time to Surgery (hours)	35.1 ± 28.8	34.4 ± 27.2	57.0 ± 56.1	0.01	34.5 ± 27.3	53.5 ± 54.4	0.03	34.7 ± 27.4	46.0 ± 50.3	0.16
ASA risk stratification				0.26*			0.32*			0.27*
1	3 (1.0)	3 (1.1)	0		3 (1.1)	0		3 (1.1)	0	
2	80 (27.7)	78 (28.1)	2 (20.0)		78 (28.4)	2 (18.2)		78 (28.8)	2 (14.3)	
3	157 (54.3)	152 (54.7)	4 (40.0)		150 (54.6)	5 (45.5)		147 (54.2)	7 (50.0)	
4	48 (16.6)	44 (15.8)	4 (40.0)		43 (15.6)	4 (36.4)		42 (15.5)	5 (35.7)	
5	1 (0.4)	1 (0.4)	0		1 (0.4)	0		1 (0.4)	0	
Cardiac Comorbidities										
Preop Echo	136 (46.7)	127 (45.5)	7 (70.0)	0.20*	125 (45.3)	8 (72.7)	0.07*	123 (45.2)	9 (64.3)	0.16
EF <60	47 (16.3)	41 (14.8)	4 (40.0)	0.05*	40 (14.6)	4 (36.4)	0.07*	39 (14.4)	4 (28.6)	0.24*
Aortic Stenosis	32 (11.1)	30 (10.8)	1 (10.0)	1.00*	30 (11.0)	1 (9.1)	1.00*	30 (11.1)	1 (7.1)	1.00*
Prolapse	64 (22.2)	62 (22.4)	2 (20.0)	1.00*	61 (22.3)	3 (27.3)	0.71*	61 (22.6)	3 (21.4)	1.00*
Anesthesia				0.38*			0.43*			0.71*
General	256 (88.0)	247 (88.2)	8 (80.0)		244 (88.1)	9 (81.8)		240 (87.9)	12 (85.7)	
Spinal	32 (11.0)	30 (10.7)	2 (20.0)		30 (10.8)	2 (18.2)		30 (11.0)	2 (14.3)	
Local	3 (1.0)	3 (1.1)	0		3 (1.1)	0		3 (1.1)	0	
Complications	52 (17.6)	45 (15.9)	5 (50.0)	0.02*	45 (16.0)	5 (45.5)	0.02*	44 (15.9)	5 (35.7)	0.07*
Reoperation	8 (3.5)	8 (3.5)	0	1.00*	8 (3.5)	0	1.00*	8 (3.5)	0	1.00*

Table 2. Cumulative mortality at 30 days, 90 days, and 1 year analyzed against several variables: Frequencies N(%), chi-square/Fisher exact test, and one-way ANOVA.

- There was **no association found between aortic stenosis** and complication or mortality rate (p=1.00).

Complication by PreopEcho

Complications	nECHO	yECHO	P-Value
No	138 (89)	101 (74.2)	0.001
Yes	17 (10.4)	35 (25.7)	
Total	155	136	

Table 3: Patients in the yECHO cohort were more likely to have a complication than those in the nECHO cohort (25.7% vs 10.4%, p=0.001).

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Complications by ASA

Complications	ASA				
	1	2	3	4	5
No	3(1)	69(23.9)	130(45)	35(12.1)	1(0.4)
Yes	0(0)	11(3.8)	27(9.3)	13(4.5)	0(0)
Total	3(1)	80(27.7)	157(54.3)	48(16.6)	1(0.4)

Table 4: There was no significant difference in complication rate or mortality when controlling for ASA classification on Fischer's Exact Test (p=0.37).

- There was **no significant difference in complication rate or mortality** when controlling for ASA classification (p=0.37).

Results

- yECHO were more likely to have complication after operative fixation of hip fractures, possibly due to delay to surgery.
- No association between mortality and AS at any time point.**
- No association found between patients with known aortic stenosis and complications or mortality suffered post operatively.
- Patients with known aortic stenosis should not be delayed for intervention for a pre-operative echocardiogram or cardiac work-up.**



Limitations

- Retrospective study
- Limited 1-year follow-up
- Limited sample size

Conclusions

- Known AS should NOT delay surgery by getting a new ECHO**

The authors have no disclosures to report relevant to this study.