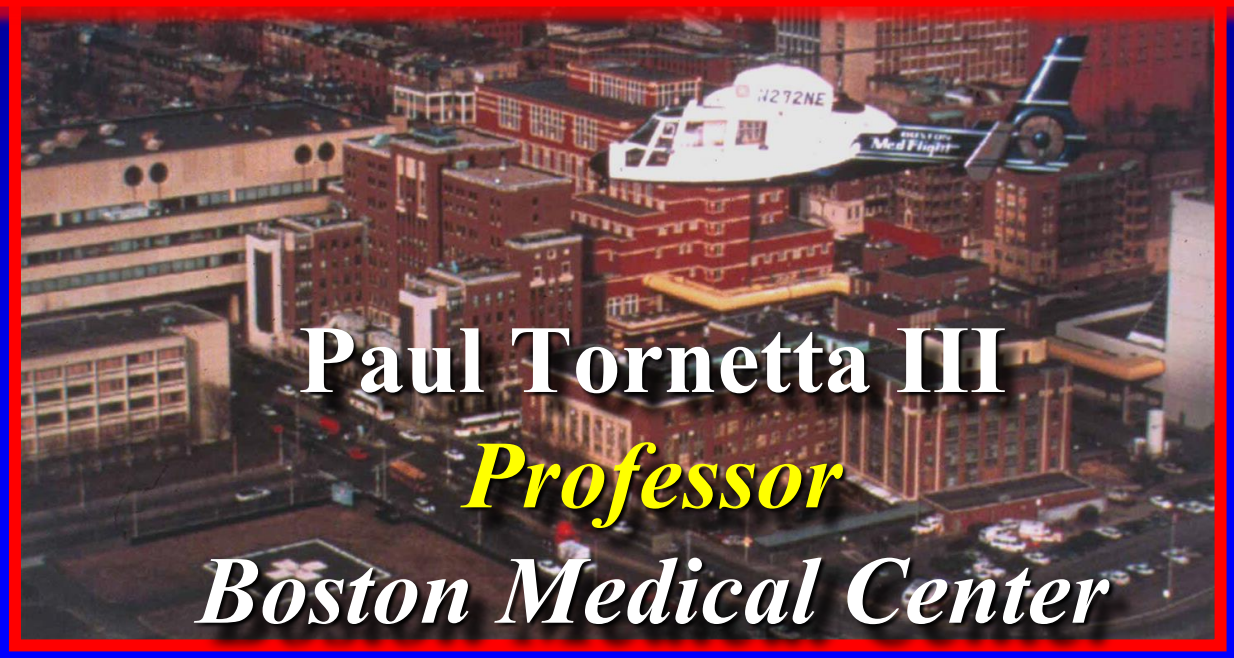
Geriatric Pelvic Fractures: Should We Operate?



Paul Tornetta III

Professor

Boston Medical Center

Disclosures!

- **Publications:**
  - **Wolters Kluwer Royalties; AAOS; OKU Trauma, ICL Trauma, Tornetta; Op Techn in Ortho Surg, OTA Curriculum, AAOS ROCK**
  - **Journals:; JOT; Specialty editor, CORR, JAAOS, JBJS; Reviewer**
- **Research:**
  - **NIH, OTA, FOT, OREF, DOD**
- **Consultant / Designer**
  - **Smith and Nephew**
- **Boards / Officer:**
  - **AAOS**

Decision Making

- Pain and mobilization
- Potential for displacement
- *Nonoperative care*
  - *Are we effective?*
- *Operative management*
  - *What works?*
  - *When should we do it?*

Fragility Fractures

- Osteoporotic bone
- Brittle
- Low energy fall
- ”Insufficiency fracture”

Nonoperative Care

- Mobilization
- Medications
  - Vit D
  - Calcium
  - Tylenol

Anything Else?

Parathyroid Hormone 1-84 Accelerates Fracture-Healing in Pubic Bones of Elderly Osteoporotic Women

Peter Peichl, MD, Lukas A. Holzer, MD, Richard Maier, MD, and Gerold Holzer, MD

	PTH 1-84 Treatment Group (N = 21)	Control Group (N = 44)
Age**(yr)*	83.7 ± 4.6	82.4 ± 3.8
Height**(cm)*	161.0 ± 8.4	162.6 ± 5.5
Weight**(kg)*	60.0 ± 7.1	58.4 ± 5.4
Body-mass index**(kg/m^2)*	23.4 ± 4.2	22.2 ± 2.5
Alkaline phosphatase**(U/L)*	78.7 ± 19.8	78.5 ± 15.6
Bone-specific alkaline phosphatase**(U/L)*	44.4 ± 15.8	37.9 ± 10.8
C-telopeptide**(nmol/L)*	0.214 ± 0.07	0.206 ± 0.04
25 OH vitamin D**(pg/mL)*	46.5 ± 24.3	40.4 ± 18.6
Bone mineral density**(lowest T-score at any site)*	–2.8 ± 0.7	–2.7 ± 0.7
No. of patients with previous fracture	10	18

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Fracture-healing			
Week 4*	1 (4.8%)	0 (0%)	0.145†
Week 8*	21 (100%)	4 (9.1%)	<0.001†
Week 12*	21 (100%)	30 (68.2%)	0.004†
VAS score‡			
Week 0	7.6 ± 1.1	7.7 ± 1.1	0.743§
Week 8	3.2 ± 1.0	6.5 ± 0.9	<0.001§
Timed ''Up and Go'' at Week 12‡ *(s)*	22.9 ± 7.7	54.3 ± 19.9	<0.001§

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A+ Paper… I Recommend

Low Rate of Teriparatide Supplementation for the Treatment of Osteoporotic Pelvic Fractures in Elderly Females

David Novikov MD, Mary Grace Kelley MS, Paul Tornetta III MD

- 118 Women aged 79±10
  - 18 Ineligible; 61% Medicare
  - 100% recommended
  - Primary service rec's: 10%, actual 7%

Standard for Me

- Nonop
- Immediate mobilization
- Counseling on expectations
- Check in daily!!!

Expectations

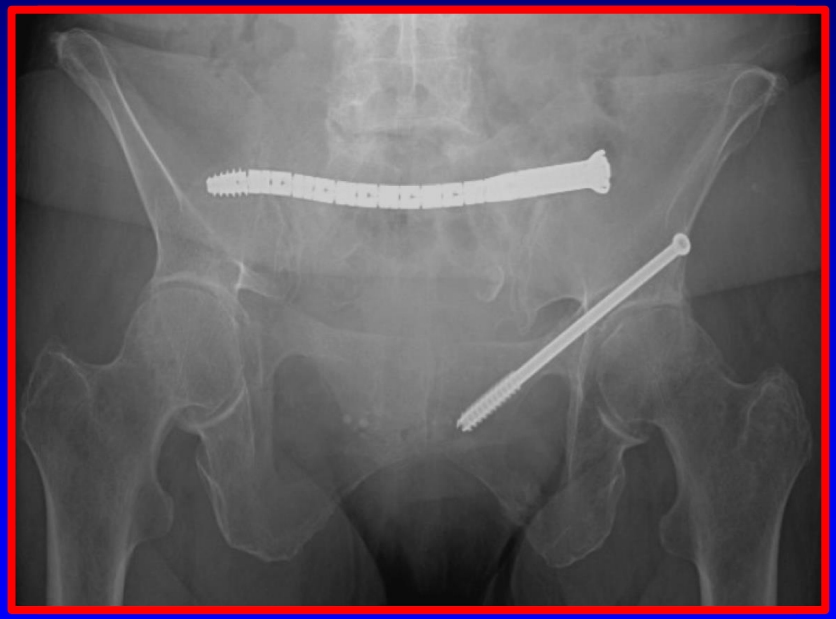
- Day 1: Move in bed
- 1-2: OOB, stand pivot, walker
- 3-5: Bathroom then walk 20-40 ft
- 2-6 weeks: Pain diminishes
- 12 weeks: Managable

Failed Expectaions

- If they cannot..
- *Move in bed day 2*
- *Get OOB day 2,3*
- *Stand day 3,4*
- Consider operative intervention

What to Do?

- Percutaneous fixation
  - Posteriorly
  - Anteriorly
  - Both
  - Lumbopelvic
  - Weird new stuff



Data?

- Not a great deal at this point
- Mostly awareness papers


Sacral Insufficiency Fracture: A Masquerader of Diskogenic Low Back Pain
David S. Cheng, MD, Richard J. Herzog, MD, FACR, Gregory E. Lutz, MD
an easily overlooked cause
M. J. A. Verhaegen · A. J. M. Sauter
Insufficiency fractures, an often unrecognized diagnosis
Osteoporos Int (2016) 27:1265–1268
DOI 10.1007/s00198-015-3363-z
CASE REPORT
Sacroiliitis or insufficiency fracture?
F. U. Ozkan · N. S. Boy · I. Aktas · D. G. Kulcu · A. Taraktas
ORIGINAL ARTICLE
Hip Pelvis 29(2): 120-126, 2017
http://dx.doi.org/10.5371/hp.2017.29.2.120
Hip & Pelvis
Pelvic Insufficiency Fracture in
Severe Osteoporosis Pati
Woong Chae Na, MD, Sang Hong Lee, MD, Sun
Department of Orthopaedic Su
A. Wild · M. Jaeger · H. Haak · S. H. Mehdian
Sacral insufficiency fracture, an unsuspected cause of low-back pain in elderly women
Sacral Insufficiency Fractures
An Easily Overlooked Cause of Back Pain in Elderly Women
Anne Grasland, MD; Jacques Pouchot, MD; Anne Mathieu, MD;
Frédéric Paycha, MD; Philippe Vinceneux, MD
Usually Overlooked Cause
Jong Tae Kim, M.D., Dong-Sup Chung, M.D.
Our Lady of Mercy Hospital, The Catholic University of Korea College of Medicine, Incheon, Korea
Full Text Article
dical Case Reports Journal
Sacral insufficiency fractures: a case of mistaken identity
ASIAN SPINE JOURNAL
Case Report
Sacral Insufficiency Fracture
Lumbar Spine Pathology
G. Sudhir, Kalra K. L., Shankar Acharya, Rupinder Chahal

If Operative

- Goals
  - Increase stability
  - Mobilization
  - Promote union
  - *Poor bone quality*
  - *Often deconditioned*

Transsacral-Transiliac Screw Stabilization: Effective for Recalcitrant Pain Due to Sacral Insufficiency Fracture

Drew Sanders, MD, Joshua Fox, MD,† Adam Starr, MD,† Ashoke Sathy, MD,† and John Chao, MD†*

- 11 patients (49-87) over 5 years (1 died)
- Insufficiency incorrectly defined
  - ”Low energy mechanism” 7 falls
- Time to surgery 34D (7-103)
- 1 or 2 Transiliac trans-sacral screws (6.5/7.3)

Transsacral-Transiliac Screw Stabilization: Effective for Recalcitrant Pain Due to Sacral Insufficiency Fracture

Drew Sande *Chao, MD†*

TABLE 3. Preoperative and Postoperative Visual Analog Pain Scores

Patient	Preop Pain	Postop Pain	Final Pain
1	8	6	0
2	10	0	0
3	10	5	1
4	10	0	0
5	6	0	0
6	10	4	1
7	10	5	4
8	9	1	0
9	8	6	4
10	10	Deceased	Deceased
11	10	7	5

9.1 ***3.4***

Percutaneous Transiliac–Transsacral Screw Fixation of Sacral Fragility Fractures Improves Pain, Ambulation, and Rate of Disposition to Home

J. Brock Walker, MD, Sean M. Mitchell, MD,* Sean D. Karr, MD,* Jason A. Lowe, MD,*† and Clifford B. Jones, MD*†*

	Operative (n = 16)	**Nonoperative (n = 25)**	***P***
Age	78.1	77.7	0.44
Gender (% female)	87.5	88.0	0.96
CCI	5.6	5.4	0.34
Days between injury and admission	6.4	2.1	**0.04**

Indications Clinical

TABLE 2. Outcomes

	Overall		
	Operative (n = 16)	**Nonoperative (n = 25)**	***P***
Pain on admission (VAS)	7.4	5.7	**0.02**
Pain at discharge (VAS)	3.5	5.1	0.18
Decrease in pain (VAS)	3.9	0.6	**<0.001**
Percent ambulatory at admission	37.5%	52.0%	0.52
Percent ambulatory at discharge	100.0%	72.0%	**0.03**
Average distance ambulating at discharge (ft)	95.4	35.2	**<0.01**
Length of stay (d)	3.6	4.2	0.51
Percent disposition to home	75.0%	20.0%	**<0.001**

Indications Clinical

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Indications Clinical

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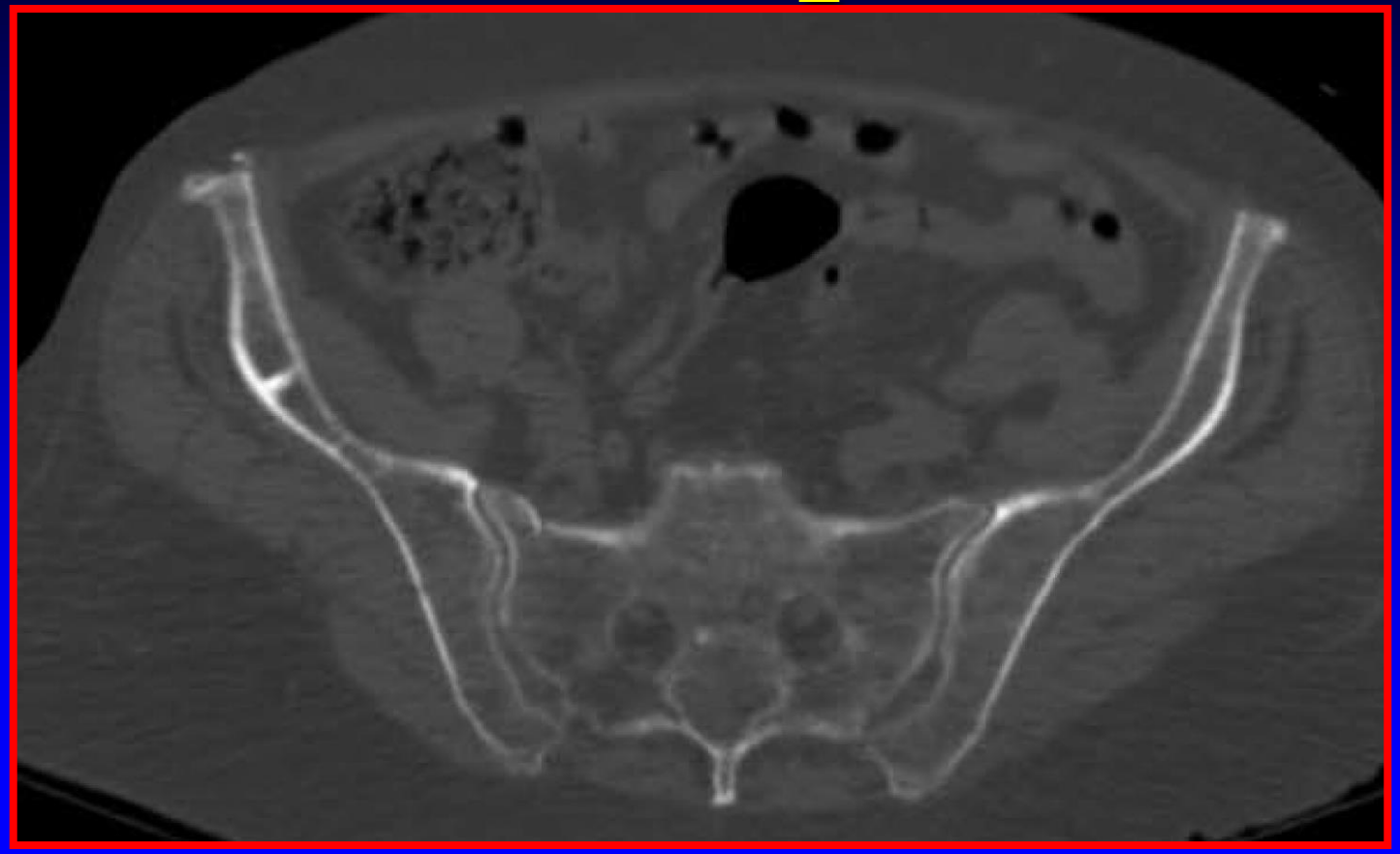
	Overall		
	Operative (n = 16)	**Nonoperative (n = 25)**	***P***
Percent ambulatory at admission	37.5%	52.0%	0.52
Percent ambulatory at discharge	100.0%	72.0%	**0.03**

Indications Clinical

TABLE 2. Outcomes

	Overall		
	Operative (n = 16)	**Nonoperative (n = 25)**	***P***
Length of stay (d)	3.6	4.2	0.51
Percent disposition to home	75.0%	20.0%	**<0.001**

Example



Fixation

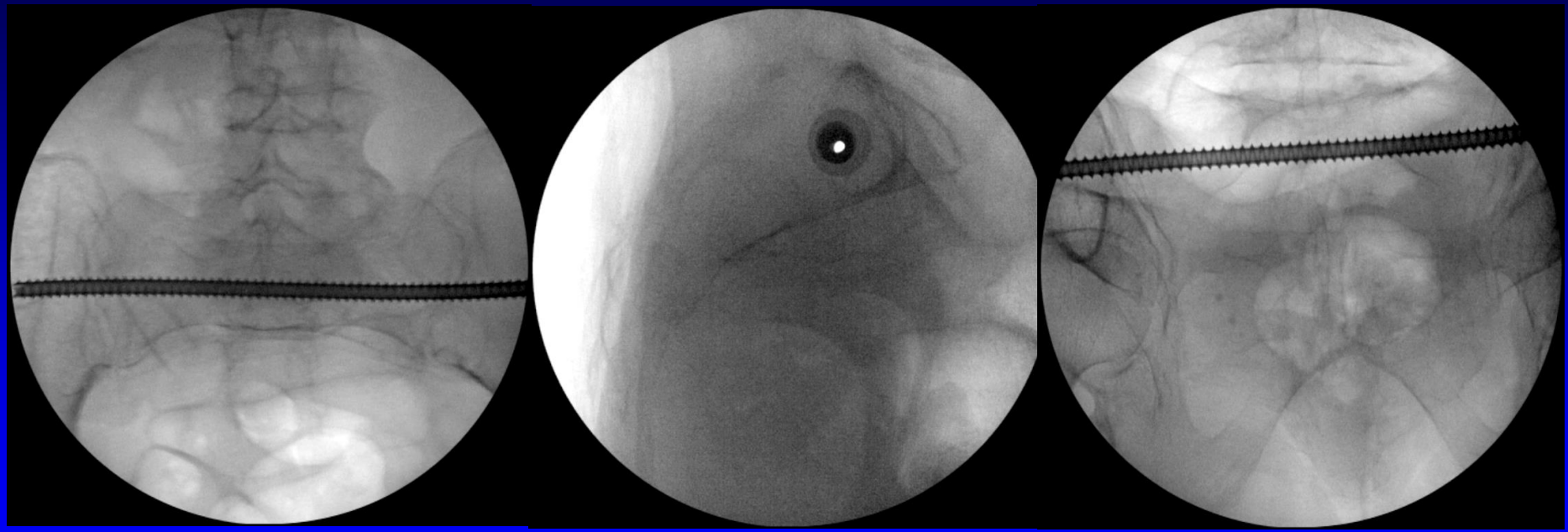


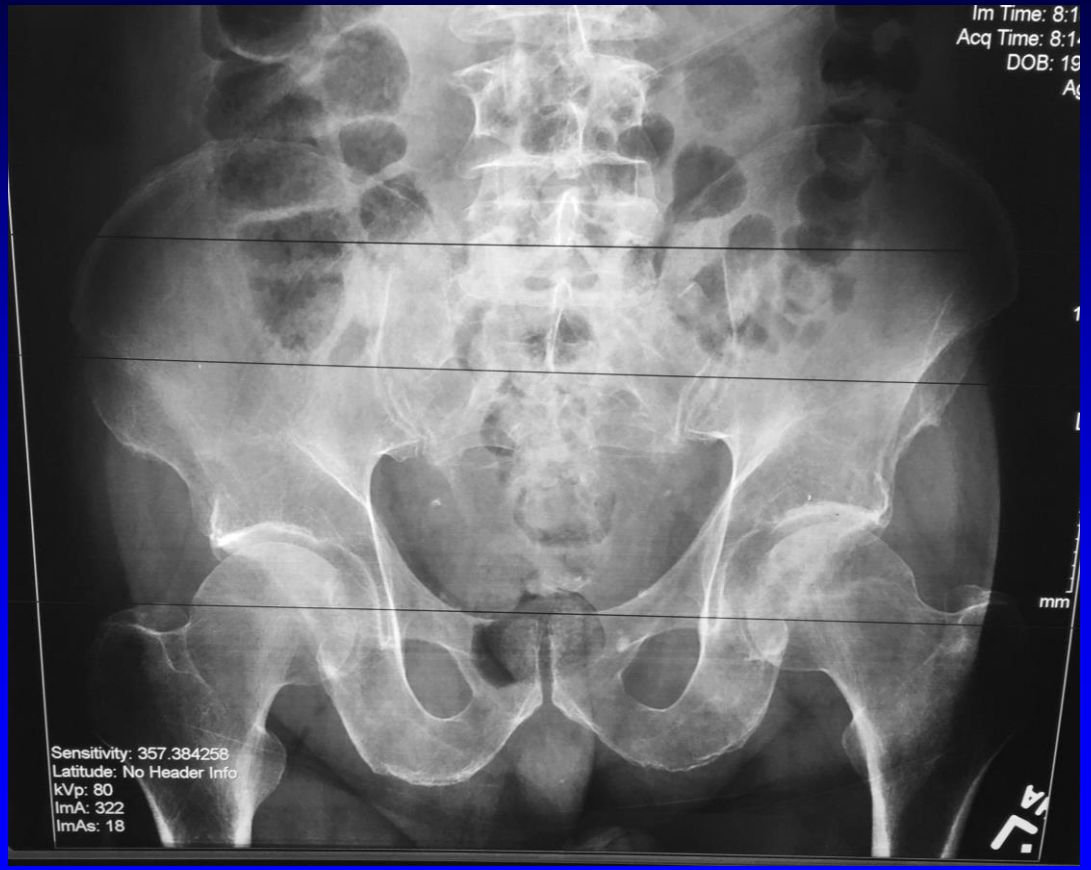
TABLE 3. Subgroup Analysis

	Sacral U			LC1		
	Operative (n = 8)	Nonoperative (n = 7)	*P*	Operative (n = 8)	Nonoperative (n = 18)	*P*
Pain on admission (VAS)	7.5	6.1	0.36	7.1	5.7	0.11
Pain at discharge (VAS)	4.4	4.9	0.73	2.6	5.2	**0.02**
Decrease in pain (VAS)	3.1	1.3	0.12	4.5	0.4	**<0.001**
Percent ambulatory at admission	62.5%	42.9%	0.45	12.5%	55.6%	0.08
Percent ambulatory at discharge	100.0%	100.0%	1.00	100.0%	61.1%	0.06
Average distance ambulating at discharge (ft)	100.0	39.3	0.13	90.9	33.8	0.07
Length of stay (d)	3.8	5.4	0.38	3.4	3.7	0.76
Percent disposition to home	75.0%	42.9%	0.21	75.0%	11.1%	**<0.01**

- U shaped
  - Nonop = 4.9; Op = 4.4
- LC1
  - Nonop = 5.2; Op = 2.6

Example

- 85 yo
- Fall
- Severe LBP

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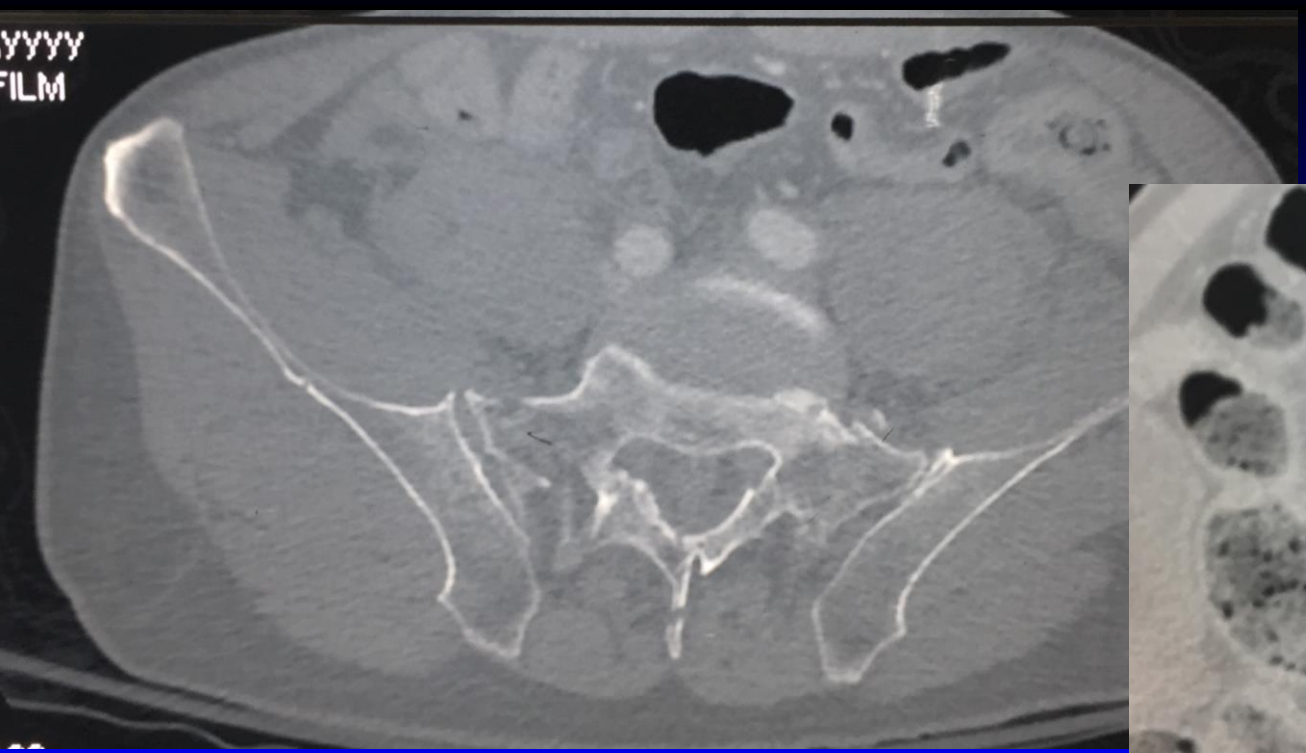
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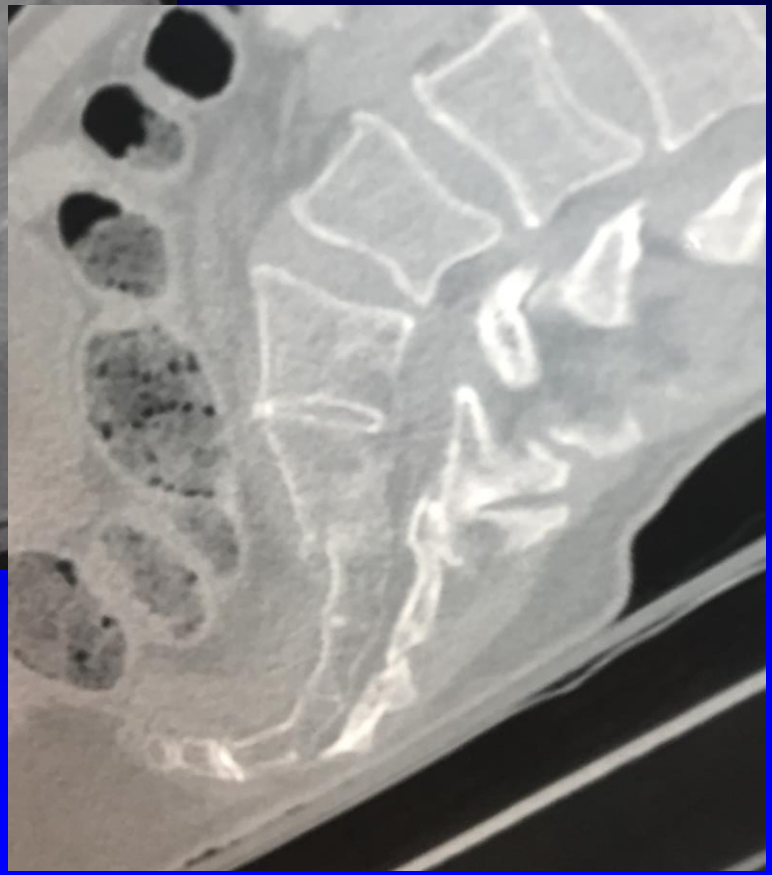
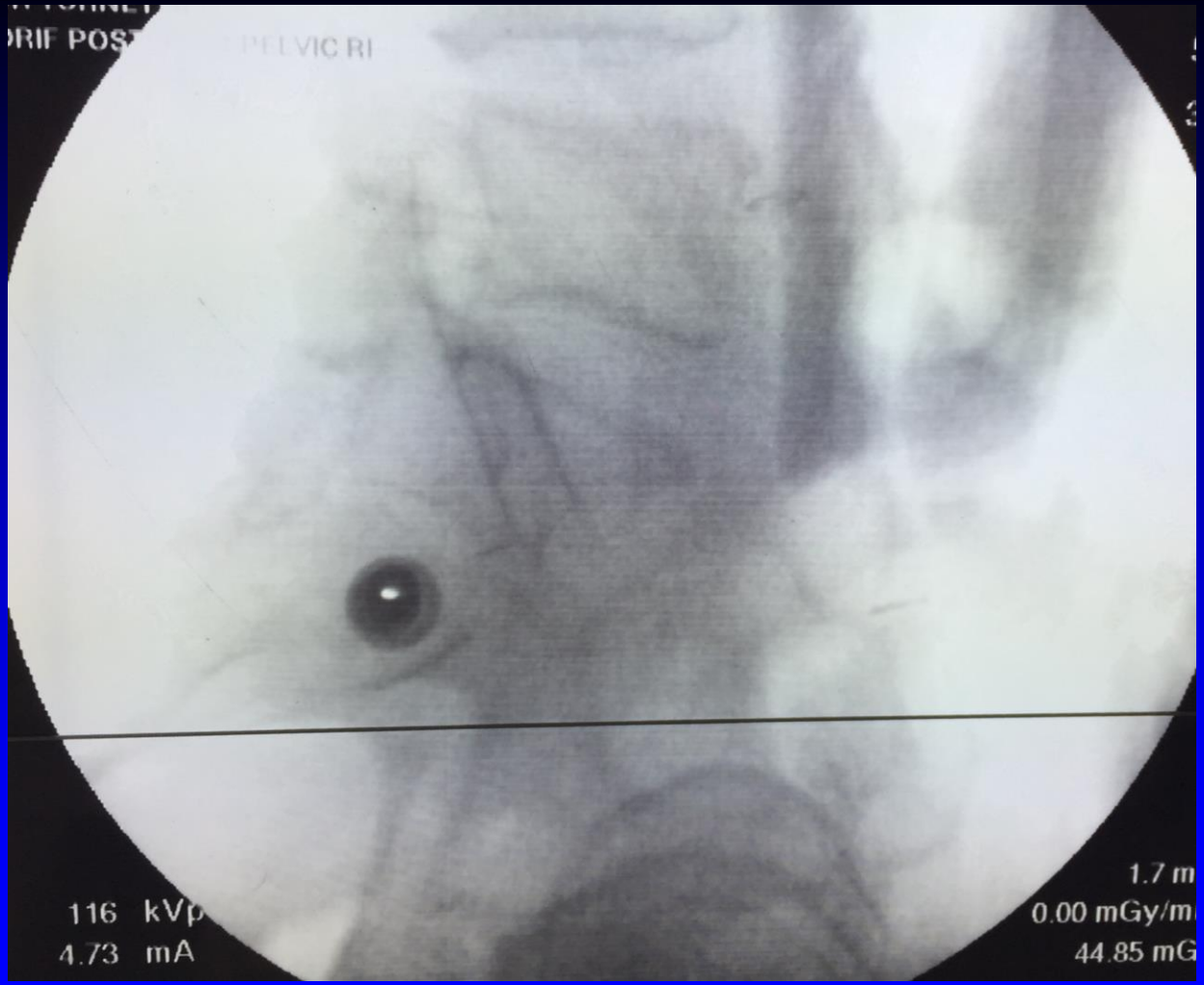


Started Nonop

- Could not get out of bed
- Pain moving in bed
- Day 3 started to mentally withdraw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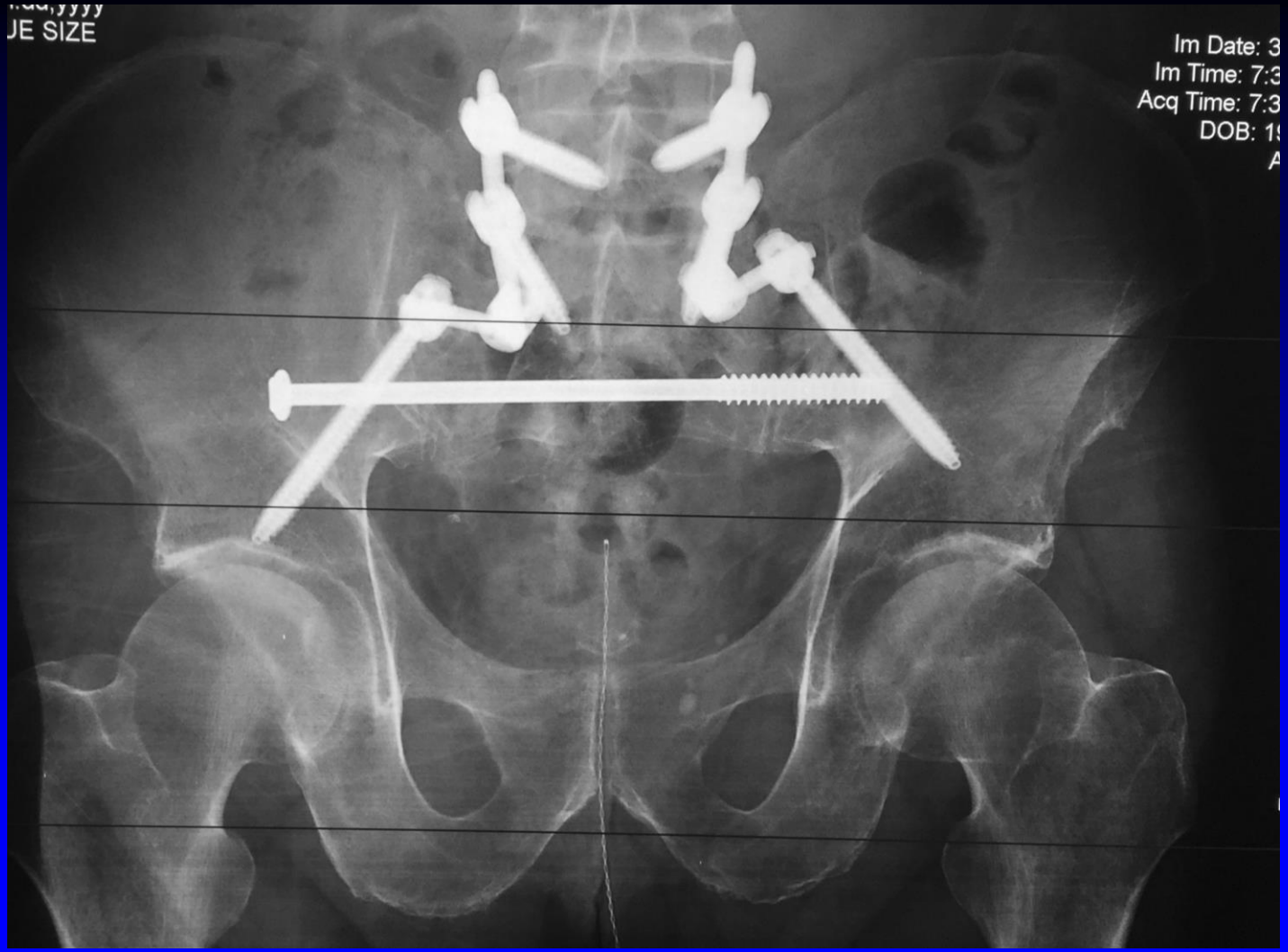
4.73 mA
1.7 m
0.00 mGy/m
44.85 mG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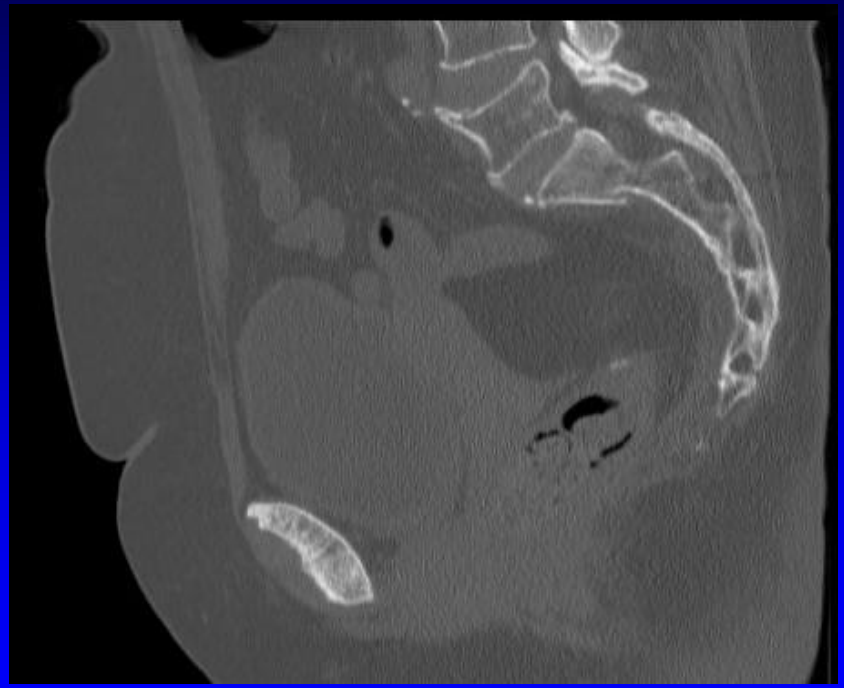
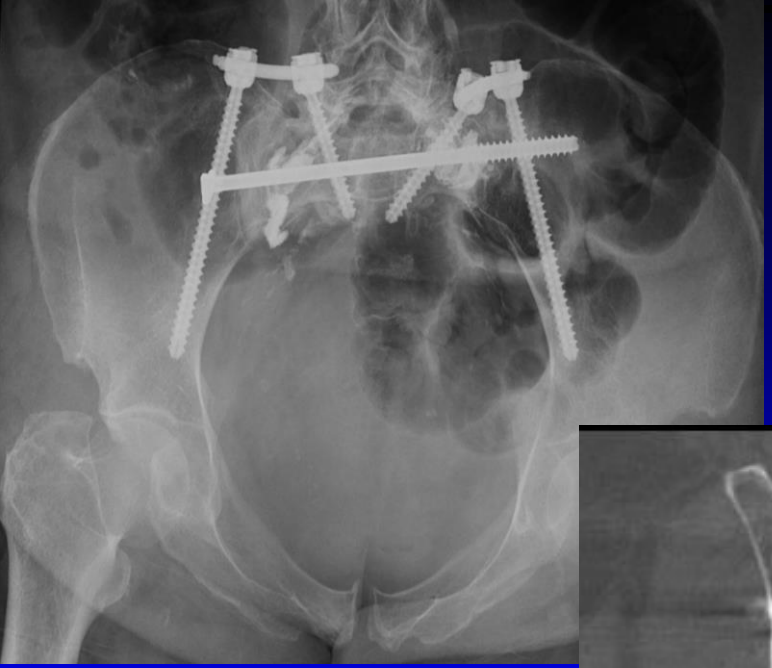
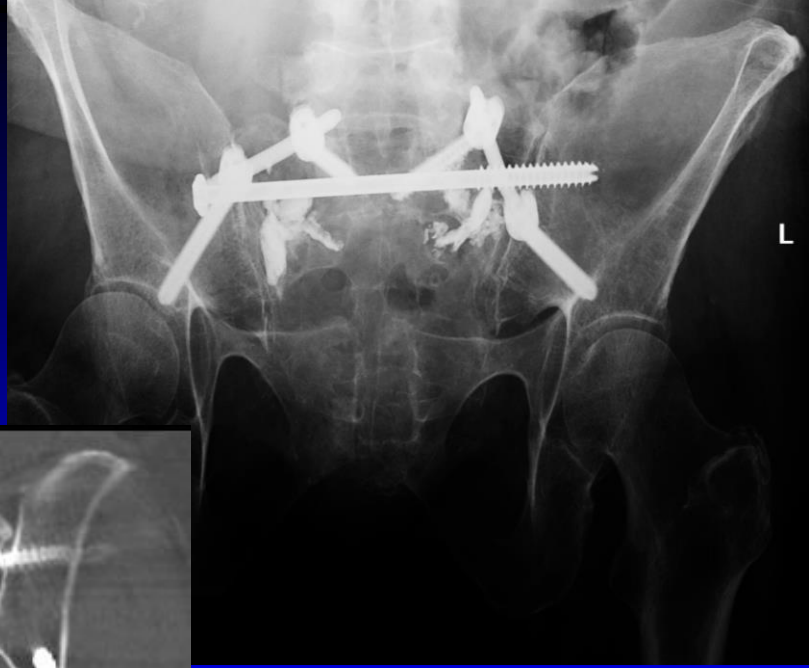
One More

- S/P Kyphoplasty
- Cannot walk
- 9/10 Pain in bed
- Came in on gurney



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Recommendations

- Start nonop
  - PTH, PT, multimodal pain
  - Most do ok
- Failed nonop (really failed)
  - LC pattern = Trans-sacral transiliac screw
  - U shaped = TSTI + Lumbopelvic

Thank You

Boston Medical Center