

## Background

- Reconstruction following internal hemipelvectomy has been performed via arthrodesis and various arthroplasty reconstruction techniques
- Ischiofemoral and iliofemoral pseudoarthrosis are straightforward reconstruction options that provide good functional outcomes while minimizing implant-associated risks and surgical times<sup>1</sup>
- Aim to report Patient-Reported Outcomes Measurement Information System (PROMIS) data following internal hemipelvectomy, and compare patients treated with pseudoarthrosis or flail limb against those treated with arthroplasty reconstruction

## Methods

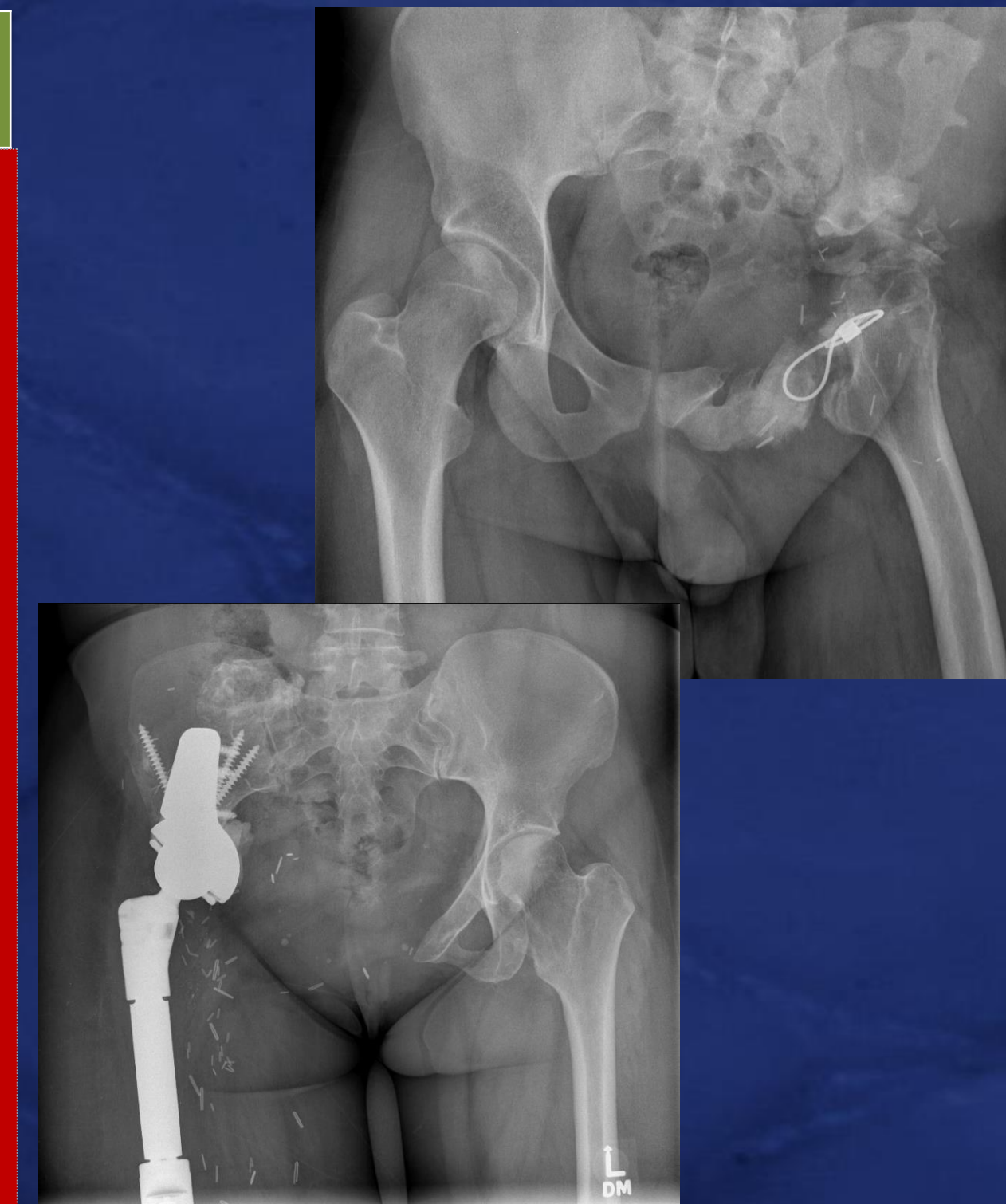
- Single institution retrospective review from 2000-2020 of primary pelvic sarcoma treated with internal hemipelvectomy
- Primary Outcome: PROMIS 43, version 2.1<sup>2</sup>
- Secondary outcomes: use of assist device, radiographic evaluation, repeat operations
- PROMIS data reported compared to US General Reference Population (mean = 50) using two-tailed one-sample t-Test
- Pseudoarthrosis cohort compared to arthroplasty cohort using two-tailed t-Test

## Results

Patient Information (n=19)			
Mean Age (at surgery)	47 (range 12-75)		
Mean Follow-up	8.5 years (range 1-19 yrs)		
Pathology	13 chondrosarcoma, 3 osteosarcoma, 1 Ewing's, 1 myoepithelial, 1 poorly differentiated		
Resection Types (Enneking classification <sup>3</sup> )	I+II	7	37%
	II	6	32%
	II+III	4	21%
	I+II+III	2	11%
Reconstruction Types	Ischiofemoral Pseudoarthrosis	10	53%
	Ilioferomral Pseudoarthrosis	2	11%
	Flail Limb	2	11%
	Metal Arthroplasty	4	21%
	Allograft Prosthetic Composite	1	5%

Secondary Outcomes	Total	Pseudoarthrosis	Implant
<b>Fusion</b>			
Successful Fusion		7/12 (58%)	
Femoral Migration		5/12 (42%)	
<b>Mobility</b>			
Shoe Lift	10/19 (53%)	9/12 (75%)	1/5 (20%)
No Assist	4/19 (21%)	4/14 (29%)	0
Single Cane	4/19 (21%)	3/14 (21%)	1/5 (20%)
Dual Cane	5/19 (26%)	4/14 (29%)	1/5 (20%)
Walker	3/19 (16%)	1/14 (7%)	2/5 (40%)
Wheelchair	3/19 (16%)	2/14 (14%)	1/5 (20%)
<b>Subsequent Surgery</b>			
Pts returning to OR	11/19 (58%)	7/14 (50%)	4/5 (80%)

PROMIS Category	Mean			t-Score		p-Value	
	US Mean	Pseudo (n=14)	Implant (n=5)	Pseudo (n=14)	Implant (n=5)	Pseudo (n=14)	Implant (n=5)
Physical Function	50	37.9	35.7	-7.9	-4.5	<b>&lt;0.0001</b>	<b>0.011</b>
Anxiety	50	49.4	57.9	-0.2	16.1	0.82	<b>&lt;0.0001</b>
Depression	50	47.1	57.2	-1.3	3	0.22	<b>0.04</b>
Fatigue	50	46.9	54.6	-1.2	2.8	0.27	<b>0.05</b>
Sleep Disturbance	50	46.4	55.9	-1.5	2.8	0.15	<b>0.05</b>
Participation	50	50.5	44.6	0.1	-2.2	0.91	0.09
Pain	50	52.6	61.3	1	5	0.35	<b>0.01</b>



## Discussion

- Pseudoarthrosis showed NO DIFFERENCE from US population when comparing: pain, anxiety, depression, fatigue, sleep disturbance, social participation, but had worse function than general US population
- Arthroplasty showed worse function than general US population and showed MORE: pain, anxiety, fatigue, sleep disturbance than US population. Same social participation compared to US population.
- Study size too small to comment on statistical significance of secondary outcome measures
- Most pseudoarthrosis patients required a shoe lift, and most patients required some assist device in both groups
- More patients required repeat surgical intervention for infection or wound complications in Arthroplasty group

## Conclusions

- This study shows no functional difference between Pseudoarthrosis and Arthroplasty groups
- Arthroplasty patients reported more pain, anxiety, depression, fatigue, sleep disturbance than the general population
- Pseudoarthrosis patients did not demonstrate these worse PROMIS measure scores

## References

1 - Carmody-Soni, E. E., Miller, B. J., Scarborough, M. T., & Parker Gibbs, C. (2012). Functional outcomes and gait analysis of patients after periacetabular sarcoma resection with and without ischiofemoral arthrodesis. *Journal of Surgical Oncology*, 106(7).  
 2 - <https://www.healthmeasures.net/explore-measurement-systems/promis>  
 3 - Enneking, W. F., & Dunham, W. K. (1978). Resection and reconstruction for primary neoplasms involving the innominate bone. *The Journal of Bone and Joint Surgery, American Volume*, 60(6), 731-746