

Clinical and Radiographic Predictors of Conservative versus Surgical Management in Patients with Pre-arthritic Hip Disorders

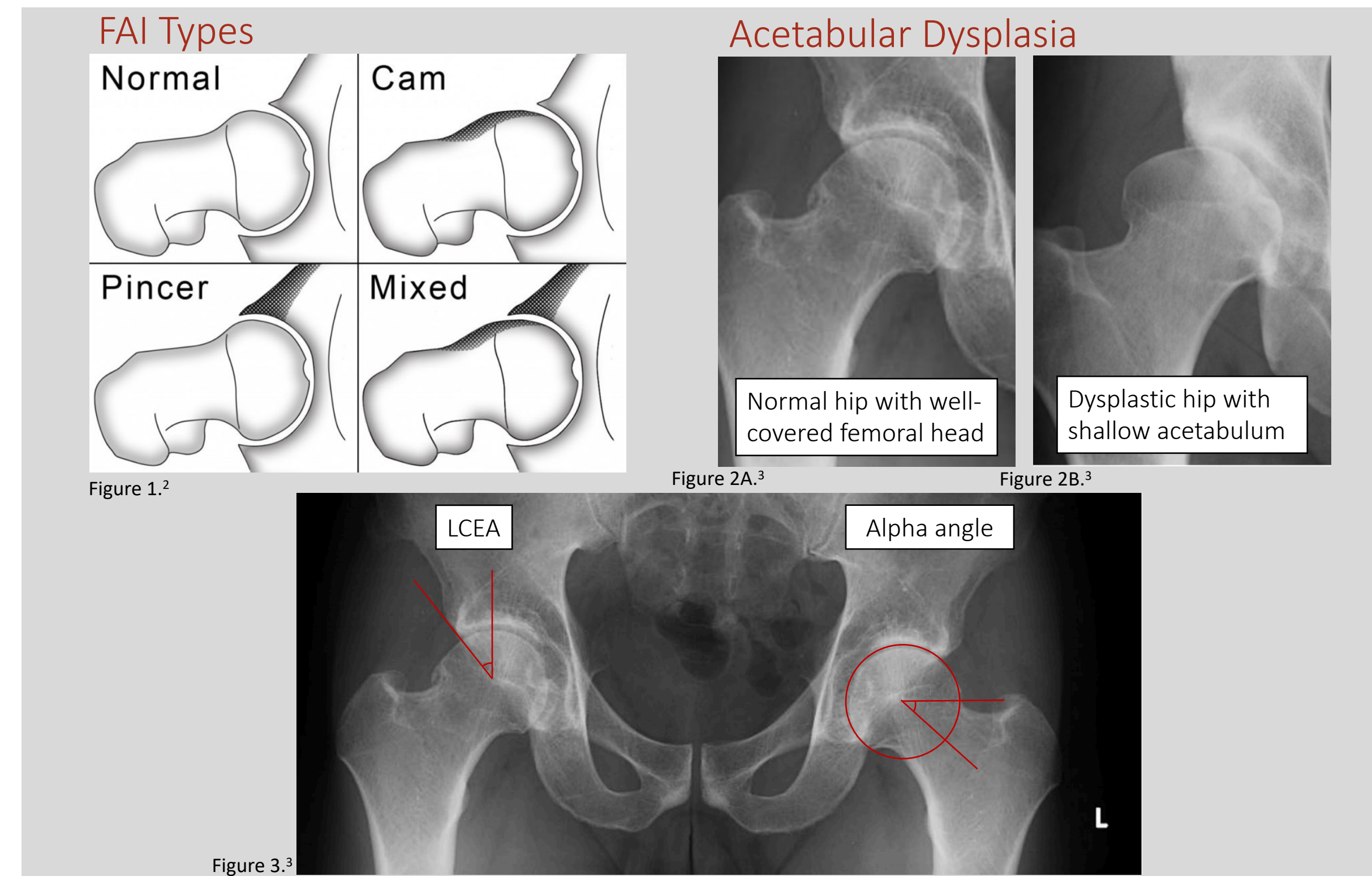
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INTRODUCTION

- Surgery is often recommended for symptomatic femoroacetabular impingement (FAI) and acetabular dysplasia, but conservative management is effective for many patients¹
- This study aims to identify clinical and radiographic predictors of continued conservative management versus progression to surgery within one year of presentation for these pre-arthritic hip disorders

METHODS

- Study Design**
 - Single tertiary care academic medical center
 - Retrospective review of medical records from 6/22/15-4/30/18
- Subjects**
 - Inclusion criteria: patients ages 13-40 years old who presented to a physiatrist or orthopedic surgeon for hip pain and were diagnosed with FAI and/or acetabular dysplasia
 - Exclusion criteria: secondary hip osteoarthritis; history of same side hip fracture or hip surgery
- Baseline Variables Extracted**
 - Clinical characteristics: patient age, sex, body mass index (BMI), pain duration, initial presentation to a physiatrist vs surgeon,
 - Radiographic parameters: AP and lateral (Dunn or frog leg) alpha angle, lateral center edge angle (LCEA), acetabular inclination, anterior center edge angle, and pelvic tilt
 - Patients' decision whether to pursue hip surgery within one year of presentation was determined by chart review
- Primary Outcome**
 - Predictors of continued conservative management (as opposed to progression to surgery) for FAI and acetabular dysplasia
- Statistical Analysis**
 - Using multiple logistic regression, candidate predictors were chosen based on clinical importance and between-group t-tests ($p < .05$ considered significant)
 - Candidate predictors included patient age, sex, body mass index (BMI), pain duration, initial presentation to a physiatrist vs surgeon, LCEA, maximum alpha angle, and presence of known labral tear



RESULTS

DEMOGRAPHICS				
830 hips (713 patients) Mean age 25.0 ± 8.1 years				
	<u>% of Total Hips</u>	<u>% Continued Conservative Management</u>		
FAI	74% (616)	43% (265)		
Acetabular Dysplasia	40% (331)	43.5% (144)		
POSITIVE PREDICTORS OF CONSERVATIVE MANAGEMENT AT 1 YEAR				
	<u>FAI</u>		<u>Acetabular Dysplasia</u>	
	B	SE	B	SE
Older age	0.03/year	0.01	0.06/year	0.02
Larger LCEA	0.04/degree	0.01	0.11/degree	0.02
No known labral tear	2.71	0.26	1.70	0.30
Initial presentation to PM&R	0.54	0.25	-	-
Higher BMI	-	-	0.07kg/m ²	0.03

Only statistically significant candidate predictors are included ($p < 0.05$)

DISCUSSION

- Larger LCEA was a positive predictor of conservative management. This may be because surgical outcomes for FAI in the setting of borderline dysplasia (LCEA 20-25) are mixed, and some surgeons may be hesitant to operate on these patients.
- Despite the growing popularity of hip surgery for management of cam FAI, alpha angle (which is frequently used to diagnose cam FAI) was not a significant predictor of management path.
- Higher BMI is associated with poor surgical outcomes & complications, which may explain why it was a positive predictor of conservative management for the patients with dysplasia.
- Limitation**: Regarding patients who continued conservative management at one-year follow-up, this retrospective study could not differentiate between those whose pain and function had successfully improved with conservative management and those who were assessed to be poor surgical candidates.
- In future studies**, we plan to incorporate these candidate predictors into a clinical prediction tool that determines these patients' risk of chronic impairment and/or progression to surgery.

CONCLUSION

- At one-year follow-up, **over 40% of hips** with FAI and/or acetabular dysplasia continued conservative management and had not progressed to surgical intervention.
- Older age and increased acetabular coverage** were predictive of continued conservative management for both conditions, whereas radiographic femoral-sided morphology was not.
- Initial physiatric evaluation** in FAI patients and **higher BMI** in dysplasia patients were also associated with continued conservative management.

ACKNOWLEDGEMENTS

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