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ARTHROSCOPIC TREATMENT OF ANTERIOR RIM DEFORMITY IN CASES WITH FEMOROACETABULAR IMPINGEMENT AND CONCOMITANT DYSPLASIA

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Faculty Disclosure Information

Nothing to disclose

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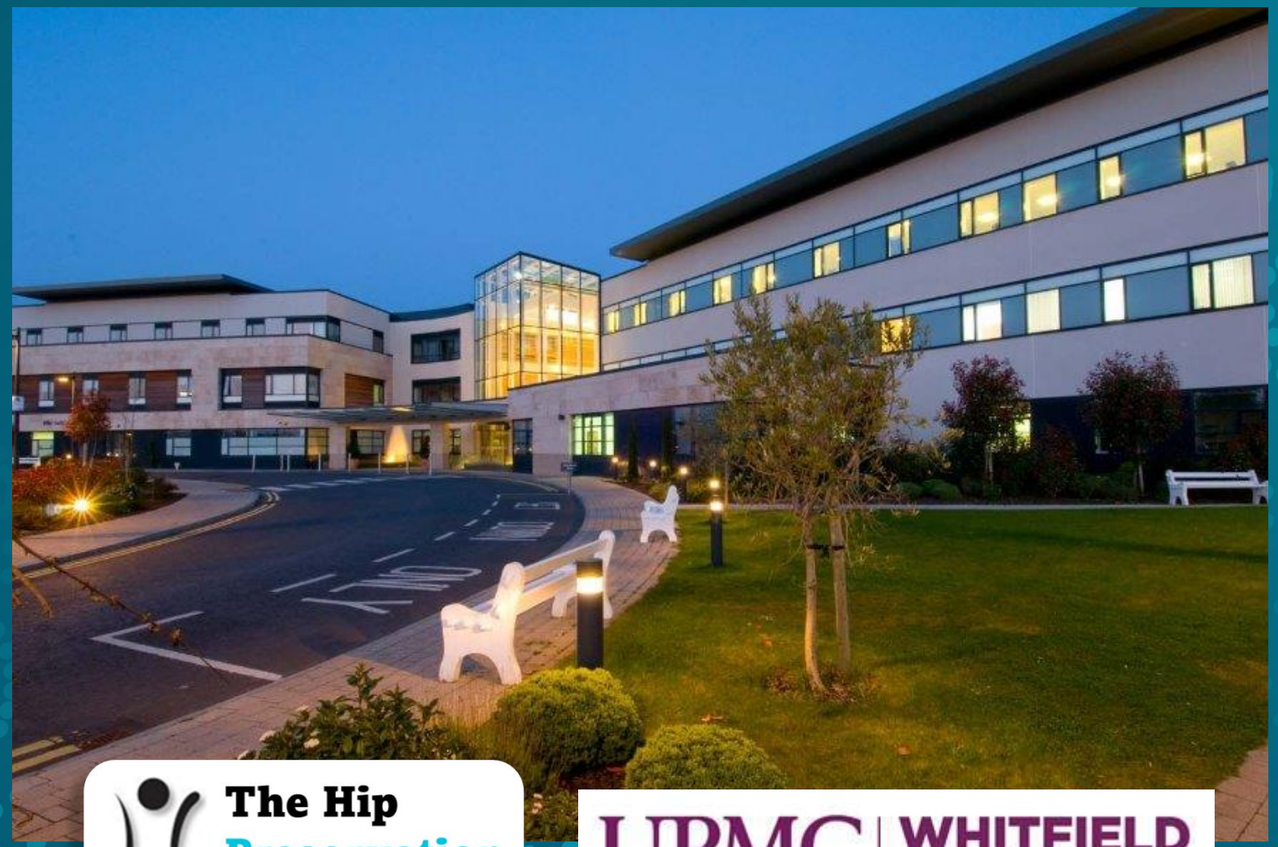

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Background and Aim

Hip arthroscopy (HA) is most commonly utilised in the treatment of femoroacetabular impingement (FAI). Conversely, the arthroscopic management of dysplasia (classically quantified by a lateral center-edge angle, <25^{o}) remains controversial with peri-acetabular osteotomy (PAO) still considered by many surgeons as the ‘gold-standard’.

As a consequence of bony under-coverage with anterior instability, symptoms may develop from labral tearing/detachment and a reactive bony prominence on the anterior rim. Arthroscopic resection of the anterior rim deformity and stabilisation of the labrum may resolve symptoms without the need for a more invasive PAO procedure.

Aim:

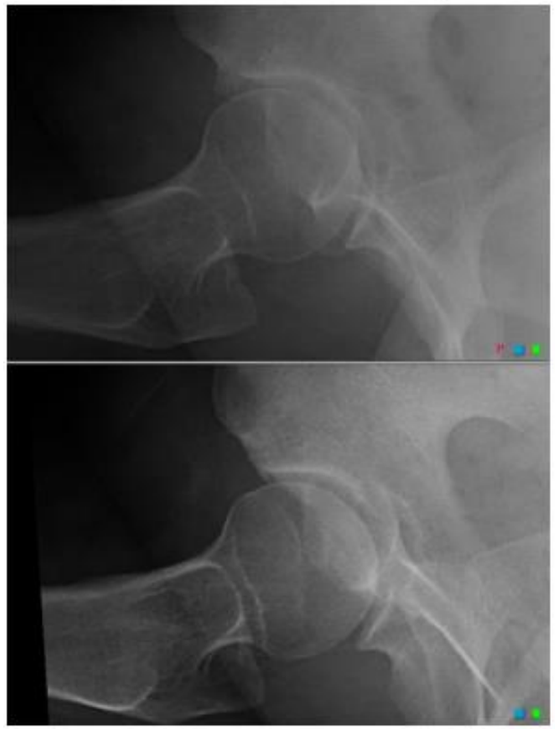
The aim of this study was to investigate 2-year clinical outcomes following arthroscopic resection of anterior rim deformity in a cohort of cases with dysplasia.

Anterior rim deformity

Surgery aims to restore the anterior center-edge angle (ACEA) to that of the sourcil (i.e., remove bony prominence, “stone under the carpet”, anteriorly).

‘Stone under the carpet’. 35 y/o female with dysplasia identified by preoperative LCEA 19.8º on AP view (above, left). Anterior rim deformity (pincer) on pre-op false profile view (above, right) (yellow angle, 35.5º) and true weight-bearing margin of the joint (sourcil) 18.7º (green angle)

False profile-view



Pre- and post-op x-ray demonstrating removal of anterior bony prominence

Methods – Patient Selection

Review of prospective, single-surgeon, single-centre, institutional hip preservation registry

Inclusion

- ✓ All patients with radiographic dysplasia undergoing hip arthroscopy for FAI with labral repair and routine capsular repair between 2014-2022
  - ➢ Dysplasia was defined by measurement of lateral centre-edge angle (LCEA) of Wieberg <25^{o} on standing anteroposterior x-ray or anterior center-edge angle (ACEA) <25^{o} to the edge of the anterior sourcil on modified false profile (FP) x-ray.
  - ➢ ACEA to the most anterior aspect of the acetabulum on FP was used to define the extent of additional acetabular coverage beyond the true weight-bearing aspect of the joint.

Exclusion

- X Tonnis >1
- X AVN
- X Previous hip surgery
- X No comparative pre- and post-op x-rays

Methods – Outcomes Assessment

Demographics

Age, BMI, Gender, Radiographic parameters

Patient-reported outcome measures

mHHS (hip specific)
UCLA (activity scale)
SF-36 (mental and physical wellbeing)
WOMAC (osteoarthritic index)

Clinical Relevance

Minimal clinical important difference (MCID) – distribution-based 0.5 SD calculation technique

Survivorship

Repeat hip arthroscopy

THR conversion

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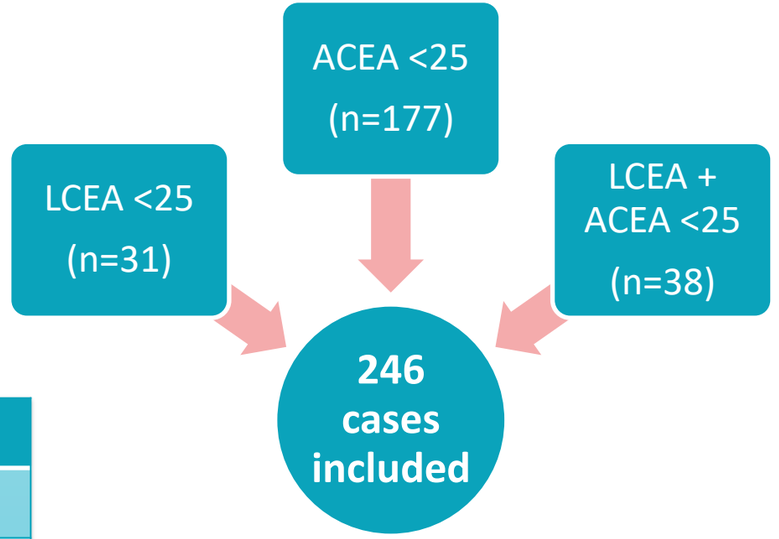
Results - Demographics



Demographics			
Age	34.3±11.5 years		
Gender (M/F)	68% / 32%		
BMI	25.7±5.4 kg/m^2		
Tonnis (0/1)	83% / 17%		
	Pre-Op	Post-Op	P-value
LCEA	29.9±7.3°	25.2±5.5°	<0.001 (d=0.885)
ACEA (sourcil)	21.8±3.8°	21.4±6.8°	0.358
ACEA (most ant)	34.3±5.8°	27.3±7.1°	<0.001 (d=0.857)
AA (Dunn)	58.5±13.7°	48.3±7.7°	<0.001

Significant improvement in lateral center-edge angle on AP-view (for those with only anterior dysplasia) and ACEA to most anterior aspect of acetabulum on FP view
(pincer deformity correction)

Significant improvement in alpha angle
(cam deformity correction)

Importantly, no change in ACEA to edge of anterior sourcil

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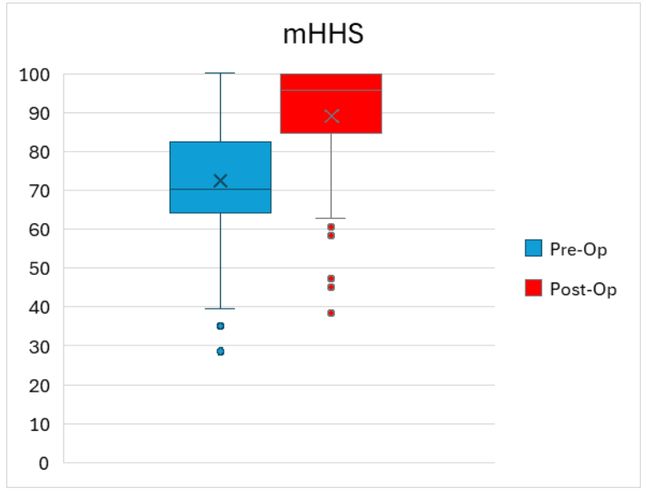
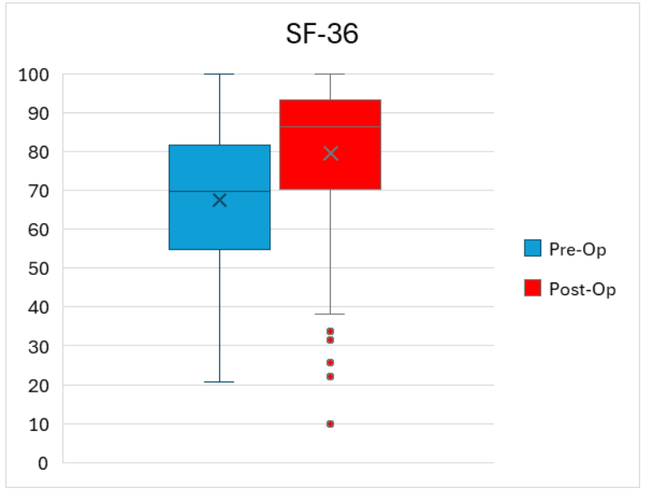
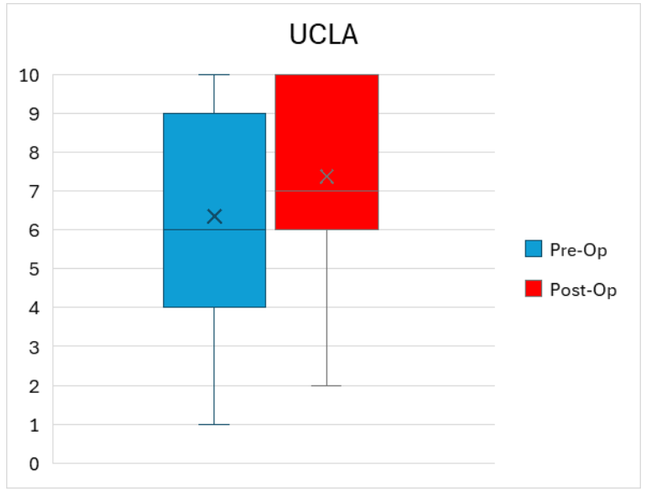
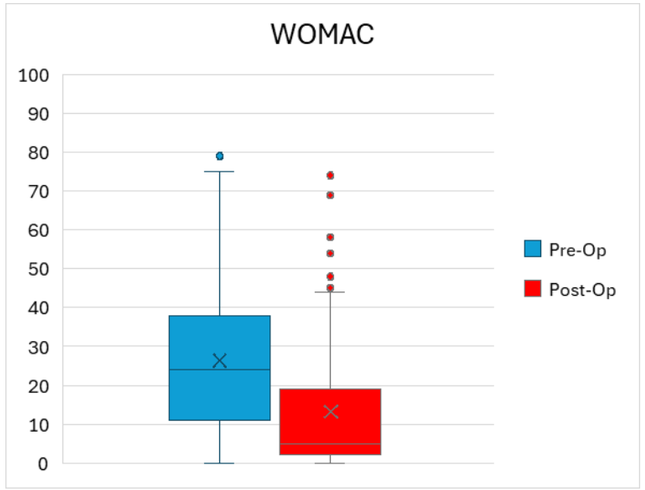
Results – Patient-reported outcome measures









Significant improvement in all PROMs at 2-years post-op:

mHHS
71.5 (64.9-84.7) to 95.7 (84.7-100),
p<0.001, r=0.712

UCLA
6 (4-9) to 7 (6-10),
p<0.001, r=0.326

SF36
72.6 (54.3-82.5) to 87.0 (71.8-93.4),
p<0.001, r=0.589

WOMAC
24 (12-38) to 5 (2-18),
p<0.001, r=0.664.

Results – Clinical relevance & Survivorship

mHHS – **73.5%**

UCLA – **56%**

SF-36 – **58.4%**

WOMAC – **73.8%**

MCID Achievement

Repeat HA – **7.2%** (n=15)

THR convert – **2.9%** (n=6)

PAO – **1%** (n=2)

Survivorship

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Results – Survivorship

Overall

Repeat HA – **7.2%** (n=15)

THR convert – **2.9%** (n=6)

PAO – **1%** (n=2)

	LCEA <25	ACEA <25	LCEA + ACEA <25
Followed Up	***30/31 (97%)***	***147/177 (83%)***	***31/38 (82%)***
Repeat HA	2 (6.7%)	12 (8.2%)	1 (3.2%)
THA convert	1 (3.3%)	1 (0.7%)	4 (12.9%)
PAO	0 (0%)	1 (0.7%)	1 (3.2%)
No secondary surgery	**27 (90%)**	**133 (90%)**	**25 (81%)**

Proportion of cases undergoing THA were significantly different between these two groups

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Conclusion

- In this cohort of cases with dysplasia, arthroscopic resection of the anterior rim deformity and stabilisation of the labrum resulted in significant improvement in PROMs and low rates of secondary surgery, at 2-years post-op.

- Resection of the anterior deformity is a safe and effective procedure which does not increase instability or progression toward joint failure.

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Thank You

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