



Paper #38

## **Cam Type Femoroacetabular Impingement Associated with Marker for Hyperandrogenism in Women**

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**Introduction:** Cam type femoroacetabular impingement (FAI) is seen more commonly in men. Its etiology remains undefined, but is known to develop during puberty at the time of proximal femoral physeal closure. Polycystic Ovarian Syndrome (PCOS) is a condition seen in women with elevated androgenic hormones. Antral follicle count is a key marker in the diagnosis of PCOS. The objective of this study was to determine if androgenic hip morphology (defined as cam type FAI) was associated with androgenic gynecologic features such as polycystic ovaries (as defined by elevated antral follicle count).

**Methods:** Prospective cohort of reproductive aged women who were indicated for arthroscopic hip surgery were assessed. Presence or absence of cam morphology was determined by measurement of alpha angles on 45 degree Dunn lateral radiographs. Cam-type FAI was defined as an angle of >55 degrees. Antral follicles were assessed by MRI. As only one ovary was frequently seen on MRI, the average number of antral follicles per ovary were recorded. In a subset of patients, menstrual irregularity and clinical hyperandrogenism (acne/hirsutism) was assessed by history and physical exam. Means were compared using students t test and correlations using Pearson's. All continuous data expressed as Mean+SD.

**Results:** Fifteen women with cam FAI and 13 without were found to have median alpha angle of 62 (range 56-72) and 46 (range 40-54), respectively ( $P < 0.0001$ ). Average ages were similar between groups (27.7+7.2 vs 24.1+10.8,  $P=0.30$ ). Antral follicle counts per ovary were significantly higher in women with cam FAI than controls, respectively (13.7+5.3 vs 8.5+2.9,  $P=0.004$ ). Univariate analysis revealed a statistically significant correlation between alpha angle measurements and antral follicle counts per ovary ( $R=0.30$ ,  $P=0.03$ ), indicating that cam type FAI appears to be more consistent with a continuum rather than cut-point with respect to antral follicle counts.

**Conclusion:** Cam type FAI was found to be strongly associated with antral follicle numbers--a marker for PCOS and hyperandrogenism. Further study is needed to assess hormonal influence such as PCOS on hip development during puberty. Abnormal female hip development during puberty may be amenable to anti-androgenic treatments to prevent the development of cam type FAI.

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