Uterine Artery Embolization for Uterine Fibroids and Concomitant Adenomyosis: Assessment by MRI

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GOALS:

1. TO DESCRIBE THE MRI CHANGES OF CO-EXISTING ADENOMYOSIS IN PATIENTS TREATED BY UTERINE ARTERY EMBOLIZATION FOR UTERINE FIBROIDS.
2. TO ASSESS THE CHANGES IN CLINICAL SYMPTOMS POST UTERINE ARTERY EMBOLIZATION WITH THE PRESENCE OF COEXISTING ADENOMYOSIS AND UTERINE FIBROIDS.

MATERIALS AND METHODS:

TEN PATIENTS (MEAN AGE= 44.7 YRS) WITH SYMPTOMATIC UTERINE FIBROIDS AND CONCOMITANT ADENOMYOSIS (JUNCTIONAL ZONE THICKNESS>12mm) WERE EVALUATED BY MRI PRIOR TO AND 3 MONTHS AFTER BILATERAL UTERINE ARTERY EMBOLIZATION (UAE). MRI IMAGING WAS PERFORMED WITH ORTHOGONAL T2-W HASTE IMAGES, AXIAL T1-W FAT-SATURATED SPOILED-GRADIENT ECHO, AND SAGITTAL T1-W SPOILED-GRADIENT-ECHO SEQUENCES IN ALL PATIENTS PRE-UAE, AND 8/10 PATIENTS POST-UAE. FOLLOW-UP MRI IN 2/10 PATIENTS WERE PERFORMED WITH ORTHOGONAL T2-W FAST SPIN ECHO AND T1-W CONVENTIONAL SPIN ECHO IMAGES.

THE VOLUME OF THE UTERUS AND UP TO 2 INDEX FIBROIDS (TOTAL=18 INDEX FIBROIDS) WAS MEASURED. THE REGION OF MAXIMAL THICKNESS OF THE JUNCTIONAL ZONE (JZ), AS WELL AS THE TOTAL MYOMETRIAL THICKNESS IN THE SAME LOCATION WAS MEASURED IN EACH PATIENT PRE- AND POST-UAE. A RATIO OF JUNCTIONAL ZONE THICKNESS TO MYOMETRIAL THICKNESS WAS DERIVED. THE ADENOMYOSIS WAS ALSO CHARACTERIZED AS DIFFUSE OR FOCAL, AND THE PRESENCE OF HIGH SIGNAL FOCI ON TI-W AND T2-W IMAGES WAS NOTED.

RESPONSES FROM SYMPTOMS QUESTIONNAIRES AT 3 MONTHS AFTER TREATMENT WERE ANALYZED, AND THE SYMPTOMS OF BLEEDING OR PAIN/ PRESSURE WERE REPORTED AS IMPROVED, NO CHANGE, OR WORSE IN THE TWO SYMPTOMS CATEGORIES.

RESULTS:

OF THE 10 PATIENTS WITH ADENOMYOSIS AND FIBROIDS, THERE WAS A SIGNIFICANT MEAN REDUCTION IN UTERINE VOLUME OF 35.4%(632.0cc TO 408.2cc; P<. 003) AND A MEAN REDUCTION IN INDEX FIBROID VOLUME OF 41.8%(124.3cc TO 72.3cc; P<. 05).

THERE WAS NO SIGNIFICANT CHANGE IN THE JUNCTIONAL ZONE /MYOMETRIAL THICKNESS RATIO 3 MONTHS AFTER UAE, WITH A MEAN RATIO OF .8, BOTH PRE- AND POST-UAE (P<.1). ADDITIONALLY, THE PATTERN OF ADENOMYOSIS DID NOT CHANGE AFTER UAE, WITH 7/10 PATIENTS SHOWING DIFFUSE ADENOMYOSIS AND 3/10 WITH FOCAL ADENOMYOSIS. ON T1-W IMAGES, HIGH SIGNAL INTENSITY FOCI WERE SEEN IN 5/10 PATIENTS PRE-UAE AND THE SAME 5/10 PATIENTS RETAINED HIGH SIGNAL FOCI POST-UAE. HIGH SIGNAL INTENSITY FOCI IN THE JUNCTIONAL ZONE ON T2-W IMAGES WERE IDENTIFIED IN 8/10 PATIENTS PRE-UAE AND 6/10 OF THESE PATIENTS POST-UAE.

SYMPTOMS IMPROVED IN THE MAJORITY OF PATIENTS; PATIENTS REPORTED MODERATE TO MARKED IMPROVEMENT OF BLEEDING IN 8/10 PATIENTS, AND OF PAIN AND PRESSURE IN 8/9 PATIENTS.

CONCLUSIONS:

1. PATIENTS WITH UTERINE FIBROIDS AND COEXISTING ADENOMYOSIS SHOW IMPROVEMENT IN SYMPTOMS, AND A REDUCTION IN MEAN UTERINE SIZE AND MEAN FIBROID VOLUME.
2. THE MORPHOLOGY AND THICKNESS OF THE JUNCTIONAL ZONE IN PATIENTS WITH ADENOMYOSIS DOES NOT CHANGE SIGNIFICANTLY AFTER UAE.

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