

Patient Selection For Successful
Uterine Artery Embolization:
Lessons Learned


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Uterine Artery Embolization

- β Advantages vs Hysterectomy
 - β Fewer and Less Severe Complications
 - β Shorter Post-procedure Recover Time
 - β More Rapid Return to Normal Activities
- β Similar Health-related Quality of Life Improvement
- β Similar Improvement in Bulk-related Symptoms


Uterine Artery Embolization

- β How To Determine who is Suitable Candidate?
 - β Multidiscipline Approach to Patient Selection
 - β Many Patients Self-seeking Non-surgical Approach to Fibroid Management
 - β Initial Patient Evaluation used to Determine Answers to Several Key Questions




Patient Selection for UAE

- β Does Patient Have Fibroids ?
 - β Enlarged Uterus ø Fibroids
 - β Physical Examination
 - β Primary Care Physician
 - β Gynecologist
 - β Ultrasound
 - β Uterine Enlargement
 - β MRI
 - β Allows for Improved Tissue Layer Differentiation




Patient Selection for UAE

- β Pelvic Ultrasound
 - β Presence of Fibroids
 - β Number, Location and Size
 - β Size and Volume of Uterus
 - β Evaluate for Pelvic Pathology
 - β Endometrial Disease
 - β Ovarian Cyst or Mass
 - β Endometriosis




Patient Selection for UAE

- β MRI
 - β Complete Evaluation of the Pelvis
 - β More Detailed Evaluation the the Wall of the Uterus
 - β Reproducible Evaluation of Size and Location of Fibroids
 - β Pre- and Post-Treatment
 - β Determine Response to Treatment
 - β Fibroids
 - β Intermediate T1 signal/Low T2 signal
 - β Appearance changes if Degenerating, hemorrhage, edema necrosis




Patient Selection for UAE

- β Fibroid Location
 - β Submucosal
 - β Menorrhagia
 - β Intramural
 - β Most common
 - β Menorrhagia
 - β Mass effect
 - β Subserosal
 - β Pelvic pain, back pain pressure on bowel and bladder
 - β Pedunculated simulate ovarian pathology




Patient Selection for UAE

- β Is Fibroid Cause of Symptoms?
 - β Vaginal Bleeding
 - β Fibroid
 - β Adenomyosis
 - β Endometrial Disorder
 - β Polyps
 - β Hyperplasia
 - β Carcinoma
 - β Submucosal Fibroid
 - β Endometrial Biopsy
 - β Ultrasound
 - β MRI




Patient Selection for UAE

- β Uterine Bleeding
 - β Abnormal Bleeding
 - β Heavier longer periods (menorrhagia)
 - β Worsening menstrual Cramps may be sign of fibroid growth
 - β Bleeding tends to be progressive
 - β Dysmenorrhea due to passage of clots
 - β Intramenstrual Bleeding (menometrorrhagia) is atypical
 - β Can be seen with intracavitary or pedunculated fibroid




Patient Selection for UAE

- β Is Fibroid Cause of Symptoms?
 - β Pelvic Pain/Mass Effect
 - β Fibroid
 - β Ovarian/Abdominal Mass
 - β Adenomyosis
 - β Endometriosis
 - β Infection




Patient Selection for UAE

- β Pelvic Pain
 - β Acute
 - β Fibroid Degeneration
 - β Torsion of Subserosal Fibroid
 - β Prolapse of Submucosal Fibroid
 - β Chronic
 - β Fibroid
 - β Adenomyosis, endometriosis, Pelvic inflammatory disease, pelvic congestion syndrome




Patient Selection for UAE

- β Mass Effect
 - β Genitourinary Symptoms
 - β Urinary Frequency
 - β Stress Incontinence
 - β Hydronephrosis
 - β Complete obstruction is rare
 - β Rectal Pressure and Constipation
 - β Back and Leg Pain
 - β Nerve compression




Patient Selection for UAE

- β Hysteroscopy
 - β Diagnostic and Therapeutic
 - β Evaluation of Abnormal Bleeding
 - β Determine Presence of Submucosal Fibroids
 - β Easily Resected if Pedunculated




Patient Selection for UAE

- β Do Symptoms Warrant Treatment?
 - β Subjective
 - β Pre-Treatment Questionnaire
 - β Determine Extent Patient is Physically or Psychologically Affected by Symptom(s)
 - β Age Dependent
 - β Child-bearing Age
 - β Future Fertility
 - β Perimenopausal




Patient Selection for UAE

- β Future Desire for Fertility?
 - β Effect of UAE on Fertility
 - β Early Ovarian failure
 - β > 45 yrs
 - β Non-target Embolization
 - β Direct Effect of Uterine Blood Flow in Pregnancy
 - β Ability to Carry Pregnancy to Term
 - β Low Birth Weight
 - β Risk of Uterine Rupture
 - β Hysterectomy for Complications of UAE




Patient Selection for UAE

- β Predisposition for Major Complication?
 - β Uterine Infarction / Ischemic Necrosis
 - β Post-embolization Infection
 - β Coagulopathy
 - β Renal Insufficiency




Patient Selection for UAE

- β Uterine Ischemia and Infarction
 - β Myometrial Ischemia Expected Post-embolization
 - β Diffuse Uterine Necrosis
 - β Persistent Malodorous Discharge
 - β Pain and Fever
 - β Large Uterine Fibroid
 - β Pelvic Irradiation
 - β Microvascular Disease / Altered Collaterals from Prior Surgery




Patient Selection for UAE

- β Uterine Rupture
 - β Wall Thinning by Fibroid
 - β Fibroid Degeneration
 - β Full Thickness of Myometrium
 - β Peripartum Rupture
 - β Multiple Intramural Fibroids Post-myomectomy
 - β Uterine Necrosis
 - β Contrast-enhanced MRI




Patient Selection for UAE

- β Infection of Necrotic Fibroid /Uterus
 - β Setting of Infection
 - β Pelvic Inflammatory Disease
 - β Salpingitis /Endometritis
 - β Immuno-compromised Host
 - β Persistent Post-embolization Complaints
 - β Pain and Fever
 - β Elevated WBC
 - β CT/MRI evaluation
 - β Intra-fibroid Gas >2 weeks Post-embolization
 - β Inflammation or Free Fluid Around the Uterus




Patient Selection for UAE

- β Expulsion of Fibroid
 - β Submucosal Fibroids at Greatest Risk
 - β Some degree of slothing expected
 - β May Cause Cervical Impaction and Obstruction
 - β Increased risk in nullparous women or those which had not had vaginal delivery
 - β Arrested Passage can result in symptoms of Sepsis
 - β Refer to gynecologist for D&C




Patient Selection for UAE

- β Anatomic Factors Predisposing to Treatment Failure?
 - β Coexisting Adenomyosis
 - β Trial of Embolization
 - β Hysterectomy
 - β Aberrant Uterine Artery Supply
 - β Ovarian Artery Supply to Fibroid
 - β Does Patient Desire Fertility?
 - β Supers elective Embolization




Patient Selection for UAE

- β Anatomic Factors
 - β Rapid “Growth” of Fibroid
 - β DDx Leiomyosarcoma
 - β Hysterectomy




Patient Selection for UAE

- β Why Do Procedures Fail?
 - β Most Due to Incomplete Infarction
 - β Failure of Infraction
 - β Indicator of short-term failure and long-term recurrence




Patient Selection for UAE

- β Cause of Failed Procedure
 - β Failure to Catheterize One/Both Arteries
 - β Technically Insufficient Embolization
 - β Poor Embolization End-point
 - β False End-point
 - β Spasm or Reduced flow




Patient Selection for UAE

- β Arterial Anomalies
 - β Absent Uterine Artery
 - β Replacement to Ovarian Artery
 - β Prior Iatrogenic Occlusion with Collateralization
 - β Multiple Uterine arteries
 - β Small Caliber




Patient Selection for UAE

- β Hormone Therapy
 - β Lupron
 - β GnRh Agonist
 - β Decrease Fibroid Size
 - β Small caliber to Uterine Artery
 - β Increased risk of Technical Failure
 - β Postpone Treatment 6-8 weeks following Last Dose




Patient Selection for UAE

- β Ovarian-Uterine Arterial Supply
 - β Ovarian Artery with Communication to Uterine Artery
 - β Ovarian Contribution May Increase to Supply Fibroid
 - β Can Be Treated with Super-selective Embolization
 - β Ovarian Artery without Communication to Uterine Artery
 - β Question Need For Immediate Embolization
 - β Is Specific Fibroid Cause of Symptoms?
 - β Reassess at Three Month Follow-up with Symptom Evaluation and MRI




Patient Selection for UAE

- β Sources of Collateral Flow
 - β Pelvic Visceral Branches
 - β Visceral or Rectal
 - β IMA
 - β Lumbar
 - β Round Ligament Artery
 - β Inferior Epigastric or External Iliac




Patient Selection for UAE

- β Location and Geometry of Fibroids
 - β Fundal Fibroid
 - β More Collateral Flow
 - β Large Fibroid Volume
 - β Smaller % Reduction
 - β Negative Prognosis




Patient Selection for UAE

- β Location and Geometry of Fibroids
 - β Submucosal Fibroid
 - β Greater % Reduction
 - β Pedunculated (Trans-cervical Expulsion)
 - β Pain, Cramping and Fever
 - β Subserosal Pedunculated Fibroid
 - β Prolonged Recovery
 - β Intraperitoneal Adhesions




Patient Selection for UAE

- β MRI Appearance
 - β High T2/Low T1
 - β Better Response
 - β Cellularity
- β High T1
 - β Negative Predictor
 - β Degeneration
- β Hypervascular
 - β Better Response




Patient Selection for UAE

- β Prognosticators
 - β Adenomyosis
 - β Controversial
- β Volume Change
 - β Not Predictive of Clinical Response
- β Devascularization
 - β Better Outcome




Patient Selection for UAE

- β Other Reasons to Avoid Surgery?
 - β Patient Driven Procedure
 - β Avoid Surgical Adverse Events
 - β Avoid Surgical Recovery
 - β Avoid Post-operative Discomfort
 - β Spare Uterus
 - β Sexual Image




Patient Selection for UAE

- β Patients one Should Refuse to Treat
 - β Marked Uterine Enlargement
 - β >24 weeks
 - β More likely to have Collateral supply
 - β Greater Likelihood of Complication
 - β Pedunculated Subserosal Fibroid
 - β Stalk 1/3-1/2 Diameter of Fibroid
 - β Pedunculated Serosal Fibroid
 - β Sloughing
 - β Chemical peritonitis
 - β Protracted Pain Syndrome



Patient Selection for UAE

- β Women Adamant Regarding Fertility
 - β Myomectomy
 - β Failed Myomectomy
 - β Refuse Myomectomy
 - β Poor Candidate for Myomectomy
 - β Size, number or location of fibroids



Summary

- β Uterine Artery Embolization is Increasingly a Patient-Driven Procedure
- β May be able to rely on “multidiscipline Approach” for Patient Evaluation and Selection
- β Thorough Questioning During Initial Consultation and Pre-procedure Imaging Evaluation Critical to Proper Patient Selection
