Uterine Transplant: An Emerging Resolution to Absolute Uterine Factor Infertility
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**Acquired AUFI and Uterine Transplant**

Acquired Uterine Factor Infertility, or AUFI, is the “Physiological inability or anatomical absence to sustain a pregnancy due to having an absent or non-functioning uterus” (Richards et al., 2019).

- AUFI is acquired or congenital; Acquired being the most common
- Congenital AUFI occurs when a patient is born with an underdeveloped or absent uterus; Mayer-Rokitansky- Küster-Hauser syndrome (MRKH)
- Current options for these women to achieve parenthood are surrogacy and adoption
- Uterine transplantation serves as an option for AUFI if developed thoroughly and efficacy is proven
- Thorough screening process for transplant candidates
- Uterine transplants are only used for 2 pregnancies, or up to 5 years
- Limited use due to immunosuppression and increased risk for vascular complications

**Congenital AUFI - MRKH**

- Presence of ovaries
- Absence of the uterus, tubes and vagina
- MRKH syndrome

**Surgical Techniques and Considerations**

- Donor can be living or deceased; donor can be pre- or post-menopausal
- If donor is post-menopausal, donor will undergo hormone treatment
- Only the uterus is transplanted from the donor, using donor uterine vessels and recipient iliac vessels
- Pregnancy is achieved through embryo transfer and delivered via cesarean section
- Successful transplantation results in a live birth
- Surgical risks are greater for donor than recipient
- Risks include physical, emotional, monetary, and ethical for both donor and recipient
- Physical risks include infection, thrombosis, vascular fistula, pseudoaneurysm, and ureter injury
- Ethical risks present when the donors/recipients are not related, and monetary subsidization takes place
- In vitro fertilization, numerous consultations, imaging exams, as well as the surgery are cause for increased financial expenditure
- Increased risk of malignancy due to immunosuppression, just as with other transplants

**Historic and Current Research**

Uterine transplantation is a newly developed technique used in the treatment of AUFI.
- Research began in 1999 on small and large animals
- The first successful transplant, live birth, was achieved in a rat
- Further research was performed on sheep to evaluate anastomotic techniques
- Strict immunosuppression regimens were developed prior to human clinical trials in non-human primates
- The first human uterine transplant attempt was performed in 2000
- The first human uterine transplantation resulting in pregnancy was performed in 2011
- The first successful uterine transplantation was performed in 2014
- Research on uterine transplantation and its potential uses with AUFI continues to evolve
- Current success rates: 35% achieve pregnancy after embryo transfer; 28% result in live birth

**Vascular Anastomoses**

- Donor uterine vessels to recipient external iliac vessels
- Donor uterine vessels to recipient iliac artery and common iliac vein

**Uterine Transplant Timeline**

- Absolute Uterine Factor Infertility Diagnosis
- Uterine Transplant
- Viable 9 Months Post Transplant; Pregnancy
- 18 Months or Later Live Birth