BICORNUATE UTERUS

Heart-Shaped Uterus, Bicornate Uterus

Inborn morphological deviation of the uterus - one of the Müllerian duct anomalies where the uterine cavity is divided in the upper part.

- Diagnosis
- Female

Related Diagnoses:
- Uterine malformations
- Uterus duplex

About Bicornuate uterus

Bicornuate uterus results from incomplete fusion of two uterine horns (Müllerian tubes) leading to varying degrees of separation between the cavities (Pic. 1.). As a result, the lower part of the uterus is unitary while the upper part is bifurcated. The condition is also called a heart-shaped uterus (Pic. 2). There are many degrees of a bicornuate uterus. There is a continuous range of the degree and location of the fusion of the paramesonephric ducts, and existence of a spectrum, rather than a fixed number of types corresponding to strict medical definitions. This degree of fusion and reabsorption can determine the likeliness of a pregnancy reaching full term. A bicornuate uterus is estimated to occur in 0.1-0.5% of women in the U.S. It is possible that this figure is an underestimate, since subtle abnormalities often go undetected. Some intersex individuals whose external genitalia are perceived as being male may nonetheless have a variably shaped uterus.

Associated disease

Associated defects may affect the renal system, and less common, the skeleton or so called cloacal disease.
Complications

- fetal growth restriction
- premature fetal membranes breach

Risk factors

Uterine malformations are associated with genetic and teratogenic factors. Seen as problematic can be contact with any substance with teratogenic potential during pregnancy. Fetus is the most vulnerable in the period of 2 to 12 weeks.

Impact on fertility

Previously, a bicornuate uterus was thought to be associated with infertility, but recent studies have not confirmed such an association. Pregnancies in a bicornuate uterus are usually considered high risk and require extra monitoring because of association with poor reproduction potential.

A bicornuate uterus is associated with increased adverse reproductive outcomes, such as:

- Recurrent pregnancy loss.
- Preterm birth: the rate of preterm delivery is 15 to 25%. A pregnancy may not reach full term in a bicornuate uterus when the baby begins to grow in either of the uterine horns. A short cervical length seems to be a good predictor of preterm delivery in women with a bicornuate uterus.
- Malpresentation (breech birth or transverse presentation): a breech presentation occurs in 40-50% of pregnancies with a partial bicornuate uterus and not at all (0%) in a complete bicornuate uterus.
- Deformity: Offspring of mothers with a bicornuate uterus are at high risk for deformities and disruptions and malformations.

Prevention

None recognized, except for avoiding contact with teratogenic factors.

Symptoms
• heavy/irregular menstruation
• abdominal pain
• painful ovulation
• worsened ability to conceive

## Therapies

### Self therapy

None possible.

### Conventional medicine

#### Pharmacotherapy

Pharmacological treatment is mostly additional to deal with conception issues. Hormonal treatment is used for ovarian stimulation and ovulation induction. It is commonly combined with assisted reproduction techniques. To prolong pregnancy time, to prevent preterm birth, maintaining uterine quiescence in the latter half of pregnancy is important. Limiting the production of stimulatory prostaglandins and inhibiting the expression of contraction-associated protein genes (ion channels, oxytocin and prostaglandin receptors, and gap junctions) within the myometrium seems to be helpful.

#### Surgical therapy

Usually, women with bicornuate uterus have relatively good reproductive outcomes. Therefore, the pure type rarely require treatment. In case of hybrid types hysteroscopic metroplasty is needed.

### Assisted reproduction

The most often method is IVF-ICSI in combination with surgical solution and pharmacotherapy. Own oocytes or donated ones may be used, depending on woman’s age and quality of her eggs. Multiple pregnancies may have a negative impact on the likelihood of a full term pregnancy; therefore, a singleton pregnancy should be ensured by
eSET (elective single embryo transfer) in these patients. If all efforts to prevent pregnancy loss fail repeatedly, surrogate mother is needed to carry a baby.

Find more about related issues

Diagnoses

Uterine malformations
A type of female genital malformation resulting from an abnormal development of the Müllerian duct(s) during embryogenesis.
Learn more at: www.fertilitypedia.org/therapy/diag/uterine-malformations

Uterus duplex
Congenital uterine malformation where both Müllerian ducts develop but fail to fuse, thus the woman has a "double uterus".
Learn more at: www.fertilitypedia.org/therapy/diag/uterus-duplex

Organs

Cervix
The narrow inferior portion of the uterus that projects into the vagina.
Learn more at: www.fertilitypedia.org/edu/organs/cervix

Fallopian tubes
Two very fine tubes that transport sperm toward the egg, and allow passage of the fertilized egg back to the uterus for implantation.
Learn more at: www.fertilitypedia.org/edu/organs/fallopian-tubes

Uterus
The uterus is the largest and major organ of the female reproductive tract that is the site of fetal growth and is hormonally responsive
Learn more at: www.fertilitypedia.org/edu/organs/uterus

Vagina
Sex organ that is a part of the female genital tract having two primary functions: sexual intercourse and childbirth.
Learn more at: www.fertilitypedia.org/edu/organs/vagina
Reproductive functions

Fetal development
The process in which a human embryo or fetus gestates during pregnancy, from fertilization until birth.
Learn more at: www.fertilitypedia.org/edu/reproductive-functions/fetal-development

Implantation
The very early stage of pregnancy at which the embryo adheres to the wall of the uterus.
Learn more at: www.fertilitypedia.org/edu/reproductive-functions/implantation

Symptoms

Abdominal pain
A pain that occurs between the chest and pelvic regions.
Learn more at: www.fertilitypedia.org/edu/symptoms/abdominal-pain

Absence of menstrual periods
The absence of a menstrual period in a woman of reproductive age.
Learn more at: www.fertilitypedia.org/edu/symptoms/absence-of-menstrual-periods-1

Double vagina
Longitudinal division of the vagina into two separate organs.
Learn more at: www.fertilitypedia.org/edu/symptoms/double-vagina

Impossible sexual intercourse
A condition that affects a woman’s ability to engage in vaginal penetration.
Learn more at: www.fertilitypedia.org/edu/symptoms/impossible-sexual-intercourse

Irregular menstruation
Irregular menstruation is a menstrual disorder whose manifestations include irregular cycle lengths as well as metrorrhagia
Learn more at: www.fertilitypedia.org/edu/symptoms/irregular-menstruation

Preterm birth
A birth of the baby before 37 completed weeks of gestational age.
Learn more at: www.fertilitypedia.org/edu/symptoms/preterm-birth
Recurrent miscarriage
A disease distinct from infertility, defined by two or more failed pregnancies.
Learn more at: www.fertilitypedia.org/edu/symptoms/recurrent-miscarriage

Therapies

Egg donation
Process by which a woman donates eggs for purposes of assisted reproduction or biomedical research.
Learn more at: www.fertilitypedia.org/edu/therapies/egg-donation

Elective single embryo transfer
The procedure of transfer one single good quality embryo in cleavage stage or in stage of blastocyst that was selected as the most appropriate.
Learn more at: www.fertilitypedia.org/edu/therapies/elective-single-embryo-transfer-1

ICSI
A micromanipulative fertilization technique in which a single sperm is injected directly into an egg.
Learn more at: www.fertilitypedia.org/edu/therapies/icsi

Sperm donation
The procedure in which a man (sperm donor) provides his sperm for fertility treatment.
Learn more at: www.fertilitypedia.org/edu/therapies/sperm-donation

Standard IVF
A process in which an egg is fertilised by sperm outside the body: in vitro. Own or donated gametes may be used.
Learn more at: www.fertilitypedia.org/edu/therapies/standard-ivf

Surrogacy
The embryo is gestated in a third party's (surrogate) uterus.
Learn more at: www.fertilitypedia.org/edu/therapies/surrogacy
The uterine cavity is divided in the upper part.

This uterus was removed in the course of excising an ovarian mucinous cystadenoma. The photo above shows the uterus and adnexa (less the initially excised left ovarian tumor) from the posterior aspect.

Sources


“Spontaneous Twin Pregnancy in Uterus Bicornis Unicollis (http://www.hindawi.com/journals/criog/2013/834952/)” —by Doruk et al. licensed under CC BY 3.0

“Bicornuate uterus - diagram (/uploads/348/922/511/3489225117bd70ce6385b3e71f32db1c578e8359.jpeg)” —by Rosenkranzova, created for Fertilitypedia.org licensed under CC BY-SA 4.0

“Bicornuate uterus (https://commons.wikimedia.org/wiki/File:Bicornuate_Uterus.jpg)” —by Uthman licensed under CC0 1.0

“Uterus bicornis [1]” —by Bayraktar