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## Fetal outcome of triplets in a turner mosaic

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### Abstract

Pregnancies are now being reported resulting from fertilization of donor oocytes in women with ovarian failure. A case of triplets in a Turner mosaic is reported herein following transfers of embryos resulting from donor oocytes. She had previously demonstrated a normal sized uterine cavity by hysterosalpingography. The opinion from our group was that she should consider selective reduction but a perinatology consult thought she should have a favorable outcome. Her pregnancy was complicated by polyhydramnios, pre-term labor, and eventual fetal demise at 25 and 27 weeks of all three fetuses.

Natural pregnancies in patients with gonadal dysgenesis have been reported in at least 138 patients. Many aborted or had stillbirths and this high rate of fetal mortality has been ascribed to chromosomal abnormalities. The continued use of donor oocytes will provide data to evaluate whether there will continue to be a higher spontaneous abortion rate and complications in second and third trimesters in Turner's pregnancies even in single pregnancies. The outcome of this case can at least be provided to future gonadal dysgenesis patients with triplets to help them in their decision as to whether or not to have selective reduction.

**Keywords:** Donor oocytes, fetal demise, pre-term labor, selective reduction, triplets, Turner's mosaic.

### 1 Introduction

At least 138 pregnancies in patients diagnosed with Turner's syndrome (either 45 × monosomy or 45 mosaicism) have been recorded [3, 9, 11, 12, 16, 20, 22, 26, 29]. Over 20 pregnancies have been recorded in non-mosaic Turner patients [3, 4, 8, 9, 13, 14, 15, 18, 21, 27, 29, 30].

A high rate of spontaneous abortions and fetal demise have been recorded in pregnant patients with Turner's syndrome. SWAPP et al reported 7 of 21 pregnancies (33.3%) aborting or congenitally abnormal and 1 of the 14 normal children was a stillbirth [29]. In a larger series of mosaics only about 35% (34 of 97 pregnancies) resulted in a surviving normal child [29]. AYUSO et al reported that 1 patient with mosaicism had 3 spontaneous abortions at five or six months gestation; three stillbirths were noted to have congenital anomalies as did 13 of the liveborn children [2]. Furthermore, 9 offspring had a chromosome abnormality [2].

Multiple births in patients with either Turner's syndrome or mosaicism are rare. A twin pregnancy in a non-mosaic Turner syndrome patient was reported which ended in spontaneous abortion after viability was established at 17 weeks [2]. A twin gestation was also reported in a mosaic Turner's patient with subsequent neonatal death [2].

Since there is increased fetal wastage and an increased number of chromosomally abnormal

### Curriculum vitae

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liveborn infants with singleton pregnancies in Turner's patients, the loss of these two sets of twins is not surprising [28].

The large majority of women with hypergonadotropic hypogonadism do not conceive. Pregnancies following fertilization of donor oocytes is now possible and the first successful case was reported by LUTJEN et al [17]. Turner's syndrome patients are now candidates for donor oocyte programs. The possibility exists that a uterine anomaly might have contributed to the high rate of fetal wastage in women conceiving naturally. Certainly one might consider the possibility of a reduced uterine volume with

greater risk of complications from a multiple gestation.

Reported herein, is a case report of a triplet gestation following transfer of four embryos following donor oocyte fertilization; the subsequent outcome of the pregnancy is described.

## 2 Case report

The patient is a 36-year-old white female who presented to our office with a history of mosaic Turner's syndrome established by chromosome analysis. She is feminine in appearance with normal secondary sexual characteristics with short stature at 145 cm. The patient's past surgical history included the repair of an aortic coarctation at age 16. She had one spontaneous menstrual period shortly before her vascular surgery but no further menses thereafter.

The patient was enrolled in our donor in vitro fertilization program. Hysterosalpingography found the patient to have bilateral tubal patency and a normal uterine cavity. She became pregnant after two cycles. She subsequently had a first trimester spontaneous abortion. Three months later she conceived again after one cycle. An ultrasound at seven weeks showed her to be pregnant with three embryos. She was advised at that time of some of the risks associated with multiple gestation and referred to a perinatologist regarding selective termination to reduce the number of embryos to two or one. She was advised by the perinatologist that her chances of a successful pregnancy were good, and she decided not to undergo the procedure.

The patient was followed closely by a perinatologist and at 18 weeks was noted to be contracting irregularly. She was also noted to be a poor candidate for cerclage placement having a "button" cervix with too little tissue to place the suture.

By 22 weeks gestation the patient was suffering from intractable vomiting, dehydration, presacral pitting edema, and had known polyhydramnio in the sac of triplet B. The patient was admitted to the hospital for tocolysis and hyperalimentation. She also received weekly ther-

apeutic amniocentesis in an attempt to relieve the pressure of triplet B's polyhydramnios. At 25 weeks increased difficulty was noted obtaining fetal heart tones. An ultrasound revealed intrauterine demise of triplets A and B with resolution of the polyhydramnios. Triplet C showed cardiac activity and good movement so it was decided to attempt to continue the pregnancy as long as possible.

At 27 weeks an emergency cesarean section was performed after spontaneous rupture of membranes and evidence of fetal distress. One stillborn female infant weighing 794 grams was delivered with a placenta showing evidence of abruption. The other two fetuses (a 680 gram female and a 595 gram male) were macerated and had umbilical cords arising from a fused placenta. The patient declined autopsy of the fetuses and was discharged home one week later after a normal postoperative course.

## 3 Discussion

There is evidence that the uterus of women with hypergonadotropic hypogonadism may be more receptive to embryo implantation [5, 7]. Thus, these patients may be more prone to multiple gestations. The first triplet pregnancy following donor oocyte fertilization was reported by SAUER and PAULSON [24]; in fact four of their first six pregnancies in women with ovarian failure were multiples [25]. The outcome of this pregnancy was not stated.

Triplets with successful delivery following the transfer of frozen-thawed embryos had been previously reported in a normal woman with a 46XX karyotype [23]. This pregnancy resulted in a cesarean section because of pre-eclamptic toxemia. Also, the successful delivery of twins resulting from frozen embryo transfers to a woman with a unicornuate uterus at 35 weeks was also reported [6]. Because of previous suggestion of poor fetal outcome in women with even singleton pregnancies in a unicornuate uterus [1, 10], selective reduction was suggested to the patient but she refused.

Poor fetal outcome in Turner's patients conceiving with their own oocyte has been ascribed to genetic abnormalities. But the possibility of

a uterine anomaly contributing to fetal wastage is certainly possible. Selective reduction was discussed with the patient but she declined on the basis of the opinion of a perinatologist. The patient had been made aware by the perinatologist about data that suggested an optimistic outcome for triplets with modern medicine [19]. Our opinion was that since the average gestational age at birth in Newman's study was 33.6 weeks with 44.4% of mothers requiring admission prior to delivery, we strongly advised the patient that she would be at a significant risk for pre-term delivery and its complications especially in view of her small height despite an apparently normal auterine cavity.

We believe this is the first case report of triplets in a woman with Turner's mosaicism. Perhaps eventually there will be enough higher order

multiple gestations resulting from donor oocytes in this group to determine if they have a greater risk of fetal loss than normal karyotypic women with triplet gestations. Until that time the publishing of anecdotal case reports will be important to provide the patient with as much data as possible to make a decision whether they want to have multifetal reduction or not.

#### 4 Conclusion

The last trimester intrauterine demise of all three triplets resulting from oocyte donation to a Turner mosaic with gonadal failure, provides a warning that these patients may not be able to successfully withstand high order gestational numbers. This case may influence the decision in choosing multifetal reduction in future cases.

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