

Case Report: Fetal* MRI of Triplets for Evaluation of the Urinary Tract

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With increasing numbers of women undergoing hormone therapy and in vitro fertilization, the total numbers of born multiples have been demonstrably increasing. Excluding these two groups of women, the theoretical relativity in a normal population for twins is approximately 1:85, and for triplets 1:7,000. Multiples very often show a reduced growth as compared to singles, which can already be seen for triplets during the 28th week of gestation. Furthermore, a multiples pregnancy should be

regarded as a high-risk pregnancy for the mother as well as for the children. The diagnosis of multiples pregnancy as well as the follow-up of the multiples is very often supported by ultrasound. As MRI plays an increasing role in the further diagnostic work-up of unclear findings of ultrasound, the imaging of twins with fetal MRI is not an uncommon situation nowadays, although the imaging of triplets remains a very unusual procedure. In addition, the imaging of multiples with MRI requires additional efforts

in the examination itself as well as in reading.

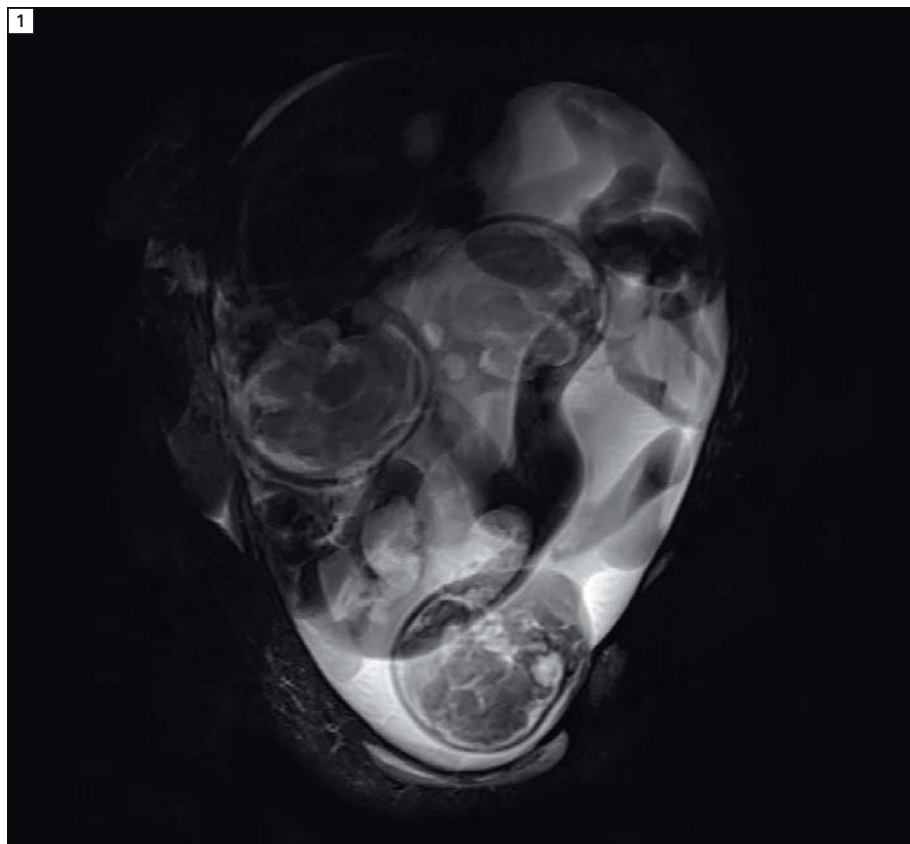
At our institution, we had the chance to image triplets after unclear ultrasound findings.

The referring physicians demanded an evaluation of the urinary tracts of the triplets of a 25-year-old mother by fetal MRI. MRI was conducted using a 1.5 Tesla Tim system MAGNETOM Avanto, using the Body Matrix and the integrated Spine Matrix coil. For fast and reliable assessment of the urinary tracts of the triplets we used a thick-slice heavily T2-weighted HASTE sequence.

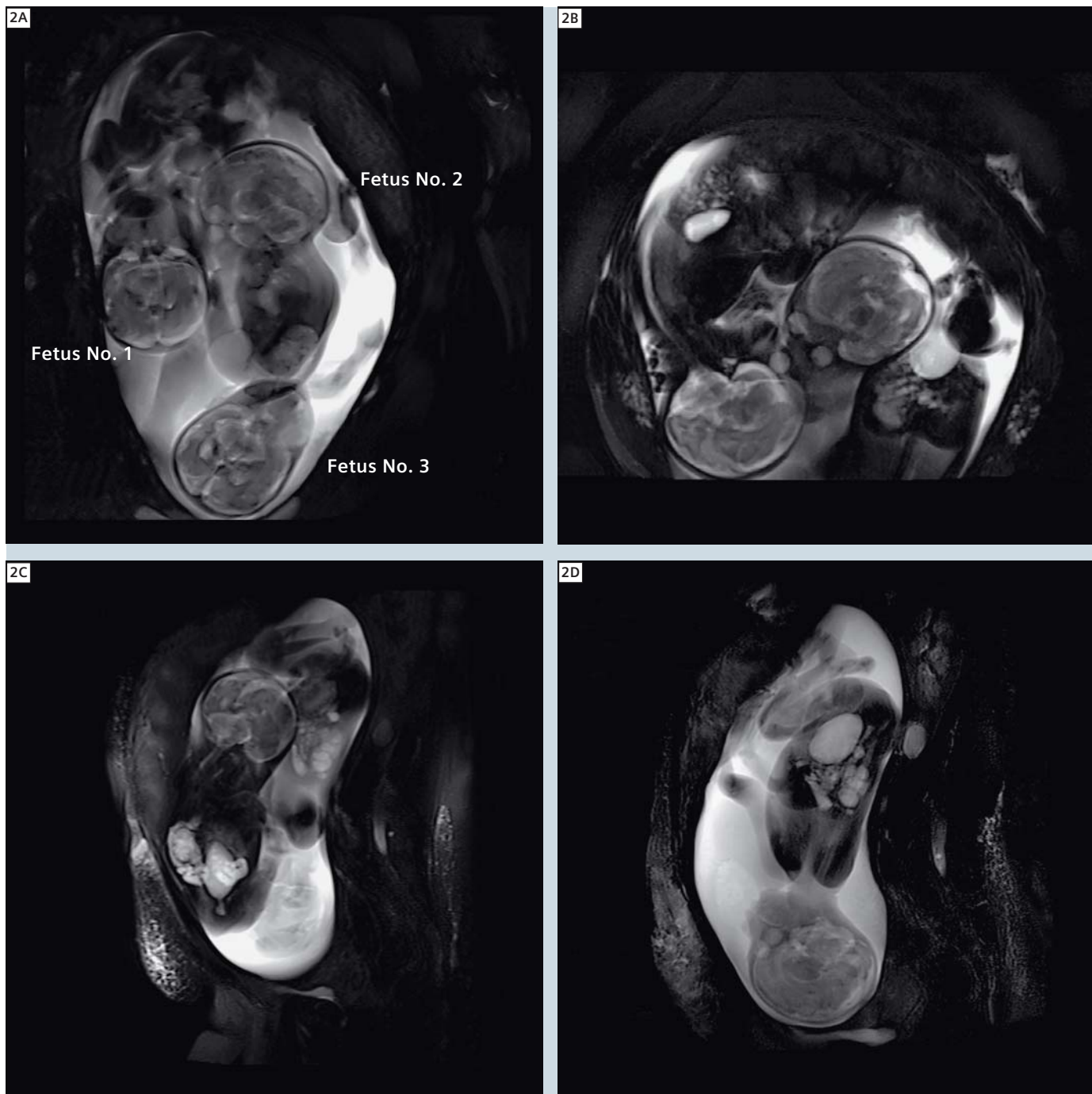
MRI demonstrated a typical triple pregnancy with one female fetus in cephalic presentation and normal developed genitor-urinary (GU) tract system. The other two fetuses were male and showed changes to the GU system. One male fetus was also imaged in a cephalic position at the left side of the amniotic cavity and MRI revealed a unilateral stenosis at the junction of ureter and bladder (UVJ) with dilatation of the upper urinary tract including the renal calyx. The other male fetus was shown to be in breech position and a dilatation of both sides of the whole upper urinary tract including the renal calix as well as distension of the bladder as typically seen in PUV was shown.

After termination of pregnancy by cesarean section, the third male fetus expired shortly after birth and surgery on the other fetuses confirmed our MRI diagnosis.

The two other fetuses had safe termination. The fetus with unilateral UVJ stenosis is under medical observation and a single injection of botax at UVJ for release of stenosis.



1 Fetal MRI of triplets.



2 Thick-slice HASTE to evaluate the urinary tract of the triplets.

*MR scanning has not been established as safe for imaging fetuses and infants under two years of age. The responsible physician must evaluate the benefit of the MRI examination in comparison to other imaging procedures.

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