

Advancement in in utero therapy in Southeast Mexico: fetal vesicocentesis for treating fetal lower urinary tract obstruction

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Introduction

Fetal lower tract urinary obstruction is a critical condition characterized by obstruction of the urinary tract at or below the bladder level, leading to significant complications in fetal development. Prenatal diagnosis primarily relies on ultrasound, early detection is crucial, as it impacts management strategies and neonatal outcomes.

Clinical case presentation and procedure

We present a patient studied in November 2020, a 30-year-old woman, G3A2. Her first pregnancy involved a fetus diagnosed with megabladder, which led to termination at week 16 without any further study. Second pregnancy, a missed abortion.

In the studied pregnancy, a first trimester structural scan at 13.5 weeks showed a megabladder with 18 mm diameter with no other apparent malformations (Figure 1A, 1B). At 15 weeks (Figure 1C), we performed fetal amniocentesis and vesicocentesis guided by ultrasound without complications. The procedure reduced the bladder size to 6 mm and urinalysis showed normal protein and fetal B macroglobulin.



Figure 1. A. Initial evaluation showing megabladder (18mm) and oligohydramnios. B. Kidney evaluation at 13 weeks. C. Megabladder with 48.5 mm at the moment to perform amniocentesis and vesiconcentesis.

Genetic testing

The fetal karyotype was 46,XY (Fig. 2), after this result, an exome was performed with DNA extracted from amniocytes.

Exome testing with CNV analysis to discover variants in genes causing urinary tract malformation also was negative. No variants in *MYOCD* that is the know association of monogenic megabladder (OMIM 618719).

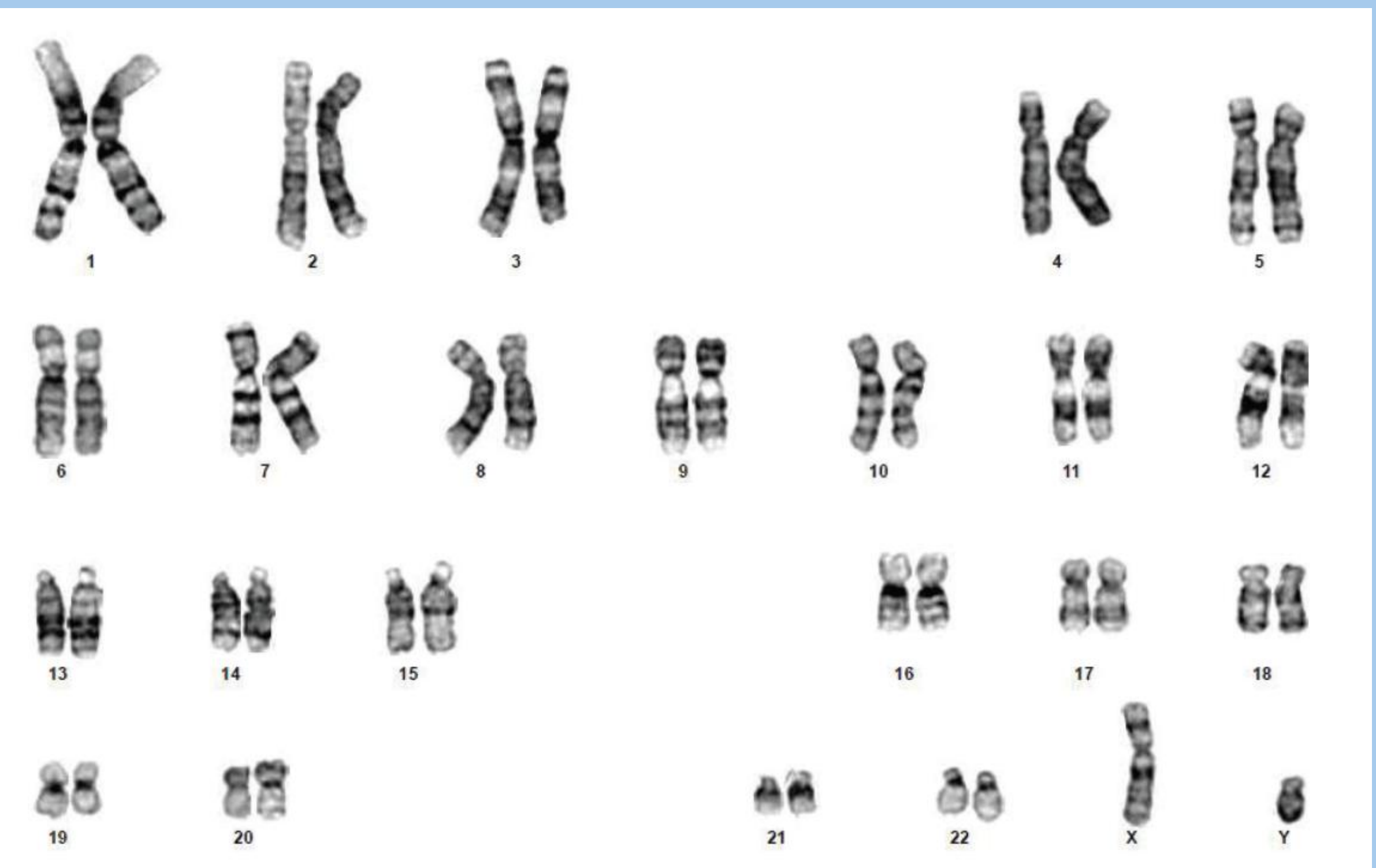


Figure 2. Karyotype performed by amniocentesis

Outcomes and postnatal follow up

The patient was referred to a larger center for pyeloamniotic stent placement. Baby was successfully delivered locally with follow up by pediatric urology with no additional malformations. Detailed evaluation by clinical geneticist found normal abdominal wall ruling out the diagnosis of Prune-Belly syndrome (OMIM 100100) and no cryptorchidism. Last evaluation found a normal neuro-development and proper growth at 18 months.

Conclusions

This report documents the first *in utero* fetal intervention performed at the Yucatan's Peninsula, marking the foundational step towards forming multidisciplinary teams capable of providing fetal surgery.