Introduction

• The Miller-Mckusick-Malvaux (3-M) syndrome is a rare primordial growth disorder characterised by low birth weight, reduced birth length, severe postnatal growth restriction, and a spectrum of minor anomalies, including facial dysmorphism.
• Although individuals with 3-M syndrome have short stature, and skeletal abnormalities, their intelligence is not affected.
• 3-M syndrome is inherited in autosomal recessive manner, and to date, there are only about 100 cases of affected individuals that have been identified worldwide.
• Majority of 3-M cases are diagnosed postnatally.
• We present a case of 3-M syndrome which was diagnosed during the antenatal period. The fetus has short long bones and small for gestation age. This is the first 3-M case diagnosed prenatally which led to a live birth.

Case Presentation

• A healthy 26 year-old P1 was referred at 20 weeks gestation due to early IUGR, and short long bones. At the first trimester scan, the fetus was found to have increased nuchal translucency at 4.3 mm. Amniocentesis was performed at 16 weeks gestation, the QF PCR and microarray analysis were found to reveal no abnormalities. The parents of the fetus were consanguineous. The couple’s first child was born at 41 weeks gestations, weighing 2.5 kg, with total length of 45 cm (both weight and height were on the 0.4th centile).
• The scan showed that although all the long bones appeared to have normal mineralisation, they were all measuring below the 3rd centile (Figure 1, 2, 4). In addition, the chest seemed to be relatively small, raising the suspicion of a skeletal dysplasia (Figure 3). The uterine artery dopplers were normal, and TORCH screen was negative. Non-invasive prenatal testing for achondroplasia showed low risk for fibroblast growth factor receptor 3 (FGFR3) mutation.
• The couple opted for conservative management. When they were reviewed by the genetic team, the couple’s first child was also assessed and 3-M syndrome was suspected. The child’s blood confirmed homozygous status for OBSL1 mutation. Fetal DNA from the amniocentesis was also tested for the same mutation, which confirmed homozygous OBSL1 mutation. Genetic counselling followed the diagnosis of 3-M syndrome in both the previous child and current pregnancy. The couple were counselled regarding 25% risk of recurrence in future pregnancies.
• of 2.04 kg (below the 3rd centile of growth scans were then performed at two weekly interval until 36 weeks gestations (Figure 5). Induction of labour at 40 weeks was conducted. The baby was delivered normally, with a birth weight rd centile).

Conclusion

3-M syndrome is a rare genetic disorder that should be considered in the differential diagnosis when assessing fetuses which present with small for gestational age and short long bones.

References