CASE REPORT

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Oligohydramnios associated with a long umbilical cord

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ABSTRACT

Introduction: Oligohydramnios is defined by ultrasound as 'AFI of 5 cm or less' and it can be associated with adverse perinatal outcome. **Case Report:** We present a case of primiparous women that was found to have oligohydramnios with amniotic fluid index fluctuations. Although the differential diagnosis includes several serious conditions, a unique cause was found – a long cord at the delivery, over 120 cm. This Finding can explain the oligohydramnios by ultrasound. Since the long cord was occupying the majority of pockets used for measurements, it was impossible to measure amniotic fluid pockets without cord. **Conclusion:** Thus, the oligohydramnios was not a true one but rather a technical problem which was confirmed by the normal amount of amniotic fluid volume found at delivery.

Keywords: Oligohydramnios, Long umbilical cord, Amniotic fluid index

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INTRODUCTION

Oligohydramnios is defined by ultrasound as 'amniotic fluid index (AFI) of 5 cm or less' and can be associated with adverse perinatal outcome. After evaluation and exclusion of the significant etiologies, the outcome may be favorable. The following case presents an unusual etiology for oligohydramnios with favorable outcome.

CASE REPORT

A 33-year-old healthy primiparous at 22 weeks gestational age was admitted to the emergency room due to a back trauma. There was no direct trauma to the abdomen. Her medical history was normal. She had full prenatal care that included: nuchal translucency, early anatomy scan, triple test, and late anatomy scan; all were within normal range. The patient was hospitalized for observation. Physical examination was preformed with normal findings. Her initial ultrasonographic (US) examination biometry was in the normal range with oligohydramnios (AFI of 3.7 cm). However, in repeated ultrasound examination, AFI increased to 8 cm. The patient was discharged for ambulatory follow up.

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At 26+6 weeks, intra uterine growth restriction (IUGR) was suspected and several examinations were undertaken including TORCH evaluation as well as connective tissue diseases; they were all negative. Doppler studies of the uterine artery and the umbilical artery were normal (AFI of 4 cm). The patient declined amniocentesis. In addition, Gestational Diabetes Mellitus (GDM) was diagnosed and consecutive daily profiles were normal.

Serial US exams were performed by the same operator (A.B, author) later; estimated fetal weight was in the normal range and IUGR was excluded. The AFI measurements were between 3 and 9 cm (Figure 1). It was noticed that cord was occupying the majority of pockets used for AFI measurements. (Figure 2)

At 35+5 gestational age due to AFI-3 cm, a decision was made to induce labor and a Foley catheter was inserted. The patient went into labor; a rupture of membranes was performed with normal amount of amniotic fluid. The patient delivered a baby girl, 2330 g, with Apgar scores of 9 and 10 at 1 and 5 minutes respectively. A long cord of over 120 cm was measured.

DISCUSSION

Oligohydramnios is defined by US as 'an amniotic fluid index of 5 cm or less'. The amniotic fluid index is calculated by adding vertical depths of the largest pocket in each of four quadrants [1]. The incidence of oligohydramnios in the literature varies from 0.5% to more than 5% [2], depending on the study population and definition of oligohydramnios. Etiologies of oligohydramnios are divided into five groups of causes: fetal, placental, maternal, pharmacologic, and idiopathic [3].

It is well established that oligohydramnios is associated with high risk adverse prenatal outcomes. On the other hand, oligohydramnios is a poor predictor for adverse outcomes [3].

Zhang et. al. [4] showed that oligohydramnios with unfavorable maternal and/or fetal conditions led to a much worse perinatal outcome than a normal amniotic fluid volume with the same condition. However, they also showed that about half of the oligohydramnios cases did not have any coexisting medical or obstetric condition. Fetuses in these cases tended to be appropriately sized and their growth did not seem to be impaired. Their perinatal outcome was similar to pregnancies with normal AFI [4].

On the other hand, it should be emphasize that long cord is associated with several adverse obstetric outcomes such as entanglement, knotting and prolapsed [5]. Entangling and knotting of the cord, especially of excessively long cords may lead to hematoma and thrombosis of cord vessels and fetal death [6]. Tantbirojn et. al. reported that gross cord abnormalities including long cords were associated with stillbirth, intrauterine growth restriction, non-

Figure 1 - Amniotic fluid index (AFI) fluctuations according to gestational age.

Figure 2 - Umbilical cord presentation by ultrasound.

reassuring fetal tracing, meconium-stained amniotic fluid, and increased rate of emergency cesarean section [7]. These emergency conditions should be managed appropriately to prevent severe outcomes. Fortunately, this patient did not suffer of any of these complications.

We chose to share this case of isolated oligohydramnios with variation of AFI between scans with a normal oligohydramnios workup, since the reason for oligohydramnios was "technical"– a long cord that was present in every single pocket which was validated by the normal amount of amniotic fluid at delivery. This should be a part of the differential diagnosis of oligohydramnios when a characteristic sonographic picture arises. This abnormal cord length can also explain the fluctuations in the AFI exams.

CONCLUSION

AFI fluctuations in the range of oligohydramnios can

be due to long cord occupying the majority of pockets used for amniotic fluid measurement by ultrasound. This should be confirmed by normal amniotic fluid in the delivery. However, full evaluation for oligohydramnios is still mandatory.

Author Contributions

Asher Bashiri -Analysis and interpretation of data, Drafting the article, Critical revision of the article, Final approval of the version to be published

Mashiach Friedler Jordana - Conception and design, Acquisition of data, Analysis and interpretation of data, Critical revision of the article, Final approval of the version to be published

Mazor Moshe - Analysis and interpretation of data, Critical revision of the article, Final approval of the version to be published

Guarantor

The corresponding author is the guarantor of submission.

Conflict of Interest

Authors declare no conflict of interest.

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