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Characteristics of fetuses with polyhydramnios and abnormal chromosome study.
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It is readily acknowledged that chromosomal abnormalities are associated with polyhydramnios. The purpose of this retrospective study was to identify risk factors for an abnormal chromosome study among cases with polyhydramnios.
MATERIAL AND METHODS: Data was collected at Magee-Womens Hospital (N=169) and Henry Ford Hospital (N=48). A routine obstetrical ultrasound examination was performed on singleton fetuses between 18 and 42 weeks gestation. Standard fetal biometric data and amniotic fluid index were obtained. A detailed fetal anatomic survey was carried out in each case. Polyhydramnios was defined as an AFI of >25.0 cm and was categorized into three groups by severity: mild (AFI: 25.0-30.0 cm); moderate (AFI: 30.1-35.0 cm); and severe (AFI> 35.1 cm). Cases with polyhydramnios secondary to isoimmunization and diabetes were excluded from the study. All patients were offered the option of amniocentesis. Patients were also offered amniocentesis due to age of ≥35 years or if a multiple marker screen indicated a risk of > 1:270 for Down syndrome or a risk for trisomy 18. A weight percentile was calculated for each neonate.
RESULTS: 217 singleton pregnancies had AFI >25.0 cm. 69 patients (32%) underwent amniocentesis. 4 additional newborns underwent chromosome study due to abnormal features undetected by ultrasound. 9 cases in the study group (4.14%) had an abnormal chromosome study. Each of these 9 fetuses had at least one sonographically detectable congenital malformation. The severity of polyhydramnios in these 9 cases was variable. Three neonates in the control group underwent chromosome study because of abnormal phenotypic characteristics. All three were chromosomally normal. After controlling for maternal age, the incidence of karyotypic abnormalities was higher with polyhydramnios than with a normal amount of amniotic fluid. The distribution of neonatal weights for the cases with polyhydramnios was as follows: 14 (6.4%) were small-for-gestational age (SGA); 159 (73.4%) were average-for-gestational age (AGA); and 44 (20.2%) were large-for-gestational age (LGA). 6 of 14 SGA fetuses vs. 2 of 159 AGA fetuses were karyotypically abnormal. Although 5 of 44 (11.4%) LGA fetuses had a sonographically detectable congenital malformation, none were karyotypically abnormal. The incidence of an abnormal karyotype among SGA newborns with polyhydramnios was significantly higher than among AGA and LGA newborns ($p < 0.001$).
CONCLUSION: Among cases with AFI>25.0-cm, small for gestational age, and fetuses with ultrasonically detected anomalies are at risk for abnormal chromosome study. In the absence of these findings one should not consider amniocentesis.

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Long-term follow-up of amniocentesis. RR Lebel (1,2), MM Manno (2)
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Prenatal diagnosis literature expresses risk for complication of genetic amniocentesis as 1/200, 1/300, etc. The dysmorphology literature expresses incidence of major human malformations as 2-5%; Myrianthopoulos found this to be more on the order of 6.8% after following 65,000 children for 7. We have undertaken a chart review of all amniocenteses performed since opening a private medical genetics practice in suburban Chicago, IL. We have done over 3000. Reviewing the first 300, performed between 3/89 and 4/91, excluding pregnancies known to have had adverse outcomes, we sent letters to patients, followed by phone calls. Loss to follow-up was considerable given the lengthy time interval. We present here the results in 1) short-term complications of the procedure, 2) late pregnancy problems, 3) delivery problems, 4) neonatal difficulties, 5) malformations appreciated at delivery or 6) discovered later, 7) birth weight/length, 8) childhood illnesses, 9) follow-up weight/height, 10) school performance. We compare early (<15 weeks) to traditional (15+ weeks) procedures across all criteria. We discuss roles of operator experience and bias, and other issues pertinent to appropriate pre-amnio counseling practices.

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Prenatal diagnosis of MIDAS/MLS syndrome associated with a deletion at Xp22.1. M.L. Marvin[1], D.A. Duquette[1], W.A. Hogge[2], Y. Hunter[3], and H.V. Toriello.[1] [1]Spectrum Health Genetic Services, Grand Rapids, MI, [2]Magee-Womens Hospital Department of Genetics, Pittsburgh, PA, and [3]University of Virginia Health System Department of Pathology, Charlottesville, VA.

Deletions of Xp22 have been associated with a phenotype involving micropthalmia, linear skin defects of the upper half of the body, and corneal opacities. This phenotype has been described under a variety of names including MIDAS syndrome (Microphthalmia, Dermal Aplasia, and Sclerocornea), MLS (Microphthalmia with Linear Skin defects) and Gazali-Temple syndrome. The condition has been reported exclusively in females, with the exception of at least two XX phenotypic males. The severity in females is variable. Mild cases may be characterized by short stature and minimal residual facial scarring. More severe cases can include the skin lesions and eye anomalies, as well as more severe anatomic defects such as agenesis or hypoplasia of the corpus callosum, congenital heart defects, genital anomalies, and rarely, diaphragmatic hernia. We describe the first prenatal diagnosis of this condition in the absence of a family history. An amniocentesis performed at 18 weeks gestational age due to sonographic detection of a diaphragmatic hernia revealed a karyotype of 46,X,del(X)(p22.1). Parental karyotypes were normal. Communication with the cytogenetics laboratory suggested that the phenotype of the fetus would most likely be similar to Turner syndrome, with an unrelated diaphragmatic hernia. Additional sonographic findings at 25 weeks included mild ventriculomegaly, polyhydramnios, and poor visualization of the cavum septum pellucidum, suggesting agenesis of the corpus callosum. Based on the cytogenetic and sonographic findings, a diagnosis of MIDAS/MLS syndrome was suspected. Autopsy performed following elective termination revealed a left diaphragmatic hernia, bilateral linear skin defects of the face and neck, and probable agenesis of the corpus callosum. Pathological evaluation of the eyes was not performed, although on gross evaluation the eyes were noted to be small. These post mortem findings are consistent with MIDAS/MLS syndrome. Prenatal detection of Xp22 deletions should prompt a detailed evaluation for features of MIDAS/MLS syndrome.

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Prenatal and post-mortem features of a case of Ritscher-Schinzel syndrome.
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Numerous cases of Ritscher-Schinzel Syndrome have been reported in the Canadian Aboriginal population. Ocular colobomas, hypertelorism, hand anomalies, congenital heart defects, cleft palate and structural CNS abnormalities, including posterior fossa malformations, characterize this syndrome. We report a case where this diagnosis was made after pregnancy termination.

A 36 year old Canadian Aboriginal $G_6P_4SA_1$ woman was seen at 12 weeks gestation after an obstetrical ultrasound showed a cystic hygroma, lymphedema, and hydrocephalus. The family medical history was reviewed and was unremarkable. There was no evidence of consanguinity and there were no exposures to teratogens. An amniocentesis was performed at this time but failed to grow. A repeat amniocentesis was performed at 16.5 weeks gestational age. This showed a normal male karyotype, 46,XY. An ultrasound assessment at this time did not show evidence of a cystic hygroma, but significant hydrocephalus was seen. An ultrasound study two weeks later showed that the cardiac apex was shifted to the right, suggesting a left diaphragmatic hernia. At this point, a decision to terminate the pregnancy was made and a dilatation and evacuation (D&E) was performed. Examination of the products of conception revealed the following: the hands showed a single palmar crease with 5 separate fingers; the palate showed both anterior and posterior clefting and a cleft lip was suggested; and there was a coloboma of the left globe that extended from the iris to the optic nerve. Unfortunately, the cardiac and intracranial anatomy was disrupted during the D&E.

The pathology report added important information in this case. Additional findings were seen that were not observed on ultrasound. These observations in conjunction made the diagnosis of Ritscher-Schinzel Syndrome likely. A POSSUM search for coloboma, cleft of the hard and soft palate, Simian creases, hydrocephalus, diaphragmatic hernia, and a normal karyotype did not suggest an alternative diagnosis. This case illustrates the importance of post-mortem evaluation in syndrome diagnosis even after a D&E. In addition, the differential diagnosis of cystic hygroma/increased nuchal thickness should be expanded to include Ritscher-Schinzel Syndrome.