

## **The second case of Horn Kolb Syndrome in the same woman in Turkey, diagnosed prenatally at 16 weeks of pregnancy**

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### **ABSTRACT**

#### *Background*

Acheiropodia is a rare form of skeletal dysplasias. It is characterized by the amputation of the upper and lower extremities and with aplasia of the hands and feet. Acheiropodia formerly was known as a disease affecting only people of Brazilian ancestry. The first case out of Brazil was reported from our clinic in 2012. In the present report, we summarize the second case of acheiropodia, which was diagnosed prenatally in the same patient.

#### *Case*

A 39 years old G7P2A4 pregnant woman admitted to our clinic for a regular obstetrics visit at 16th weeks gestation in May 2013. Her history was significant for early pregnancy oligohydramnios with fetal loss. In the post-abortion examination, the fetus was found to be affected with acheiropodia. Since she had a history of acheiropodia a detailed ultrasound examination was performed. The fetal head and body including the intra-cranial, thoracic and abdominal structures were normal; however,

*distal long bones of the upper and the lower extremities could not be demonstrated. Three days later she was admitted with vaginal bleeding. Post abortion macroscopic examination revealed the absence of distal parts of the both upper and lower extremities without any other demonstrable anomalies.*

#### *Conclusion*

*Acheiropodia is a rare disease which may be seen outside of South America. Evaluation of the continuity and normal appearance of the extremities should be integrated to the routine antenatal ultrasound examination.*

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### **Introduction**

Acheiropodia (Horn Kolb Syndrome) is characterized with the amputation of the upper and lower extremities and with the

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aplasia of the hands and feet. It affects only the extremities without other systemic manifestations.<sup>1</sup> Prior to 2010, acheiropodia had only been reported in Brazilians with Portuguese ancestry. In 2010 the first case of acheiropodia outside the Brazil was diagnosed in our clinic and published in 2012.<sup>2</sup> The affected gene locus on the chromosome 7q36 could not be demonstrated in that case.<sup>3</sup> In this case report we present the second case of Horn Kolb Syndrome from Turkey.

### **Case Report**

A multiparous G7P2A4 woman who had previously aborted a fetus, which was the first case of Horn Kolb Syndrome in Turkey, was admitted to our clinic for her scheduled prenatal visit at 16 weeks gestation in May 2013. Her 5th

gestation, complicated with acheiropodia, had been terminated due to the severe oligohydramnios followed by fetal demise in 2010. Her sixth pregnancy resulted in the birth of a healthy girl in 2012.

The present pregnancy had been confirmed at 7th gestational week and she had had antenatal visits and ultrasound exams at the 7th and 12th weeks, both without remarkable findings. Ultrasound at the first prenatal visit and first trimester screening were also normal. She was taking folic acid supplementation (400 microgram/day). Physical examination of the woman was unremarkable and there was no history of any known teratogenic exposure in the pre or post-conception period.



**Figure 1: 2D and 3D ultrasound images revealed the only tiny ossification foci at the places where the radiuses, ulnas, tibias, feet and hands must exist**

Since the woman had aborted a fetus complicated with acheiropodia previously, a detailed ultrasound examination was performed and a fetus

compatible with 16 weeks was seen in the ultrasound. A detailed examination of fetal head and body including the intra cranial, thoracic and abdominal

structures was unremarkable. The long bones of the proximal parts of the extremities, femur and humerus, were demonstrated with their appropriate lengths and shapes. However, the distal long bones of the upper and lower extremities could not be demonstrated. There were only tiny ossification foci at the places where the radii, ulnas, tibiae, feet and hands must exist (Figure 1).

Although we did not have the facilities to demonstrate the locus on chromosome 7q36, we planned an amniocentesis procedure for fetal karyotyping and a magnetic resonance imaging examination at 17th gestational week. However, three days after this visit the woman admitted once again with vaginal bleeding and abdominal pain. She was hospitalized and aborted the fetus approximately three and a half hours later.



**Figure 2: Post abortion macroscopic examination revealed the absence of distal parts of the both upper and lower extremities without any other demonstrable anomalies**

Post abortion macroscopic examination confirmed the diagnosis of acheiropodia. Distal parts of the upper and lower extremities were not present (Figure 2). Post abortion X-ray examination confirmed the distal extremity dysplasia (Figure 3). There was no other demonstrable abnormality.

### **Discussion**

Acheiropodia is a rare form of skeletal dysplasia that previously has been seen in Latin America, particularly in Brazil, with all cases reported from related families living in rural areas.<sup>4-6</sup> In 2012,

the first case of acheiropodia was reported in Turkey.<sup>2</sup> This case was the 5th pregnancy of a multiparous woman, which was complicated with anhydramnios and intrauterine fetal demise. The present case was the 7th pregnancy of the same woman. She had delivered a healthy girl baby in her sixth gestation.

Acheiropodia (Horn Kolb Syndrome) is a rare form of skeletal dysplasias, which is characterized with bilateral congenital amputation of all extremities.<sup>7</sup> Skeletal dysplasias are a large, heterogeneous group of disorders affecting the

formation and growth of bones. The overall birth prevalence of skeletal dysplasias is estimated to be 2.4 per

10,000 births.<sup>8</sup> The estimated incidence of acheiropodia in Brazil is approximately 1/250,000 in all births.



**Figure 3: Post abortion X- ray examination confirmed the distal extremity dysplasia**

The low incidence of the disease makes its antenatal diagnosis difficult. Although the American College of Obstetrics and Gynecology (ACOG) recommends evaluation of all extremities as a part of standard examination,<sup>9</sup> the fetal femur is usually only measured and the long bone evaluated during the second trimester ultrasound. Parilla et al. reported that accurate prenatal diagnosis of skeletal dysplasia are difficult. In their series of 31 cases only 20 patients were correctly diagnosed in the antenatal period.<sup>10</sup> In another series of 38 patients, Witters et. al. reported that accurate antenatal diagnosis of the type of the skeletal dysplasia was 65.8%.<sup>11</sup> Both of the studies concluded that ultrasound is a very reliable way to determine the lethality of the diseases.<sup>10, 11</sup>

Ilanakiev et. al. summarized pedigrees of five known families. It was noticed that in none of the families, were there intrauterine fetal demise or spontaneous abortions.<sup>12</sup> However in our patient there

were 3 spontaneous first trimester losses, two term healthy deliveries (one is still alive, other one was lost due to pneumonia at 8th month of life) and two affected pregnancies ending with spontaneous intrauterine fetal death. We don't know whether the previous early losses were also affected or not.

Acheiropodia is an autosomal recessive disease. The heterozygote carriers are phenotypically normal.<sup>12</sup> A locus for acheiropodia was mapped on chromosome 7q36.<sup>3</sup> For the present case we could not demonstrate the mutation during the antenatal period and then postnatal chromosome analysis was not accepted by the family because of the economic difficulties. To our knowledge this is the first case of Horn Kolb Syndrome diagnosed antenatally.

At this point the ethical dilemma is that, acheiropodia is not lethal and not associated with any other systemic malformation as far as known. Voluntary termination of pregnancy is allowed until

10th gestational week in Turkey. Sharony et al. concluded that skeletal dysplasia could be diagnosed as early as the 14th week of gestation by ultrasound.<sup>13</sup> Thus, early accurate differential diagnosis of acheiropodia from other skeletal dysplasias is a compelling situation. Since managing a disease, which is severely disabling but not lethal, is very difficult both for the physicians and the families.

### **Conclusion**

Acheiropodia is a rare disease that may be seen outside the South America. Though it is not always helpful for the final accurate diagnosis of acheiropodia, evaluation of the continuity and normal appearance of the extremities should be integrated to the routine antenatal ultrasound examination.

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