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New Syndrome?

Three Sibs Diagnosed Prenatally With Situs Inversus Totalis, Renal and Pancreatic Dysplasia, and Cysts

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Recently we described a previously apparently undescribed autosomal recessive syndrome in two sib fetuses with situs inversus totalis, cystic dysplastic kidneys and pancreas, bowing of the lower limbs and clavicles, severe intrauterine growth retardation, and oligohydramnios. This syndrome differs from that of Ivemark and related syndromes due to lack of liver involvement. After these two sibs, this consanguineous family had a third child and an early prenatal diagnosis of pancreatic and dysplastic renal cysts was made in the 19.5-week-old fetus. The last case supports the genetic hypothesis. Am. J. Med. Genet. 90: 185–187, 2000. © 2000 Wiley-Liss, Inc.

KEY WORDS: Cystic dysplastic kidney and pancreas; pancreatic cyst; limb bowing; prenatal diagnosis

INTRODUCTION

Ivemark syndrome [Ivemark et al., 1959] is characterized by various degrees of kidney, liver, and pancreatic involvement. Recently we described a new autosomal recessive syndrome in two sib fetuses with situs inversus totalis, cystic dysplastic kidneys and pancreas, bowing of lower limbs and clavicles, severe intrauterine growth retardation, and oligohydramnios [Balcı et al., 1999]. We diagnosed a third sib of the same family by prenatal ultrasonography and documented similar autopsy findings as in the previous sibs.

CLINICAL REPORT

We describe a new case of same family in whom bowing of lower limbs, and cystic dysplastic kidneys and pancreas were diagnosed prenatally. The first fetal ul-

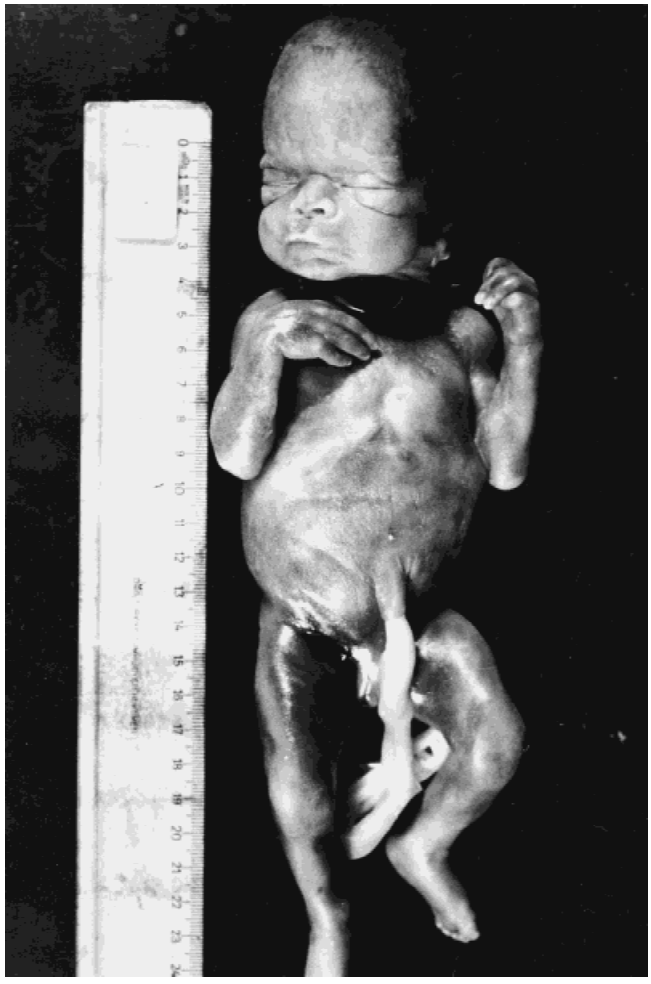

Fig. 1. Appearance of the 20-week-old female fetus. Note Potter face and bowing of lower limbs.

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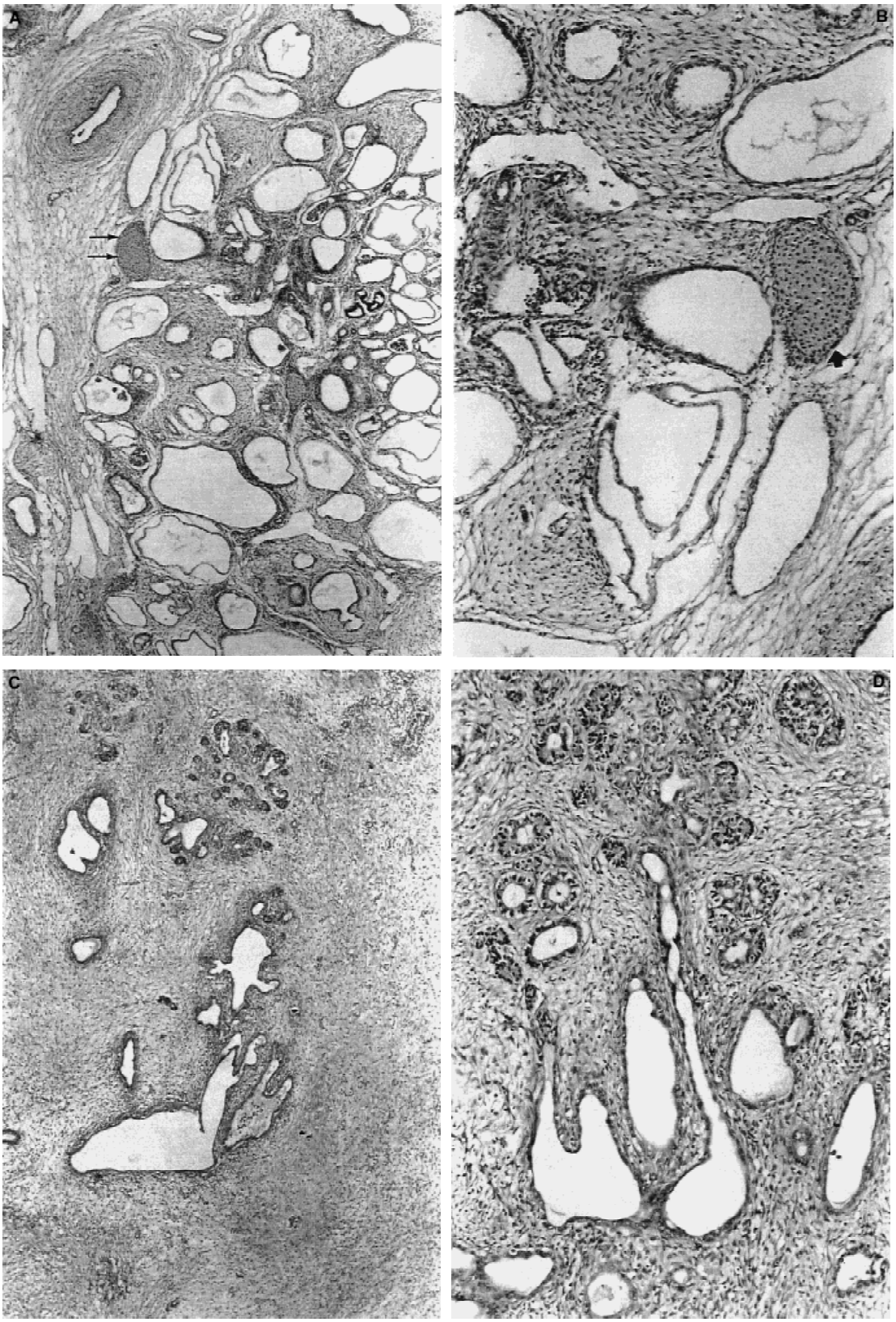

Fig. 2. **A:** Multiple cystic dysplastic kidney characterized by immature mesenchyme, cystically dilated tubules and cartilage tissue (double arrow) (HE, ×28). **B:** Close up view of dilated tubules, immature mesenchyme and cartilage (arrow) (HE, ×230). **C:** Pancreatic dysplasia characterized by immature mesenchyme, cystically dilated ducts, and islet cell agenesis/dysgenesis (HE, ×28). **D:** Close up view of dilated ducts and immature mesenchyme (HE, ×230).

TABLE I. Clinical and Autopsy Findings in Three Fetuses

	Case 1	Case 2	Case 3
Sex	Male	Female	Female
Gestational age (weeks)	38	18	20
Oligohydramnios	+	+	++
Bowing of lower limbs	+	+	+
Chromosomes	46,XY	46,XX	46,XX
Prenatal sonographic findings			
IUGR	+	+	+
Cystic dysplastic kidneys	+	+	+
Pancreatic cysts	Unknown	+	+
Lemon sign	Unknown	+	+
Situs inversus totalis	+	+	?
Ventriculomegaly	+	+	+
Weight (g)	1.550	200	550
Length (cm)	41	20	27
Potter face	+	+	+
Apparently low set ears	+	+	+
Pes equinovarus	+	+	+
Flexion contractures of hands	+	+	+
Situs inversus totalis	+	+	The heart is on the midline
Bowing of lower limbs	+	+	+
Dysplastic kidneys with hypoplastic bladder	+	+	+
Pancreatic dysplasia with ductal dilatation, immature mesenchyme and cysts, and islet cell agenesis/dysgenesis	+	+	+
Ventriculomegaly of brain	+	+	+
Pulmonary hypoplasia			+
Hypoplastic thymus	+	+	–
Local dilatation in both small intestine and colon	+	+	Malrotation
Placenta	Calcification	Ischemia	Ischemia and infarctus

trasonography was performed at 12.5 weeks of gestational age and was found to be in normal limits (BPD 23 mm, FL 12 mm, HC 85 mm, AC 83 mm, and adequate amniotic fluid). However, due to the prior history we suggested a second sonographic investigation. This was performed at 19.5 weeks and showed a cranial lemon sign and dilated lateral ventricles. Nuchal thickness was 10 mm. Visualization of limbs was difficult due to oligohydramios; however, bowing of femora could be demonstrated. Both kidneys were larger than normal and showed increased echogenicity. In addition to these findings there was a well-demarcated cystic lesion in the midline that was thought to be a dysplastic pancreas. Diameter of thorax was reduced and possible dextrocardia was noted. We concluded that this fetus was also affected and the pregnancy was terminated at 20 weeks. The fetus had a Potter face and bowing of lower limbs especially on the left leg (Fig. 1). Macroscopically liver was normal and showed neither cysts nor dysplasia. The heart was in the midline and a narrowed pulmonary valve along with the pulmonary hypoplasia was observed. Multiple cysts in pancreas and dysplastic kidneys were noted. Histopathologically renal and pancreatic cystic dysplasia were identical to findings in the first two sibs (Fig. 2). The clinical, physical, and autopsy findings in this fetus are summarized and compared with those of the previous two sibs in Table I. This condition supports autosomal recessive inheritance.

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