Spondyloepiphyseal dysplasia tarda with progressive arthropathy

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SUMMARY We present a family with numerous first cousin marriages and several members affected with spondyloepiphyseal dysplasia tarda with progressive arthropathy causing severe crippling and deformity. The extensive pedigree provides strong evidence for autosomal recessive inheritance.

Recently a 'new' type of spondyloepiphyseal dysplasia (with progressive arthropathy) has been delineated clinically^{1,2} which appears to be inherited as an autosomal recessive disorder. Earlier, less complete, descriptions by Maroteaux³ and Spranger *et al*⁴ may refer to the same disorder, although the latter does not mention the irregular platyspondyly of this condition. In this paper we report an Arab family with several affected persons and numerous first cousin marriages. The pedigree provides strong evidence for autosomal recessive inheritance.

Case reports

The proband was an intelligent 13 year old girl, born at term after a normal pregnancy and delivery. Her birth weight, neonatal history, and developmental milestones were normal.

Symptoms started at the age of 3 years with swelling of the fingers, stiffness in the knees, and

Received for publication 5 December 1983.
Accepted for publication 28 December 1983.

FIG 1 Proband showing swelling and deformity of fingers and operation scars for genu valgum.

FIG 2 Radiograph of proband showing platyspondyly.

FIG 3 Radiograph of hip joints of proband with irregularity of epiphyses, narrowing of joint space, and short femoral necks.

FIG 4 Radiograph of proband showing enlarged epiphyses and metaphyses in hands.

genu valgum followed by progressive arthropathy with limitation of movement, swelling, and deformities in the hands, wrists, and elbows. She was operated on for genu valgum when 3 years old. At the age of 14 years her height was 132 cm and there was disproportionate short stature with upper and lower segments measuring 62 and 70 cm respectively. There was also a relative shortening of the right lower limb, genu valgum, and rheumatoid like swelling of the fingers (fig 1).

Radiological examination showed platyspondyly (fig 2), irregular, enlarged femoral epiphyses with narrowing of the hip joint spaces, premature osteoarthritis, and short femoral necks (fig 3). The phalangeal epiphyses and metaphyses were enlarged and osteoarthritic changes were present in the interphalangeal joints (fig 4).

Haematological investigation, serum Ca and P, serum protein electrophoresis, immunoglobulin, antistreptolysin O titre, C reactive protein, and rheumatoid factor were all negative.

The proband had six normal sibs. There were seven other affected members in the family, all of whom had first cousin parents, and all of whom were traced back to a common ancestor (fig 5). In all there were probably seven affected persons out of 39 in the fifth generation. An affected first cousin of the proband (V-15) was available for detailed examination. She was a 27 year old university graduate, severely crippled with progressive arthropathy. Her x-rays showed platyspondyly (fig 6), irregular femoral heads (fig 7), and enlargement of the phalangeal and metaphyseal epiphyses (fig 8).

FIG 5 Pedigree.

FIG 6 Radiograph of proband's cousin (V.15) showing irregular platyspondyly.

Discussion

Spondyloepiphyseal dysplasia tarda shows considerable clinicogenetic heterogeneity with autosomal dominant, autosomal recessive, and X linked recessive modes of inheritance.⁵ An autosomal

TABLE Spondyloepiphyseal dysplasia tarda and the present case.

	<i>Spondyloepiphyseal dysplasia tarda</i> ⁶	<i>Spondyloepiphyseal dysplasia tarda and progressive arthropathy</i> ¹	<i>Present case</i>
Onset	Late (12–13 years or later)	Early (3–8 years)	3 years
Affected joints	Mostly proximal large joints, and less frequently distal parts of the limbs	Initially distal joints of hands with progressive involvement of the larger proximal joints	More distal
Irregular platyspondyly	+	+	+
Contractures	—	+	+
Crippling	Mild (+) or none	Severe (++)	++
Epiphyses and metaphyses	Not enlarged	Enlarged	Enlarged

FIG 7 Radiograph of hip joint deformities in proband's cousin.

FIG 8 Radiograph showing enlargement of epiphyses and metaphyses of hands in proband's cousin.

recessive type with progressive arthropathy appears to be a distinct clinical entity differing from other forms of spondyloepiphyseal dysplasia⁶ in its earlier age of onset, enlargement of epiphyses and metaphyses, and greater degree of crippling owing to the progressive nature of the joint involvement (table).

The family described in the present paper is another example of this condition with progressive arthropathy. The extensive pedigree with eight affected subjects and numerous first cousin marriages clearly illustrates the autosomal recessive type of inheritance of this condition.

Informative pedigrees illustrating autosomal recessive inheritance of genetic diseases are frequently found in Arabic countries. This is because of the large family sizes and high consanguinity rate, which in Kuwait is 40%.⁷

We are grateful to Dr R Wynne-Davies for her initial diagnosis of the proband and for help with this manuscript.

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