Letter to the Editor
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ABNORMAL HÆMOGLOBIN IN TESTICULAR FEMINISATION SYNDROME

SIR,—Although direct chromosomal study of the testicular feminisation syndrome has shown it to be regularly associated with a 46/XY chromosomal constitution, the pedigree studies have established that this condition is definitely hereditary, and is inherited exclusively in the maternal line. Its mode of inheritance is consistent with a single sex-linked recessive or a sex-limited autosomal dominant gene.[4 5] The location of the mutant gene, whether present on the X chromosome or on a given autosome, could probably be resolved by pedigree studies of these cases with the known genetical markers on the autosomes, such as blood-groups and hæmoglobin variants, or on the X chromosome, such as colour-blindness or hæmophilia. We have studied one of these markers on the autosomes and found for the first time an abnormal hæmoglobin in an unequivocal case of testicular feminisation syndrome.

The hæmoglobin of a 17-year-old girl was found (paper electrophoresis, 'Veronal' buffer pH 8·6) to resolve into two

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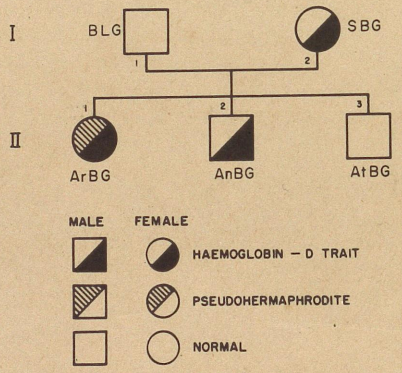

Fig. 1—Family pedigree and hæmoglobin genotype.

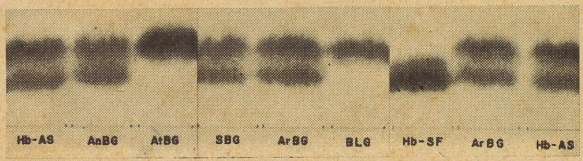

Fig. 2—Paper electrophoretic pattern of hæmoglobins of three members of family, with known samples of sickle-cell trait and sickle-cell anæmia as controls.

fractions—a slow-moving component and the normal adult type. The red cells were negative for sickling by repeated metabisulphite examinations. The slow-moving fraction was slower than hæmoglobin L, faster than hæmoglobin E, and similar to hæmoglobin S at pH 8·6. On agar electrophoresis using citrate buffer at acid pH, the hæmoglobin moved as a single band, while a known sample of hæmoglobin A+S separated into two fractions. The patient's hæmoglobin was thus identified as hæmoglobin A+D.

The patient's father and one sibling had normal adult hæmoglobin, while her mother and the other sib also had hæmoglobin A+D.

The family pedigree and hæmoglobin genotype are shown in fig. 1, and the paper electrophoretic pattern in fig. 2. No abnormalities directly attributable to the abnormal hæmoglobin have been reported in hæmoglobin-D traits. The hæmatological picture was normal in this patient.

So far, four cases of testicular feminisation syndrome associated with either colour-blindness or hæmophilia have been reported.[6 7] These families demonstrated that the sex-differentiating mutant gene is not closely linked to either of the two sex-linked genes—hæmophilia and colour-blindness—and is probably on an autosome.[8] Further evidence with some bearing on this question is available from the occurrence of hæmoglobin-D trait in both hermaphroditic and normal male siblings in the family described here. From our findings, it also seems that even if the sex-differentiating mutant gene is on the same autosome it is not closely linked with the gene for hæmoglobin variant.

P. K. Sukùmaran
P. N. Shah.

Indian Cancer Research Centre,
Parel, Bombay, India.

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