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MAY – HEGGLIN ANOMALY*
(A Presentation of a Family)

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The May-Hegglin anomaly is a rare autosomal dominant disorder characterized by the presence of single, large, bizarre, cigar-shaped platelets and Döhle bodies in the leukocytes. One third of the cases reported have associated thrombocytopenia. Most patients who have this disorder are asymptomatic or have a mild bleeding disorder[1-3].

May, who first described this disorder in 1909, noted the presence of blue inclusion bodies in the cytoplasm of white blood cells in association with large platelets that were in the peripheral blood smear of an asymptomatic girl. Similar observations were then reported by Hegglin in 1945. The hereditary nature of this anomaly was clearly defined in 1960, and less than 100 cases have been described to date[3-6].

Since this anomaly is rare, and because as far as we know, no cases have so far not been reported from Turkey, we thought this family worthy of presentation.

Case Report

The pedigree of the reported family is presented in Fig. 1. The subject, IK, age 9, was admitted to our clinic with a history of intermittent nose-bleeds and a two-year history of recurrent petechial rash on his extremities. He was the fifth child of parents who were not related. The subject had no remarkable prenatal, natal or postnatal histories. His brother, mother and uncle had similar complaints.

On admission the patient's general condition was good. He weighed 27 kg (70^{th} percentile) and his height was 132 cm (50^{th} percentile). Body temperature, heart and respiratory rate, and blood pressure were normal. He had a mild nose-bleed and a discrete petechial rash on his shoulders and extremities. The liver and spleen were not palpated. The other physical findings were all normal.

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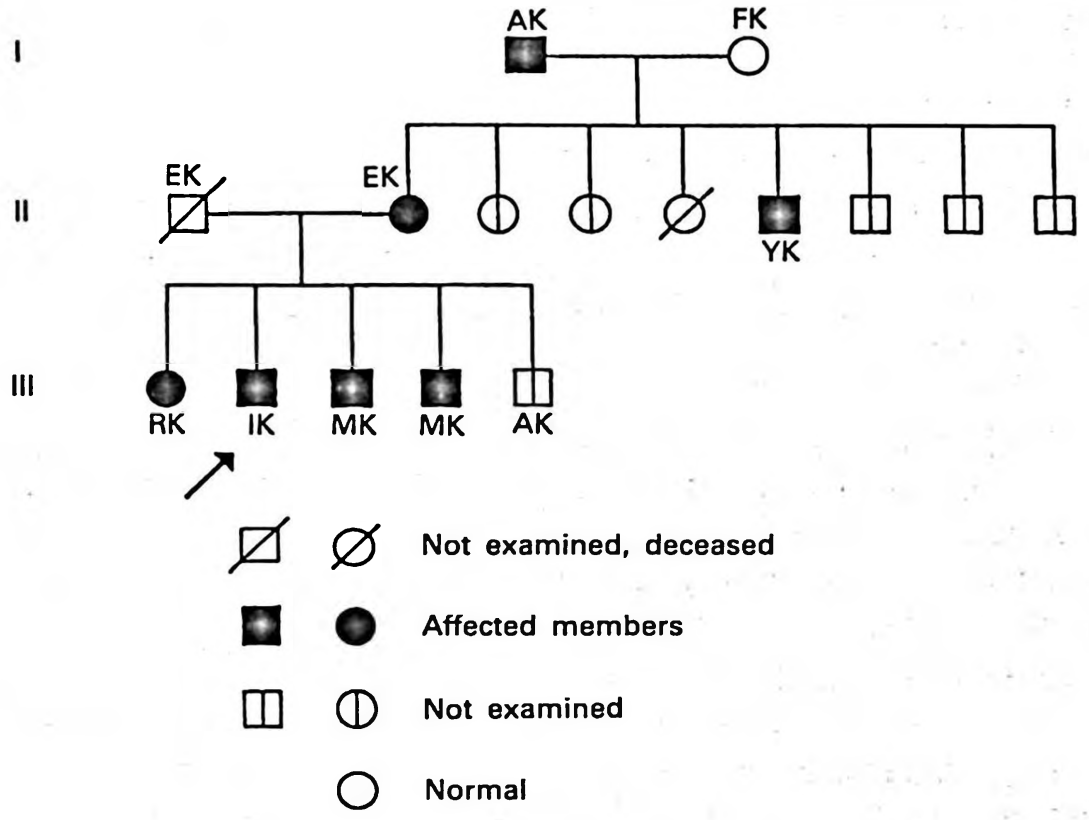

Fig. 1: Family pedigree.

Laboratory studies revealed that the hemoglobin was 12.8 g/dl, hematocrit value 37%, leukocyte count 7200/mm^3, and platelet count 38000/mm^3. Large, dense cigar-shaped or elliptical platelets and Döhle bodies in the granulocytes were observed in the peripheral blood smear. Bleeding time (Ivy) was 6 min (normal to 6 min), prothrombin time 14 sec (normal range: 11-14 sec), partial thromboplastin time 45 sec (normal range: 25-45 sec) and clot retraction was diminished (3 hours, Benmari incubation method). The tourniquet test and capillary fragility were normal. Platelet aggregation and ristocetin-induced agglutination were within the normal range. Erythrocyte sedimentation rate was 4 mm/h. Bone marrow examination, liver and kidney function tests, serum electrolytes, and chest-X-ray were also normal.

EK : mother, age 41, suffered from menorrhagia.
MK : brother, age 18, was asymptomatic, but affected.
MK : brother, age 15, had a life-long history of mild epistaxis and petechial rash.
RK : sister, age 12, was asymptomatic but affected.
YK : uncle, age 37, had a history of mild epistaxis and petechia.
AK : grandfather, age 67, was asymptomatic, but affected.

The family's data supporting a diagnosis of May-Hegglin anomaly are shown in Table I. Large, cigar-shaped platelets and Döhle bodies are illustrated in Fig. 2.

TABLE I: Family Data Supporting a Diagnosis of the May-Hegglin Anomaly

Patient age/yrs	Symptom	Giant, cigar-shaped platelets	Döhle bodies	Platelet count (mm^3)	Bleeding time (min) (Ivy)	Capillary fragility	Clot retraction	Platelet aggregation	Ristocetin-induced agglutination
İK (9)	+	+	+	38,000	6	Normal	Diminished	Normal	Normal
EK (41)	+	+	+	150,000	3	Normal	Normal	Normal	Normal
MK (18)	–	+	+	150,000	4	Normal	Diminished	Normal	Normal
MK (15)	+	+	+	74,000	6	Normal	Normal	Normal	Normal
RK (12)	–	+	+	74,000	6	Normal	Diminished	Normal	Normal
YK (37)	+	+	+	74,000	5	Normal	Normal	NP	NP
AK (67)	–	+	+	150,000	4	Normal	NP	NP	NP
Normal	–	–	–	150,000	1-6	Normal	Normal	Normal	Normal
				400,000					

NP: Not performed

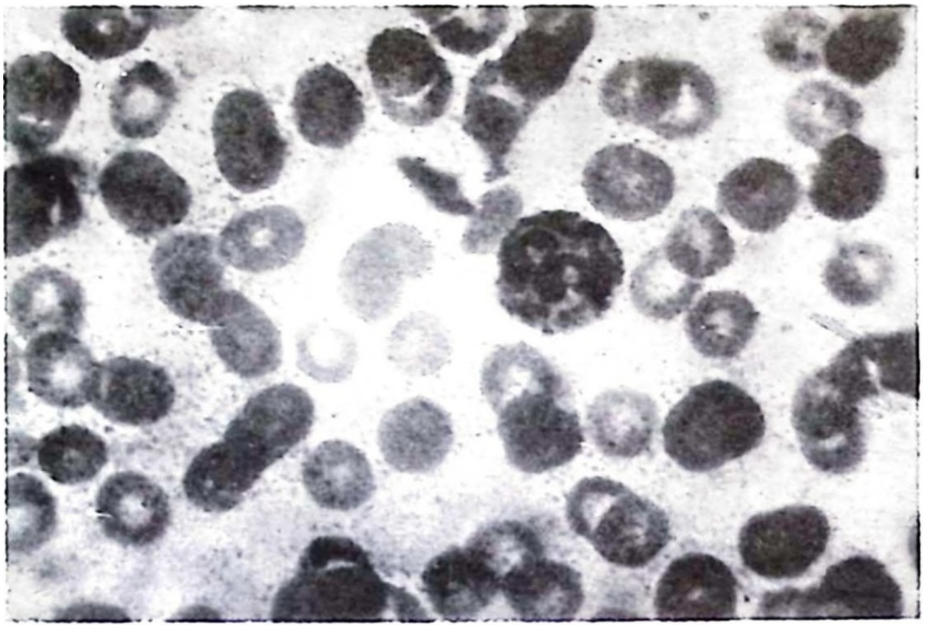

Fig. 2: Large, elliptic and bizarre platelets and Döhle bodies are seen in blood smear of propositus (Peroxidase).

Discussion

The majority of patients with May-Hegglin anomaly do not have bleeding manifestations. In this group, the disease entity may be discovered incidentally. In some cases, mild hemorrhagic manifestations have been the only specific clinical problem. Even though thrombocytopenia is a consistent abnormality, most patients reported do not have significant bleeding[4,6].

Platelet survival is usually normal in May-Hegglin anomaly, however a decrease in platelets has been reported in some cases[1,2,6,7]. The presence of a normal megakaryocyte number in the marrow evaluation indicates normal platelet production. It is postulated that impaired and abnormal megakaryocyte fragmentation leads to both number and size alterations of the platelets[2]. Since larger and younger platelets are thought to be hemostatically superactive than the smaller and older ones, patients with May-Hegglin anomaly do not have severe bleeding episodes[4].

In this anomaly, pale-blue staining inclusions are found in the cytoplasm of the neutrophils, eosinophils, basophils and monocytes; these RNA patches are named Döhle bodies. Döhle bodies were first described as an acquired phenomenon in scarlet fever and may be found in acute infectious and toxic processes and burns. It was demonstrated that they disappear after recovery[5,8].

In this family the subject and his three siblings had mild bleeding symptoms. All investigated members of the kindred had Döhle bodies and large, bizarre, cigar-shaped platelets. Except for the subject, all of them also had normal and

abnormal platelets on the blood smears. Four members of the family had thrombocytopenia. Among them, only RK was asymptomatic, though she had diminished clot retraction. The association of thrombocytopenia, diminished clot retraction and an asymptomatic state may be seen in May-Hegglin anomaly.

Large platelets are also seen in the Bernard-Soulier syndrome, the Gray platelet syndrome and genetic connective tissue diseases[9]. Bleeding time, ristocetin-induced agglutination and platelet aggregation were found to be within normal ranges in this family, thereby allowing us to distinguish this anomaly from the Bernard Soulier and Gray Platelet syndromes. Thus, the presence of increased vessel fragility observed in this particular family may have been due to a different form of genetic connective tissue disease.

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Summary

The May-Hegglin anomaly is a rare autosomal dominant disorder characterized by the presence of large, bizarre, cigar-shaped platelets and Döhle bodies in the leukocytes. This rare anomaly was detected in seven members of a family. It is emphasized that in making a differential diagnosis this disorder must be distinguished from the other mild bleeding disorders.

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