Case Report

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Fanconi's Anaemia

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Abstract

Fanconi anaemia (FA) is a very rare genetic disease with an incidence estimated at 1 per 130,000 births. FA is the result of a genetic defect in a cluster of proteins responsible for DNA repair As a result, the majority of FA patients develop cancer, most often Acute Myelogenous Leukemia, and 90% develop Bone Marrow Failure by age 40. About 60–75% of FA patients have congenital defects, commonly short stature, abnormalities of the skin, arms, head, eyes, kidneys, and ears, and developmental disabilities. Around 75% of FA patients have some form of endocrine problem, with varying degrees of severity. Median age of death is around 30-35 years. Treatment with androgens and hematopoietic (blood cell) growth factors can help bone marrow failure temporarily, but the long-term treatment is Bone Marrow Transplant if a donor is available.

Keywords: Fanconi; Anaemia; Bone Marrow Failure.

Case Report

A 12 year old boy, born of 3rd grade consanguineous marriage, 4th by birth order, came to our Out Patient Department with complaints of palpitations, breathlessness on exertion and easy fatiguability. The mother gave a history of multiple blood transfusions and 2 bone marrow examination performed 1 year apart. On examination, his weight was 29 Kg (Exp: 42 Kg), Head circumference: 48cm (Exp: 53 cm), Height: 128 cm (Expected: 161 cm). External genitalia was normal. Patient had severe pallor, microophthalmia, hyperpigmentation of perioral region (Figure 1), nail beds and palms, short stature and hypoplastic thumbs (Figure 2). Investigations revealed a hemoglobin level of 2.3 gm%, TLC: 2700/cumm and Platelet count: 17,000/cumm. Peripheral blood smear was suggestiove of pancytopenia and the bone marrow aspiration revealed Fanconi's Anaemia.

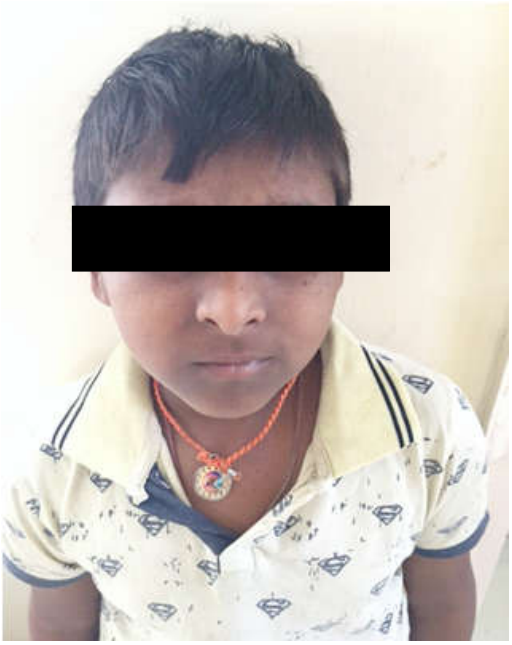

Fig. 1: Microophthalmia & perioral hyperpigmentation

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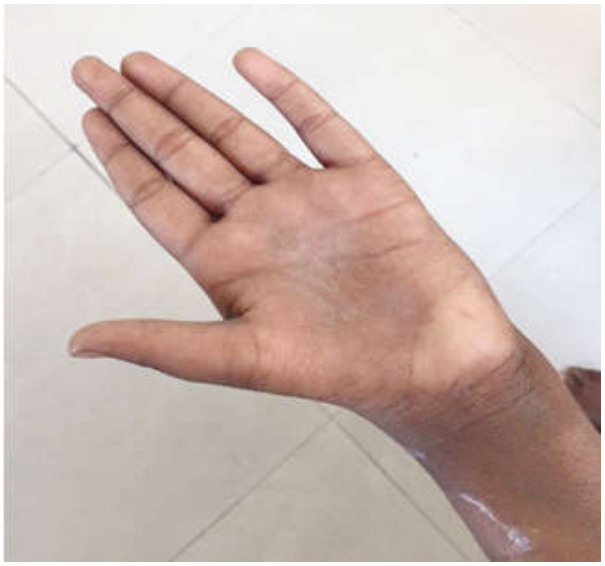

Fig. 2: Hypoplastic thumb

Discussion

Fanconi Anaemia (FA) is the most frequent inhertted cause of Bone Marrow Failure [1] with approximately 2000 cases reported in the medical literature. Half the patients are diagnosed prior to age 10, while about 10 % are diagnosed as adults.

Signs & Symptoms

Birth defects, such as short stature, abnormal thumbs and/or radial bones, skin pigmentation, microcephaly, microophthalmia, renal abnormalities and cardiac and skeletal anomalies [2,3].

During childhood, short stature & skin pigmentation, including cafe au lait spots may become apparent. The first sign of a hematologic problem is usually petechiae and bruises, with later onset of pale appearance, feeling tired and infections. Because macrocytosis usually precedes a low platelet count, patients with typical congenital anomalies associated with FA should be evaluated for an elevated red blood cell mean corpuscular volume [6].

The disorder is often associated with a progressive deficiency of all bone marrow production of blood cells, red blood cells, white blood cells, and platelets. Affected individuals have an increased risk of developing a cancer of blood-forming cells in the bone marrow called acute myeloid leukemia (AML), or tumors of the head, neck, skin, gastrointestinal system, or genital tract [4]. FA occurs equally in males and females, and is found in all ethnic groups.

FA is primarily an autosomal recessive genetic disorder. This means that two mutated alleles (one from each parent) are required to cause the disease. There is a 25% risk that each subsequent child will have FA. About 2% of FA cases are X-linked recessive, which means that if the mother carries one mutated Fanconi anemia allele on one X chromosome, there is a 50% chance that male offspring will present with Fanconi anemia [5].

Treatment

Bone Marrow Transplantation is the only deifinitive treatment at present.

Conclusion

Fanconi's Anaemia is a diagnosis made on histopathology and certain clinical findings. It is a rare, autosomal recessive disorder with a life expentency of around 30-35 years with infections, bleeding manifestations, progression to cancer and bone marrow failure being the causes of death. It is a genetic condition that strongly predisposes patients to aplasia, MDS, and AML. Follow-up of FA patients requires a specialized multidisciplinary clinical and biological expertise. Bone Marrow Transplantation is the only treatment at present.

References

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