CASE REPORT
Year: 2019 • Volume: 2 • Issue: 1 • Page: 24-25

# WERNER'S SYNDROME: A RARE ENTITY

Dr. Megha R[1]., Sweta R Prabhu[1], Athanikar SB[1], Naveen KN[1]
[1]Department of Dermatology, SDM College of Medical Sciences & Hospital, Sattur, Dharwad.
**Corresponding Author:**
Dr. Megha R.
Email : megha.badkilaya@gmail.com

**Abstract**

Werner syndrome is a rare inherited adult premature ageing syndrome in which the ageing process is accelerated after puberty. Clinically characterized by short stature, scleroderma-like skin alterations, cataracts and premature ageing of the face. We report a case of this rare entity fulfilling three major and two additional signs.

**Key words:** Werner, scleroderma, cataract

## Introduction

Werner syndrome (WS) also known as pangeria or progeria adultorum is an inherited adult premature ageing syndrome in which the ageing process is accelerated after puberty. It is an autosomal recessive disease and observed more commonly with family history of consanguinous marriage. Its clinical manifestations include short stature, scleroderma-like skin alterations, cataracts and premature ageing of the face.[3]

## Case Report

A 45 year old male patient presented to the medicine department with complaints of fever with palpitations since 1 month and there was history of breathlessness on exertion since 10 days along with pain abdomen and joint pains. He was referred to dermatology department for baldness since adolescence, reduced body hair and dryness of skin. On further enquiry there was family history of consanguinity and similar complaints in father and older male sibling.

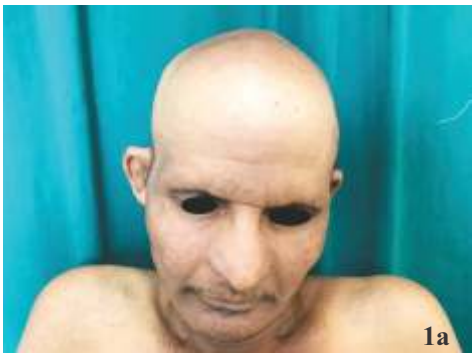
On clinical examination patient weighed 42kg with short stature and slender extremities. Scalp showed diffuse non scarring alopecia involving most of the scalp (sparing occipital hair) (fig1a) with loss of body hair including axillary and pubic hair (fig 1b), sparse eyebrows, greying of beard hair, beak like nose (bird like facies) , peg shaped tooth (fig 2), atrophy of the skin, poikilodermatous changes over the upper back (fig 3), ichthyotic changes over the lower back with syndactyly involving both hands and feet (fig 4a,b), flat feet, clubbing of finger nails and a high-pitched voice.

Blood work up revealed low haemoglobin (8.9g%) and raised levels of thyroid stimulating hormone (TSH- 14.16 IU), liver function tests showed raised total bilirubin ( 2.5mg/dl) with normal liver enzymes and high fasting blood sugar levels(210mg/dl) .Cardiovascular assessment showed normal blood pressure and echocardiography revealed severe mitral stenosis, grade2 mitral regurgitation, grade1 aortic regurgitation, mild tricuspid regurgitation suggesting rheumatic heart disease. Ultrasound of abdomen and pelvis showed splenomegaly. Radiograph of the limbs showed no osteoporosis. Skin biopsy showed loss of adnexal structures in the dermis. Ophthalmalic examination could not be done.

## Discussion

Progeroid syndromes are a heterogeneous group of disorders with variable cutaneous features that lead to premature ageing, including poikiloderma, photosensitivity, sclerodermatous changes, alteration of the subcutaneous fat, or skin laxity and wrinkling.

Werner syndrome is a rare, autosomal recessive disorder caused by mutations in the gene RECQL2 ( WRN ) on chromosome 8p12-p11.2 which encodes for DNA helicase. Aberrant repair of double-stranded DNA damage in the absence of WRN helicase activity leads to an accumulation of DNA damage, telomere shortening, genetic instability and a reduction in cellular replicative lifespan. The tissues of mesenchymal origin are affected preferentially compared to neural tissues.[5]



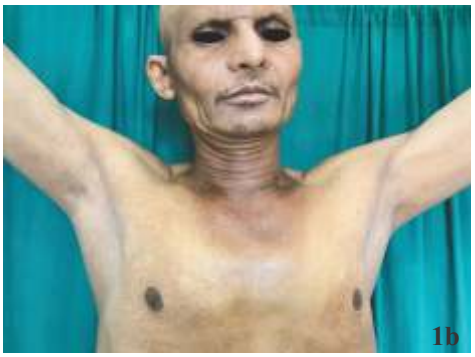
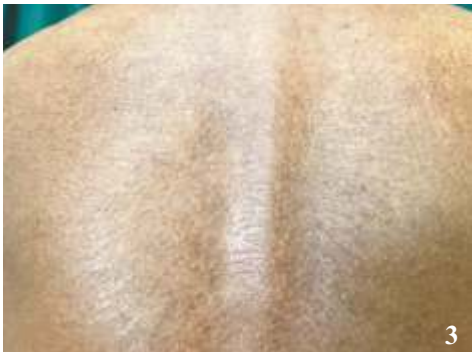
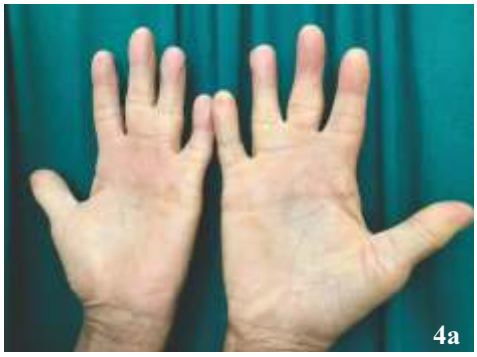





**Figure 1 (a,b) & 2 : 1a.** non sacrring alopecia of scalp. **1b.** loss of axillary hair. **2.** beaking of the nose with peg shaped tooth





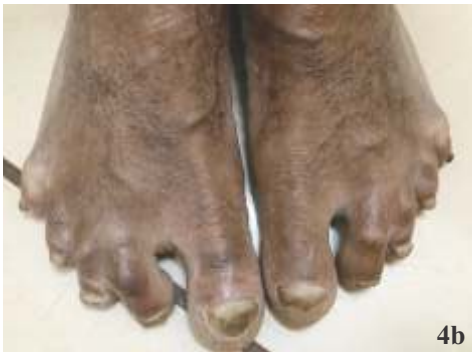


**Figure 3 & 4 (a,b) :** **3.** poikiloderma of upper back. **4 (a,b).** syndactyly of hands and feet

The prevalence of this genetic syndrome varies with the rate of consanguinous marriage in the population and estimated incidence is 1 case in 1million individuals. It is more prevalent in Japanese population 1/20,000 to 1/40,000 and in the U.S. population estimated prevalence is 1/20,000.[1]

Originally this syndrome was first described by Otto Werner in 1904. He noted the following clinical features: short stature, scleroderma-like skin alterations, cataract, premature aging of the face, grey hair and genital hypoplasia in 4 siblings. Oppenheimer and Kugel in 1934 reported the presence of additional endocrinological abnormalities such as osteoporosis and hyperglycemia.[3]

Patients with WS usually develop normally until the third decade of life. Usually, the first clinical sign is a lack of the pubertal growth spurt during the

teenage. In the second and third decade of life these patients begin to manifest with skin changes like atrophy, loss of hair and graying of hair. Some patients may present with a high-pitched voice and flat feet.[4]

Subsequently WS patients develop common age related changes like type2 diabetes mellitus, atherosclerosis, osteoporosis and malignancies. The average life expectancy is around 50 years. The studies conducted by Epstein et al showed that the common cause of death was malignancy and myocardial infarction.[4]

Mesenchymal sarcoma is seen 10 times more common.Other malignancies with elevated incidences are malignant melanoma, thyroid cancer, osteosarcoma, and soft tissue sarcoma. Immunological and DNA abnormalities are found to be associated with development of malignancies.[2]

Since WS has an autosomal recessive trait, established cases of WS should be referred for genetic counseling to ensure early identifcation and treatment of syndrome-associated manifestations.

For clinical assessment of WS a diagnostic criteria is used. It was originally proposed by Nakura et al in 1994 (Table 1). A definitive diagnosis is made when all major signs and two additional signs are present. When first three major signs and any two other signs are present probable diagnosis is made. If either cataracts or dermatological alterations and any four other signs are seen then a possible diagnosis of WS is made.[4]

The above reported case fulfils three of the major criteria with two additional signs hence a probable diagnosis of WS was made.

| |
|---|
| Major criteria:<br>1. Cataracts (bilateral)<br>2. Characteristic dermatological pathology (tight skin, atrophic skin, pigmentary alterations, ulceration, hyperkeratosis, regional subcutaneous atrophy) and characteristic facies ('bird-like' face)<br>3. Short stature<br>4. Premature greying and/or thinning of scalp hair<br>[Parental consanguinity (third cousin or closer) or aVected sibling]<br>[Positive 24-h urinary hyaluronic acid test when available] |
| Additional signs and symptoms:<br>1. Type 2 diabetes mellitus<br>2. Hypogonadism (secondary sexual underdevelopment, diminished fertility, testicular or ovarian atrophy)<br>3. Osteoporosis<br>4. Osteosclerosis of distal phalanges of fingers and/ or toes (x-ray diagnosis)<br>5. Soft tissue calcification<br>6. Evidence of premature atherosclerosis (e.g., history of myocardial infarction)<br>7. Neoplasms: mesenchymal (i.e. sarcomas), rare (unusual), or multiple<br>8. Abnormal voice (high-pitched, squeaky, or hoarse)<br>9. Flat feet |
| Definite diagnosis:<br>All the major signs and two additional signs<br>Probable diagnosis:<br>The first three major signs and any two others signs<br>Possible diagnosis:<br>Either cataract or dermatological alterations and any four other signs<br>Exclusion of diagnosis:<br>Onset of signs and symptoms before adolescence<br>(except short stature) |

**Table 1:** Clinical diagnostic criteria[4]

**How to cite this article:**
Megha R, Prabhu SR, Athanikar SB, Naveen KN.Werner's Syndrome: A Rare Entity. JDA Indian Journal of Clinical Dermatology 2019;2:24-25.

## References

1. Ajili F, Garbouj W, Boussetta N, Laabidi J, Abdelhafidh NB, Louzir B, Othmani S. Werner Syndrome: A new case report. Our Dermatol Online. 2013 Oct 1;4:490-2.
2. Sert M, Fakioglu K, Tetiker T. Review of Two Siblings with Werner's Syndrome: A Case Report. Case reports in medicine. 2009;2009.
3. Khan GA, Azfar NA, Malik LM, Sammar T, Jahangir M. Werner syndrome: A case report and review of literature. Journal of Pakistan Association of Dermatology. 2016 Dec 22;21(4):304-8.
4. Muftuoglu M, Oshima J, von Kobbe C, Cheng WH, Leistritz DF, Bohr VA. The clinical characteristics of Werner syndrome: molecular and biochemical diagnosis. Human genetics. 2008 Nov 1;124(4):369-77.
5. Irvine AD, Mellerio JE. Syndromes with Premature Ageing. Rook's Textbook of Dermatology, Ninth Edition. 2016 Jul 15:1-9.