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RESEARCH ARTICLE

OCULAR MANIFESTATIONS OF CONNECTIVE TISSUE DISORDERS: A DESCRIPTIVE CROSS SECTIONAL STUDY

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Abstract

Background and Objectives: Connective tissue disorders (CTD) includes a group of chronic inflammatory conditions that affects multiple systems of the body and presents wide spectrum of clinical manifestations including eye. This study was undertaken to study the types of ophthalmic manifestation in connective tissue disorders.

Method: A descriptive cross-sectional study of 50 cases was done in patients diagnosed with various connective tissue disorder in tertiary care hospital, from June 2022 to May 2023. All patients underwent a standard and comprehensive ophthalmic evaluation.

Result: Out of 50 cases, 12 were males and 38 were females. Maximum number of cases (35) were seen between the age group of 40-61 years. Rheumatoid Arthritis (25) was the most common connective tissue disorder. Both anterior and posterior segment findings were seen in our study with Dry eye as the most common ocular manifestation which was seen in 28 patients.

Conclusion: Connective tissue disorders comprise wide spectrum of diseases that can present with ocular involvement. It is important to do screening of ocular manifestations in patients with connective tissue disorder for early detection and treatment for better prognosis.

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Introduction:-

Connective tissue disorders (CTD) are a group of chronic inflammatory disease that affects various systems of the body and therefore presents as a wide spectrum of clinical manifestations. Although each disorder manifest different pathological and clinical features, these group of disorders share enough characteristics to consider it as a single family of overlapping features. It is multifactorial involving immunological, environmental and genetic factors.⁽¹⁾Sometimes eyes may be the first presenting feature of a systemic disease. And patients with known systemic disease should have periodic ophthalmic examination to monitor for ocular involvement as well as to diagnose any treatment related complications. Many ocular complaints are an indicator of the active process of disease and some of them are marker for severe and potential lethal systemic involvement.⁽²⁾CTD's include a group of disorders which have an autoimmune origin with the presence of autoantibodies.⁽³⁾

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Ocular inflammation is seen as part of a number of systemic diseases with autoimmune processes heading the list. Inflammation can affect any part of the eye starting from the cornea anteriorly to the retina, uveal tract and sclera posteriorly.⁽⁴⁾Keratoconjunctivitis sicca is the most common ocular manifestation of connective tissue disorder. Keratoconjunctivitis sicca primarily involves the sense of having a foreign body under the eyelids and a sense of burning; however, photophobia and deterioration of visual acuity can also occur.⁽⁵⁾Various connective tissue disorder includes Rheumatoid Arthritis, Systemic Lupus Erythematosus, Systemic Sclerosis, Polymyositis and Dermatomyositis, Systemic Vasculitis, Behçet's Disease, Marfan's Syndrome, Osteogenesis Imperfecta, Sjogren's Syndrome and ankylosing spondylitis.

Material and Methods:-

Study Design: The present study was a descriptive cross-sectional study on 50 cases diagnosed with various connective tissue disorders. It was carried out at a Tertiary Care Rural setup hospital in western Maharashtra from June 2022 to May 2023. All patient underwent a standard and comprehensive ophthalmic evaluation including visual acuity, slit lamp examination, dry eye test, dilated fundus examination and intraocular pressure measurement.

Inclusion Criteria:

1. All diagnosed cases of connective tissue disorders.
2. Patients with age groups above 5 years of either gender.
3. Those willing to give written informed consent to participate in the study.

Exclusion Criteria:

1. Patients presenting with episcleritis, scleritis, keratitis, glaucoma, uveitis due to causes other than connective tissue disorders.
2. Patients with ocular trauma.

Data was collected from all selected individuals using a structured proforma meeting the objectives of the study by means of detailed personal interview with patients about their symptoms and medical history, after informed consent. Patients fulfilling the inclusion criteria were included in the study. Ocular evaluation includes:

1. Recording best corrected visual acuity using Snellen's chart. Intraocular pressure management with Goldmann's Applanation tonometer.
2. Anterior segment examination using slit lamp.
3. Dilated ocular fundus examination by means of direct ophthalmoscope, indirect ophthalmoscope.
4. Ocular fundus photograph with the help of fundus camera. Visual Field charting with Humphrey automated perimeter.

The study was conducted after it was approved by the institutional Ethical Committee and Research cell of institute. A written informed consent was taken from all the patients and only those who gave consent were studied.

Result:-

Table No. 01:- Gender Wise Distribution of Cases.

GENDER	NO. OF PATIENTS	PERCENTAGE
MALE	12	24%
FEMALE	38	76%
TOTAL	50	100%

Out of 50 patients studied, it was noted that there was female predominance i.e 38(76%).

Table No.02:- Age Wise Distribution of Cases.

AGE GROUP(IN YEARS)	NUMBER OF PATIENTS	PERCENTAGE
6-20	0	-
21-30	2	4%
31-40	7	14%
41-50	19	38%
51-60	16	32%
61-70	5	10%
>70	1	2%

TOTAL	50	100%
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Maximum number of cases with CTD were seen between the age group of 41-60years.

Table No.03:- Distribution of Cases in Study Population.

CONNECTIVE TISSUE DISORDERS	NO. OF CASES	NO. OF CASES WITH OCULAR MANIFESTATION	PERCENTAGE OF CASES HAVING OCULAR MANIFESTATION
RHEUMATOID ARTHRITIS	25	21	61.76%
SYSTEMIC LUPUS ERYTHEMATOSUS	8	5	14.70%
SYSTEMIC SCLEROSIS	1	1	02.94%
POLYMYOSITIS AND DERMATOMYOSITIS	1	0	-
SYSTEMIC VASCULITIDES	2	0	-
MARFAN'S SYNDROME	5	3	08.82%
ANKYLOSING SPONDYLITIS	5	3	08.82%
BEHCET'S DISEASE	0	0	-
OSTEOGENESIS IMPERFECTA	1	0	-
SARCOIDOSIS	2	1	02.94%
SJOGREN'S SYNDROME	0	0	-
TOTAL	50	34	

In our study out of 50 cases of connective tissue disorder Rheumatoid Arthritis (61.76%) cases was the most common type.

Table No.04:- Different Types Of Anterior Segment Ocular Manifestation.

TYPE OF OCULAR MANIFESTATION	NO. OF CASES
DRY EYE	28
EPISCLERITIS	5
SCLERITIS	1
ANTERIOR UVEITIS	8
PERIPHERAL ULCERATIVE KERATITIS	2
KERATITIS	1
CONJUNCTIVITIS	2
ECTOPIA LENTIS	2
SECONDARY GLAUCOMA	3

Different types of anterior segment ocular manifestation were seen out of which Dry Eye(28) was the most common presentation.

Table No.05:- Different Types of Posterior Segment Ocular Manifestation.

TYPE OF OCULAR MANIFESTATION	NO. OF CASES
VITRITIS	0
RETINAL VASCULITIS	1
POSTERIOR UVEITIS	2
RETINAL VEIN OCCLUSION	2
RETINAL DETACHMENT	-
OPTIC NEURITIS	1

Two cases of each Posterior Uveitis and Retinal Vein Occlusion were seen in our study.

Discussion:-

Connective tissue disorder comprises wide spectrum of diseases that can present with ocular involvement. Patient can present with anterior segment or posterior segment involvement. In our study total 50 cases with various connective tissue disorders were studied in which 38 (76%) were females, 12(24%) were males. Females showed

higher predominance. This correlates with the study of Somsanguan Ausayakhun⁽⁶⁾ in which females were 206 and 18 were males, and the study conducted by Meharan Pournazari et al⁽⁷⁾ showed prevalence of females to be around 67%.

The study's participants ranged in age from 6 to >70 years, with maximum patients (35) between the age of 40-60 years. Our study correlated with Somsanguan Ausayakhun⁽⁶⁾ in which mean age + SD of 44.3 +- 13.7 years.

Rheumatoid Arthritis, Systemic Lupus Erythematosus, Systemic Sclerosis, Polymyositis and Dermatomyositis, Systemic Vasculitis, Behçet's Disease, Marfan's Syndrome, Osteogenesis Imperfecta, Sjogren's Syndrome and ankylosing spondylitis. A thorough eye examination including anterior and posterior segment examination was performed. In our study maximum number of cases were seen of patients diagnosed with Rheumatoid arthritis.

Dry eye (28) was found most common ocular manifestation in our study along with other presentations like episcleritis (5), scleritis (1), anterior uveitis (8), peripheral ulcerative keratitis (1), keratitis (1), conjunctivitis (2), ectopia lentis (2), secondary glaucoma (3) with only 7 patients having posterior segment involvement. Our study correlated with study done by Somsanguan Ausayakhun⁽⁶⁾, Coll et al⁽⁸⁾, Vignesh et al⁽⁹⁾ in which the dry eye was the most common ocular manifestation with less number of patients seen with posterior segment involvement.

Conclusion:-

Ocular involvement occurs in a significant number of connective tissue disorders and may precede the onset of other systemic features, thereby serving as an important marker in the diagnosis of these diseases. The occurrence and severity of ocular manifestations are highly variable among patients. A timely and accurate diagnosis enables the prevention and early management of complications. Moreover, our research intends to track the occurrence of connective tissue disorders, ocular symptoms, ocular signs, their diagnostic and prognostic value of the condition. Prompt diagnosis and treatment are decisive in the management of these disorders.

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