International Journal of Biomedical Research
ISSN: 0976-9633 (Online); 2455-0566 (Print)
Journal DOI: https://doi.org/10.7439/ijbr
CODEN: IJBRFA

Original Research Article

Spectrum of ocular manifestations in rheumatoid arthritis

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Abstract

Background: Ocular manifestations of Rheumatoid arthritis are diverse and may cause surface inflammatory disease affecting the cornea, uvea, episclera, sclera, retina, and orbit. Dry eyes are the most common ocular manifestation. Other diseases include episcleritis, scleritis, peripheral ulcerative keratitis, corneal melt syndrome, uveitis, vasculitis, retinal detachment, disc edema, vitritis and rarely macular edema. Cataract and glaucoma occur as a result of long term use of corticosteroids.

Aim: This study was conducted to find out the spectrum of ocular manifestation in Rheumatoid arthritis.

Methodology: Patients of rheumatoid arthritis reporting to our institute, from June 2017 to December 2017 underwent complete ocular examination including best corrected visual acuity, slit lamp examination, tear film breakup time, Schirmer test, fluorescence staining, and fundus examination.

Results: We evaluated 87 patients during our study period. The mean age at presentation was 57.7 years with standard deviation (SD) of 9.91 and standard error of the mean (SEx) of 1.06. Among the 87 patients, ocular manifestation was present in only 49 patients (56%) with the dry eye being the most common presentation in about 38 patients (43.6%). Other ocular diseases include episcleritis and scleritis in 4 patients (4.5%), filamentary keratitis in 2 patients (2.2%), peripheral ulcerative keratitis in 2 patients (2.2%), posterior subcapsular cataract in 02 patients (2.2%), and steroid-induced glaucoma in 01 patient (1.1%).

Conclusion: Ocular findings in rheumatoid arthritis patients are frequent. The high prevalence of dry eye suggests that detail ocular examination should be done in these patients and Schirmers test should be performed regularly in these patients. Prevalence of cataract and steroid-induced glaucoma emphasizes that there is a need to prescribe steroids more cautiously in patients with rheumatoid arthritis.

Keywords: Dry eyes, Schirmer test, Tear film breakup time (TBUT), steroids, rheumatoid arthritis.

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***Article History:**
Received: 13/05/2019
Revised: 27/05/2019
Accepted: 30/05/2019
DOI: https://doi.org/10.7439/ijbr.v10i5.5175

QR Code

How to cite: Qayum S, Gupta V, and Sharma K. Spectrum of ocular manifestations in rheumatoid arthritis. *International Journal of Biomedical Research* 2019; 10(05): e5175. DOI: 10.7439/ijbr.v10i5.5175
Available from: https://ssjournals.com/index.php/ijbr/article/view/5175

1. Introduction

Rheumatoid arthritis (RA) is chronic systemic autoimmune inflammatory disorder causing pain, swelling and destruction of the joints. [1] About 0.5-1% of the population is involved worldwide.[2] It involves inflammation of the synovial tissue, which when left untreated, results in permanent structural damage and eventually long-term deformity impairing the quality of life [3]. RA presents with extra-articular manifestation in 10–20% of patients more frequently with seropositive patients.[4] Women are involved three times more commonly than men.[5] Among the extraarticular manifestations eyes are involved in about 40% of patients with Rheumatoid arthritis[6]. Ocular manifestations of Rheumatoid arthritis are diverse and may cause surface inflammatory disease affecting cornea, uvea, episclera, sclera, retina, and orbit.[7] Ocular surface disease in the form of dry eye is the most common presentation affecting about 28% of the patients with Rheumatoid arthritis.[6] About one-sixth of the patients with scleritis have RA.[8] Although studies have identified Keratoconjunctivitis sicca as most common ocular manifestations due to RA, Other diseases include episcleritis, scleritis, peripheral ulcerative keratitis, corneal melt syndrome, uveitis, vasculitis, retinal detachment, disc edema,vitritis and rarely macular edema.[6,9,10] Cataract and glaucoma occur as a result of long term use of corticosteroids in patients with RA.[11]

Rheumatoid factor and anti-citrullinated protein antibody (ACPA) is the commonly performed test to diagnose RA. These tests are part of 2010 American college of Rheumatism/European league against Rheumatism classification criteria for Rheumatoid disease. Seropositivity for RA and ACPA are associated with increased risk of extra-articular manifestation.[12] This study was conducted to find out the spectrum of ocular manifestation in Rheumatoid arthritis.

2. Material and Methods

The present study was conducted to assess the spectrum of ocular manifestations in the patients of rheumatoid arthritis. This prospective study included the patients attending the outpatient departments of MMIMSR from June 2017 to December 2017. The Department of Rheumatology, Orthopedics, and Medicine were advised to send all the diagnosed patients of rheumatoid arthritis, according to the American College of Rheumatology criteria, to eye department irrespective of ocular symptoms or duration of disease.

However, the patients coming directly to eye outpatient department with different ocular complaints and found to be having rheumatoid arthritis were also included in the study. A detailed history and ocular examination including best corrected visual acuity, slit lamp examination, Schirmer test, fluorescent staining, tear film break up time (TBUT) intraocular pressure and fundus examination was done in all patients. Consent was taken from all the patients; approval from an institutional ethics committee was obtained. Statistical analysis of data was done using Microsoft Excel 2016 student edition, the parameters assessed were descriptive analysis, mean, standard deviation, standard error of the mean, confidence interval & level of significance.

3. Results

A total of 87 patients were included in the study. There were 77 females and 10 males constituting a sex ratio of 7.7:1 (table no.1). The mean age at presentation was 57.7 years with standard deviation (SD) of 9.91 and standard error of the mean (SE_x) of 1.06. The confidence interval (CI) 95% came out to be 55.68 years to 59.85 years, the common age of presentation in the fifth decade followed by the sixth decade. Among the 87 patients, ocular manifestation was present in only 49 patients (56%) with the dry eye being the most common presentation in about 38 patients (43.6%). Severe dry eye with Schirmer <5mm was noticed in 12 patients (13.7%) and mild to moderate dry eye with Schirmer 5mm to 10mm was noticed in 26 patients (29.8%)The Schirmer >10mm was found in rest of the patients. There was a negative correlation between Schirmer score in mm and duration of rheumatoid arthritis (Fig 1). Tear film break up time (TBUT) was > 10 seconds in 65 patients and <10 seconds in 10 seconds. Other ocular diseases include episcleritis and scleritis in 4 patients (4.5%), filamentary keratitis in 2 patients (2.2%), peripheral ulcerative keratitis in 2 patients (2.2%), posterior subcapsular cataract in 02 patients (2.2%), and steroid-induced glaucoma in 01 patient (1.1%). Extended use of corticosteroids in the treatment of rheumatoid arthritis might be responsible for ocular complications like posterior subcapsular cataract and glaucoma.

4. Discussion

Rheumatoid arthritis is a systemic autoimmune disease causing symmetric polyarthritis often resulting in joint destruction and loss of function. Females are more frequently involved with female to male ratio of 9:1. [13-15] In our study out of 87 patients, 77 were females and 10 were males (7.7:1). Prevalence of dry eyes varies in different studies from 21.25% to 40.6% and incidences of about 25% [13-18]. Many studies have reported the incidence of dry eyes in rheumatoid arthritis to between 21% and 30% [19-23] while the incidence in our study came out to be 43.6% which is slightly higher than other studies. There was a negative correlation between Schirmer test score and duration of rheumatoid arthritis indicating that with increasing duration of disease severity of dry eyes also increases. The similar observation was found in a study conducted by Fujita *et al*.[23]

Scleritis and episcleritis were noticed in 4.5% of patients in our study in contrast to 0.67% and 0.17% in a study conducted by Mc Gavin *et al*.[24] Recurrent attacks of scleritis leads to thinning of the sclera. Scleromalacia perforans is strongly associated with long term rheumatoid arthritis however it was not observed during our study. Decreased tears production was responsible for corneal epithelial erosions and filamentary keratitis. Filamentary keratitis and PUK was noticed in 2.2% (each) of the patients in our study while the study conducted by Bosnian study group [25] reported keratitis in about 1.6%.

Posterior subcapsular cataract and steroid-induced glaucoma were reported in 2.2% and 1.1% respectively in our study and this might be due to injudicious use of steroids by non-registered practitioners. Thus the emphasis should be laid on to prescribe steroids in these patients cautiously.

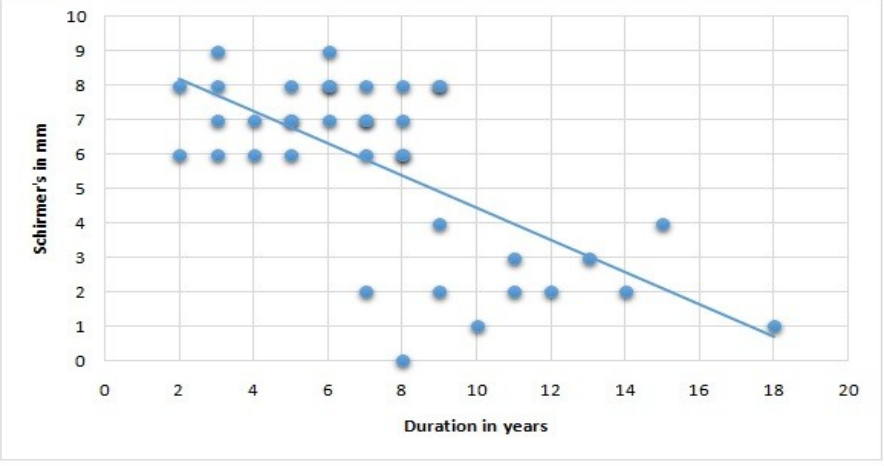
Table 1: Age and sex wise distribution of patients

Age Group (Years)	Male	Female
31-40	00	07
41-50	03	11
51-60	02	32
61-70	03	21
>70	02	06
Total	**10**	**77**

Table 2: Ocular manifestations in Rheumatoid arthritis patients

Ocular manifestations	No. of patients	% age of cases
Dry eyes	38	43.6%
Scleritis and Episcleritis	04	4.5%
Filamentary keratitis	02	2.2%
Peripheral ulcerative keratitis (PUK)	02	2.2%
Posterior subcapsular cataract	02	2.2%
Glaucoma	01	1.1%

Figure 1: Correlation between Schirmer test and duration of rheumatoid arthritis in years



5. Conclusion

The result of our study concludes that patients with rheumatoid arthritis have frequent ocular manifestations and should undergo a routine ophthalmological examination. The higher prevalence of dry eyes warrants that Schirmer test and TBUT should be performed routinely in these patients. Injudicious use of corticosteroids by Quacks in these patients for treatment of arthritis might be responsible for steroid-induced glaucoma, cataract and scleral thinning. In view of these complications, steroids need to be prescribed more cautiously and patients receiving steroids should undergo a regular ocular examination to diagnose and manage any complication.

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