A Dissertation on

"A STUDY OF OCULAR MANIFESTATIONS IN PSORIASIS PATIENTS"

Submitted to the

THE TAMILNADU DR. M . G. R. MEDICAL UNIVERSITY

In partial fulfilment of the requirements

For the award of degree of

M.S. (Branch – III)

OPHTHALMOLOGY

GOVERNMENT STANLEY MEDICAL COLLEGE & HOSPITAL

THE TAMILNADU DR. M. G. R. UNIVERSITY,

CHENNAI, TAMILNADU

APRIL 2014

CERTIFICATE

This is to certify that the study entitled **"A STUDY OF OCULAR MANIFESTATIONS IN PSORIASIS PATIENTS "**is the result of original work carried out by Dr. Nidhee Jain F, under my supervision and guidance at STANLEY MEDICAL COLLEGE, CHENNAI. The thesis is submitted by the candidate in partial fulfilment of the requirements for the award of M.S Degree in Ophthalmology, course from May 2011 to April 2014 at Stanley Medical College, Chennai.

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DECLARATION

I hereby declare that this dissertation entitled **"A STUDY OF OCULAR MANIFESTATIONS IN PSORIASIS PATIENTS "** is a bonafide and genuine research work carried out by me under the guidance of Professor Dr. K. Kanmani , M.S., D.O., Head Of The Department , Department Of Ophthalmology, Government Stanley Medical College and Hospital, Chennai- 600001.

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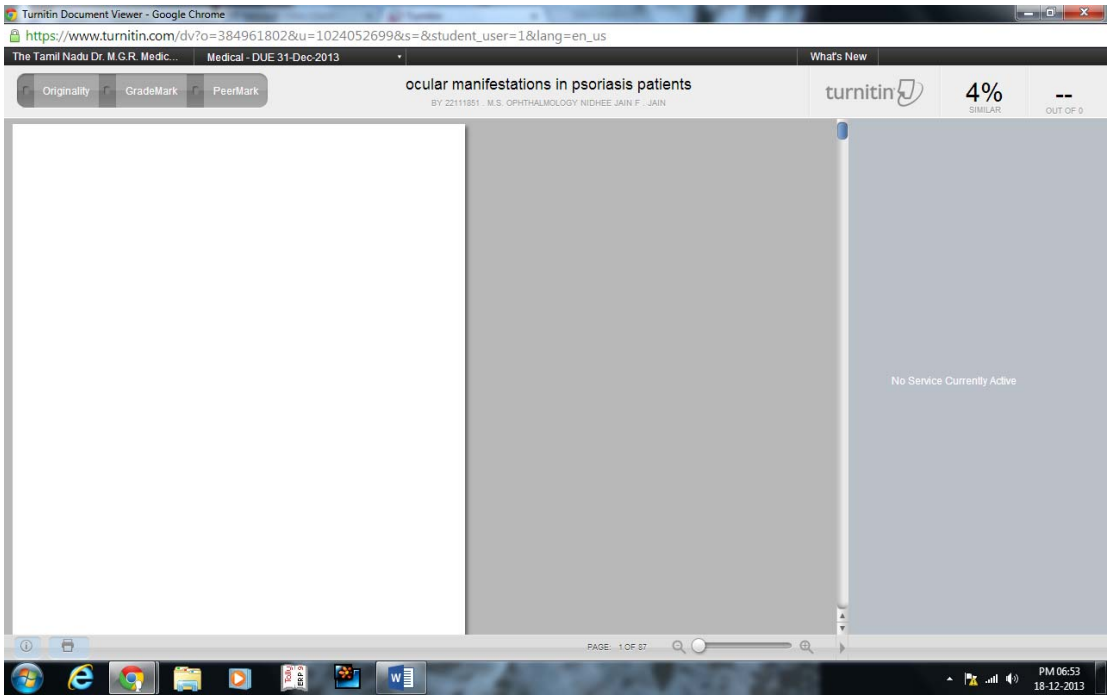
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Title of the Work : A study of ocular manifestation in psoriasis patients

Principal Investigator : Dr.F.Nidhee Jain

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The request for an approval from the Institutional Ethical Committee (IEC) was considered on the IEC meeting held on 13.06.2013 at the Council Hall, Stanley Medical College, Chennai-1 at 2PM

The members of the Committee, the secretary and the Chairman are pleased to approve the proposed work mentioned above, submitted by the principal investigator.

The Principal investigator and their team are directed to adhere to the guidelines given below:

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17/9/13

MEMBER SECRETARY,
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Part 1

Introduction

Psoriasis is a common skin disease characterized by reddish patches covered with silvery scales. It can occur in any part of the body. It is a noncontagious autoimmune disease with remissions and exacerbations being characteristic of this disease.

It is associated with extra cutaneous manifestations such as joint involvement, eye involvement and an increased risk of coronary artery disease.

Joint involvement can be in the form or peripheral arthritis, spondylitis and enthesitis. It can range from monoarticular involvement to severe destructive form of arthritis. The occurrence is generally preceded by skin lesions, but there is no correlation between the severity of the skin lesions and the occurrence of joint disease.

The occurrence of ocular inflammation is psoriasis is known for many years but not very well investigated. It has very subtle presentation and any times is diagnosed after irreversible damage has occurred to the ocular tissue. This delay in presentation maybe due to lack of awareness among patients, less no. of signs and symptoms and delay in referrals.

The various manifestations maybe due to the disease per se or as a result of the treatment given for the disease. The various findings range from Blepharitis, Conjunctivitis, dry eye, Episcleritis, Marginal keratitis and the sight threatening uveitis.

Psoriasis is also associated with a significant amount of social stigmatization, absenteeism from work, emotional stress and physical pain. [1] Thorough ocular evaluation and treatment is essential for a wholesome treatment of the psoriasis patients.

Review of literature

Studies regarding the ocular manifestations of psoriasis date back to 1959 when Wright described the occurrence of lid, conjunctiva and corneal involvement in patients with psoriatic arthritis.

In 1970 Peter Eustace and Dermot Pierse reported two cases of marginal keratitis associated with psoriasis.

Psoriatic eye manifestations - a review article published in psoriasis forum vol3 in fall 2011 highlights the various ocular manifestations including Blepharitis, Conjunctivitis, Episcleritis and Uveitis.

A population based study of ocular findings in psoriasis patients was done in the Department of Dermatology, Yozgat State Hospital, Yozgat, Turkey. They analyzed 100 patients and compared them to 100 age matched controls. They concluded that the ocular findings in psoriasis patients were higher compared to the age matched control and stressed on the need for early referral to an ophthalmologist.

Another population based study was done to assess the ocular findings in patients with psoriatic arthritis in Brazilian population and published in the year 2012.This cross sectional study included 40 psoriatic arthritis patients and 40 age matched controls. They found keratoconjunctivitis sicca to be the most common associated ocular finding. [(2)]

A study of ocular findings in Singaporean Asian population was done in 2007. This study included 100 patients with plaque type of psoriasis. They concluded that the Lattice System Physician's Global Assessment (LS-PGA) score, a scoring system used to grade the severity of the disease could act as a parameter for referring the patients for ophthalmic evaluation. They found that a score of more than 5 should prompt an ophthalmological examination for the patient.

RELEVANT NANTOMY

Eyelids

Anatomy

The upper eyelid extends from eyebrows downwards to end in a free margin and lower lid ends by merging with the cheek.

Eyelid margins- it is 2mm wide. Each margin is divided into 2 parts by the lacrimal papilla. Lacrimal portion is the medial part of eyelid margin extending from the puntum medially to medial canthus. It is rounded and devoid of lashes and glands. Ciliary part is the lateral part. It has a rounded anterior border and a sharp posterior border and an inter marginal strip between the 2 borders. The grey line divides this strip into an anterior part which bears the eyelashes and posterior part which contains opening of Meibomian glands.

Eyelashes are arranged in 2-3 rows, 100-150 in number in the upper lid and 50-75 in the lower lid. The lash follicles pass obliquely in the lid and are embedded in the fibrous tissue that binds the ciliary margin and the tarsus. The gland of Zeis and Moll empty into the base of the hair follicle. It is surrounded by a rich plexus of nerves and vessel.

The various layers of the eye lid are skin, subcutaneous areolar tissue, layer of striated muscle consisting of orbicularis oculi and the Levator Palpebrae Superioris. The submuscular areolar tissue consisting of the nerves and vessels of the lid. Fibrous layer consisting of the Tarsal plate, layer of non striated muscle- Mullers muscle and the last layer is the conjunctiva.

The various gland of the eyelid are: MEIBOMIAN Gland these are modified sebaceous glands present in posterior part of stroma of tarsal plate. The functions of the oily secretions are

1. Prevents overflow of tears across the lid margin
2. Prevents evaporation of tears
3. Allows smooth movement of the eyelids
4. Ensures air tight closure of the eye lids.

ZEIS Gland it is a modified sebaceous gland its secretions prevent the eye lash from becoming brittle and contribute to the oily layer of the tear film.

MOLLS Glands these are modified sweat glands.

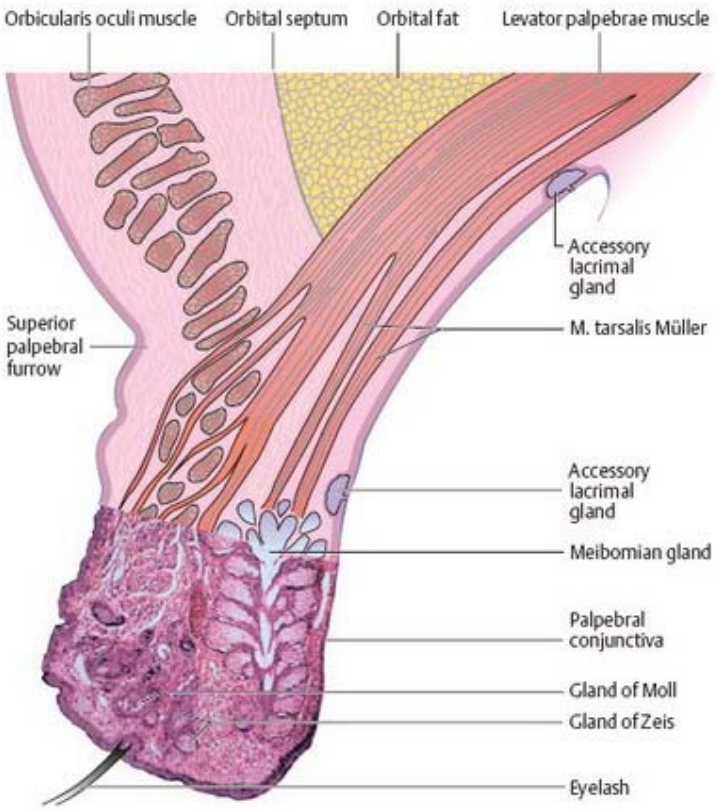
ACCESSORY LACRIMAL GLANDS OF KRAUSE AND WOLFRING they are present in the superior border of tarsus in upperlid and inferior border of tarsus in lower lid. They contribute to the bulk of the aqueous portion of the tear film.

BLOOD SUPPLY

Arteries- medial and lateral palpebral arteries which are branches of dorsal nasal and lacrimal arteries. The superior and inferior palpebral arteries anastomose with the lateral palpebral artery 2-3mm away from the lid margin forming the *marginal arterial arcade*. In the upper lid another anastomoses exists called the *peripheral arterial arcade* formed by the superior branch of medial palpebral artery.

Veins- two sets of venous plexus drain the lids. *pretarsal venous plexus* it drains into angular vein on the medial side and the temporal and lacrimal vein on the lateral side. *post tarsal plexus* drains into the ophthalmic veins

Nerve supply motor- facial nerve, sensory supply- upper lid supra orbital, supra trochlear, infratrochlear and lacrimal, lower lid infra orbital, infratrochlear, lacrimal. Branches of first and second part of trigeminal nerves. Sympathetic nerves supply the Mullers muscle, the vessels and the glands.



Tear film

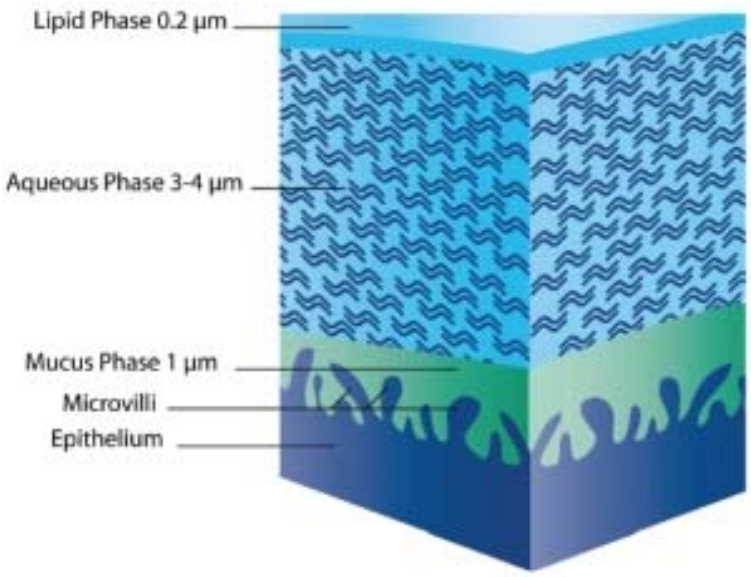
Tear film consists of 3 layers

Lipid layer this is the outer most oily layer derived from the secretions of Meibomian, Zeiss and Moll glands. Chemically this layer consists of low polarity lipids such as wax and cholesterol esters. The thickness of this layer is 0.1micron.

Aqueous layer this is the middle layer. It is secreted by the lacrima gland and the accessory glands of Krausse and Wolfring. The thickness is 10microns. This layer contains ions of inorganic salts, glucose, urea, proteins, glycoproteins, lysozymes, lactoferrin, tear specific prealbumin and immunoglobulin A.

Mucus layer this layer is secreted by conjunctival goblet cells, crypts of Henle and glands of Manz. It is essential for the stability of the tear film. It gets absorbed on the cell membrane of epithelial cells and anchored by their microvilli forming a new hydrophilic surface on which aqueous and lipid layers spread spontaneously.it has a thickness of 0.02-30 microns

The average thickness of the tear film varies from 4to 8 microns. Volume of tear film is 4-13 microliters. Normal tear secretion is 1.2µl with total 24 hrs secretion of 10cubic ml. Refractive index of tear film is 1.357. pH of the tears is nearly 7.4 equal to plasma pH.

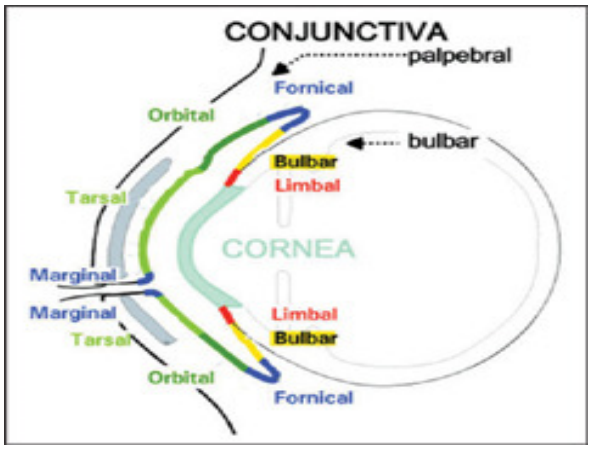


Conjunctiva

Conjunctiva is a translucent mucous membrane which lines the back of the eyelids and the front of the eye ball. It extends from the lids to the limbus and encloses the conjunctival sac.

The various parts of the conjunctiva are

- Palpebral conjunctiva consisting of marginal, tarsal and orbital part.
- Bulbar conjunctiva consisting of scleral and limbal part.
- Superior inferior medial and lateral fornixes.



Histologically it consists of

- Epithelial layer- Non keratinised stratified squamous epithelium it is present in different no. of layers in the different parts of the conjunctiva. *Goblet cells* these are present in between the epithleal cells in all the parts of the conjunctiva . melanocytes are present at the limbus, fornix, caruncle and at the site of entry of anterior ciliary vessels. *Langerhans cells* are also present they are the antigen presenting cells, help in lymphokines and prostaglandin production.
- Adenoid layer- also called lymphoid layer. It consists of connective tissue with lymphocytes. It is not present at birth and develops after 2-3 months of life.
- Fibrous layer –it consists of collagenous and elastic fibres, vessels and nerves of the conjunctiva. In the bulbar conjunctiva it blends with the Tenons capsule.

Glands of the conjunctiva

- Mucin glands- *goblet cells* seen in all parts of conjunctiva except marginal part and limbus. They are maximum in the nasal part and inferior fornix. Mucus is essential for tear film stability and reduction in the goblet cell no. can cause dry eye. *Henle's glands*- crypts of Henle are folds of the mucous membrane present in the between the tarsal and fornix conjunctiva.
- Accessory lacrimal glands of *Krause and Wolfring.*

  BLOOD SUPPLY The blood supply of the conjunctiva is derived from the
- *Marginal arterial arcade*- the perforating branches from the marginal arcade pierce the sulcus subtarsalis to reach the conjunctiva.
- Peripheral arterial arcade- perforating branches from this arcade pierce the palpebral part to reach the conjunctiva and divide into ascending and descending branches. The descending branch supplies the tarsal conjunctiva and anastomose with the branches of the marginal arcade at the level of sulcus subtarsalis. The ascending branch bends around the superior fornix under the bulbar conjunctiva as *posterior conjunctival artery*.
- Pericorneal plexus is formed 4mm from the limbus by the anastomosis between the posterior conjunctival artery and the anterior conjunctiva artery which is a branch of the anterior ciliary artery.

- Anterior conjunctival artery a branch of anterior ciliary artery is given off 4 mm from the limbus. They form a series of arcades parallel to the cornea.

  Venous drainage- the veins drain into the venous plexus of the lids which drain into superior and inferior ophthalmic veins. 5-6mm of circumcorneal zone drains into the anterior ciliary veins.

  Lymphatics – arranged in a superficial and deep layer. From the lateral side they drain into the preauricular lymph nodes and from the medial side into the submandibular lymph nodes.

  Nerve supply- circumcorneal zone by long ciliary nerve. Rest of the conjunctiva- lacrimal, infratrochlear, supra trochlear, supraorbital and frontal nerves.

Uvea

The uveal tissue is the vascular coat of the eye ball it consists of iris, ciliary body and choroid.

Iris

It is a circular disc of 12mm diameter and 0.5mm thickness. It has a 3-4mm central opening- pupil. At the periphery the iris root is attached to the middle part of the anterior surface of the ciliary body. The iris divides the space between the cornea and lens into anterior and posterior chamber.

Macroscopic appearance

Anterior surface of the iris- it is divided into pupillary zone and ciliary zone by a collarette.

Ciliary zone has radial streaks, crypts and contraction furrows.

Pupillary zone is about 1.6mm zone between the collarette and the pupillary frill.

Microscopic structure

- Anterior limiting layer- it is anterior most condensed form part of stroma and it contains melanocytes and fibroblasts. The definitive colour of iris is due to this layer.
- Iris stroma- it forms the main bulk of the iris. It consists of sphincter pupillae muscle, dilator pupillae, vessels, nerves, pigment cells , lymphocytes, fibroblasts and macrophages.
    - Sphincter pupillae it is a 1mm broad circular band in the pupillary part of iris. It is supplied by the parasympathetic fibers.
    - Dilator pupillae it lies in the posterior part of the ciliary zone. It is supplied by the cervical sympathetic nerves and dilates the pupil.

- Vessels the radial vessels of the iris are derived from the circulus arteriosus major and are the cause for the radial streaks seen on anterior surface of the iris. These vessels are peculiar due to their absence of internal elastic lamina and non fenestrated capillary endothelium.
- Pigment cells and melanocytes are present.

- Anterior epithelial layer it is the anterior continuation of the pigment epithelium of retina and ciliary body. This layer is lacking in melanocytes. The basal processes of this layer give rise to dilator pupillae muscle.
- Posterior pigment epithelial layer – it is the anterior continuation of the non pigmented epithelium of ciliary body, which is the continuation of the sensory retina.

Ciliary Body

It is a triangular forward extension of the choroid at the ora serrate.

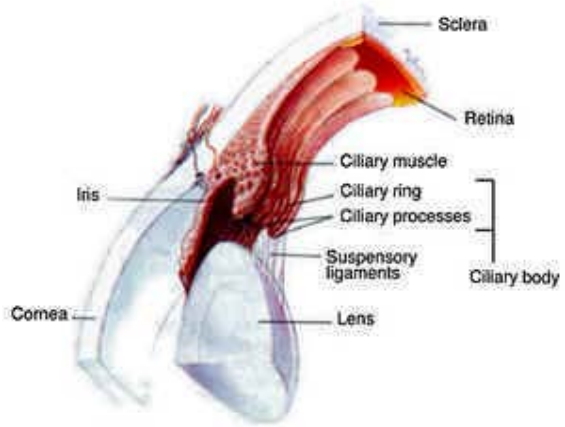
Macroscopic structure- it is triangular in shape. The outer side of the triangle lies against the sclera. The anterior part forms a part of the angle and the posterior chamber. The iris is attached to the center of this surface. The inner side is divided into anterior 2-2.5mm of pars plicata and posterior smooth pars plana. It is 5mm wide temporally and 3mm wide nasally.

Microscopic structure- the structures from outwards to inwards are:

- Supraciliary lamina- it is the continuation of suprachoroidal lamina and anteriorly continues as anterior limiting membrane of iris. It is a condensed part of stroma and consists of pigmented collagen fibers.
- Stroma consists of connective tissues , ciliary muscles, vascular stroma, nerves and pigment cells.
    - Ciliary muscles- non striated muscles with 3 parts the longitudinal fibers, the circular fibers and the radial fibers
        - Longitudinal fibers or meridional fibers- take origin from the tendinous fibers from the scleral spur and adjacent trabeculae and run posteriorly to get inserted into the suprachoroidal lamina beyond the equator.
        - Circular fibers- they run parallel to the limbus and are nearest to the lens.
        - Radial fibers- they are oblique fibers which become continuous with the circular fibers. The main action of the ciliary body muscles is to sclaken the zonules and cause accomadation. The longitudinal fibers may help in aqueous drainage also.

- Vessels the major arterial circle lies in this connective tissue. It is formed by the anastomosis of the long posterior ciliary arteries and the anterior ciliary artery and supply the iris and the ciliary body.

- Layer of pigmented epithelium- it is the continuation of the RPE and continues anteriorly as the anterior pigments epithelium of the iris.
- Layer of non pigmented epithelium – it the continuation of the neurosensory retina and continues anteriorly as the posterior pigmented epithelium of the iris.
- Internal limiting membrane- it is the forward continuation of the internal limiting membrane.



Choroid

It extends from the optic disc to ora serrate.

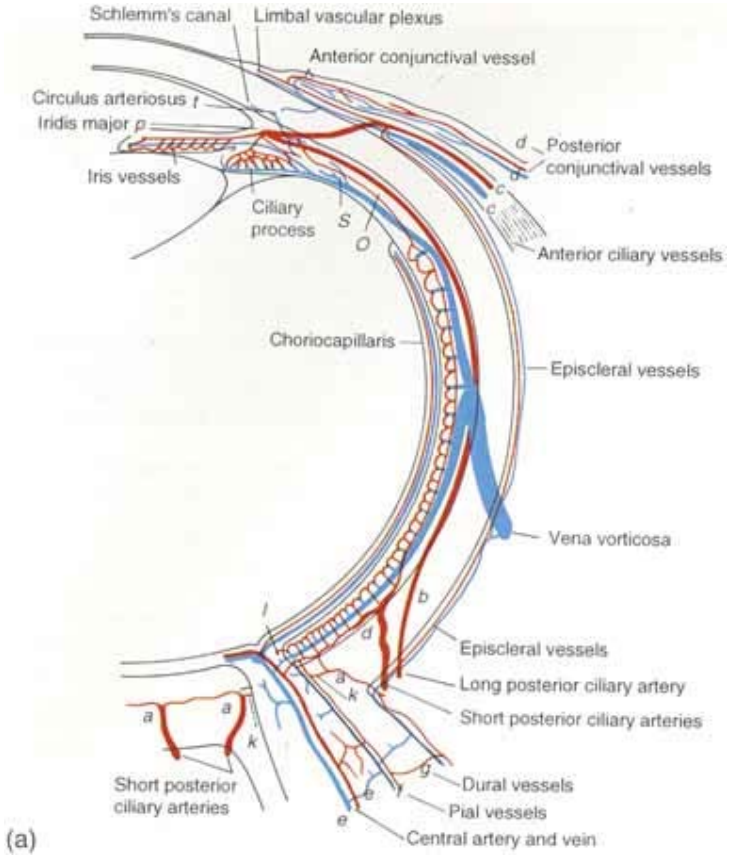
Microscopic structure: from outside inwards the structures are as follows

- Suprachoroidal lamina- it is a membrane of condensed collagen fibres, melanocytes and fibroblasts. The potential space between this membrane and the sclera is called suprachoroidal space which contains the long and short posterior ciliary arteries and nerves.
- Stroma of the choroid- it consists of elastic fibres, reticular fibres, pigment cells, macrophages , mast cells, plasma cells, lymphocytes and vessels. The vessels are arranged in two layers. The outer larger *layer of Haller's*, the inner medium sized vessels *Sattlers layer*. These terminate as small arterioles and connect to the choriocapillaries. The outter most part contains the veins.
- Choriocapillaries – these are fenestrated capillaries. They supply the RPE and outer layers of the retina. They are divided into non over lapping lobules.
- Basal lamina or Bruch's membrane- it's the inner most layer of the choroid and is 2-4μm thick. It consists of the basement membrane of the RPE, an inner collagen layer, a middle elastic

layer, an outer collagen layer and the basement membrane of the choriocapillaris.

Blood supply is through the Short posterior ciliary arteries. They arise as two branches from the ophthalmic artery and divide into 10-20 branches around the optic nerve and form the circle of zinn-Haller and supply the choroid in a segmental manner.

Venous drainage- this is through the vortex veins. They are 4 in no. and situated 6 mm behind the equator of the globe. They are present at the superotemporal, inferotemporal, superonasal and infero nasal location. At the choroidal end they have an ampulliform dilatation. They drain blood from the entire choroid, small veins from the retina, small veins from the optic nerve head. The two superior vortex veins drain into the superior ophthalmic vein either directly or through the muscular or lacrimal tributaries. The two inferior veins drain into the inferior ophthalmic veins.



Psoriasis introduction

History

The term *psoriasis* was first used by Galen.

Epidemiology

Prevalence

Prevalence in different parts of the world is different, world wide prevalence is 0.1- 3% of general population. In India the prevalence of psoriasis is 0.8%- 5.6% based on clinical and hospital studies[1]

Age of onset

There is a bimodal age of onset, first peak at 15-20 years and second peak at 55-60yrs.

Based on the age of onset there are two type

Type 1- hereditary

Early onset <40 years, hereditary, patients have HLA association

Type 2-sporadic

Late onset, no family history, no HLA association

Sex ratio

There is almost equal frequency of distribution among males and females world wide. In Indian studies a slight male preponderance was noted. (1)

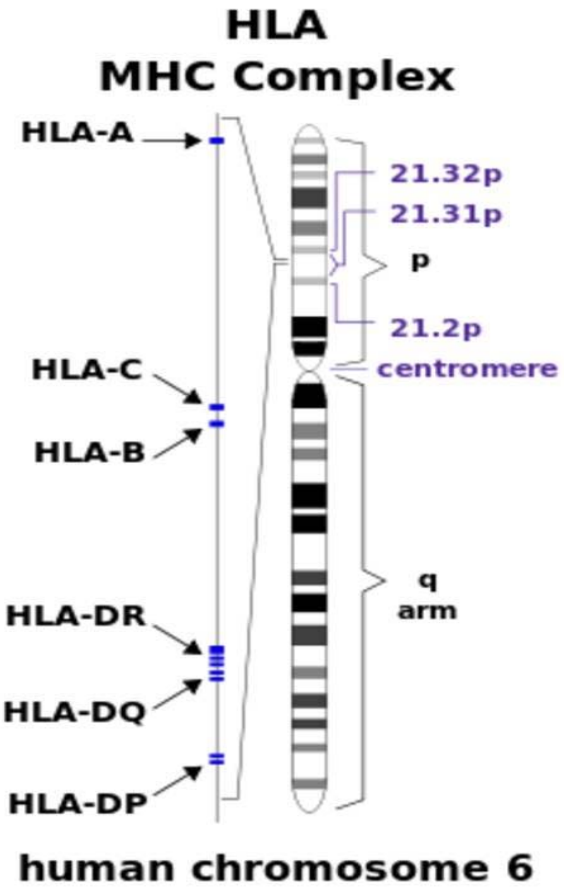
Genetic inheritance (2)

30% of the patients have an affected first degree relative.

Psoriasis develops in half of the siblings if both parents are affected, 16% of the siblings if 1 parent is affected and 8% if neither parent is affected.

HLA- human leucocyte antigen / histocompatibility lymphocyte antigen

All animals with WBC's express a family of cell surface glycoproteins called Major Histocompatibility Antigen, in humans its called Human Leucocyte Antigen (HLA)



There are 6 different families of HLA

Class 1

It is found on all nucleated cells. It has 3 loci –A, -B, -C

It consists of 3 alpha chains and 1 beta2 microglobulin glycoprotein which is non covalently linked to it.

There are many polymorphic variations to these loci,

eg: 25 alleles for HLA –A, 50 alleles for HLA –B and 10 for HLA-C .

This HLA class has following functions

1. Serves as recognition antigen for cytotoxic CD8 Tcells.
2. They participate in allograft rejection.
3. They participate in autoimmune diseases.

Class 2

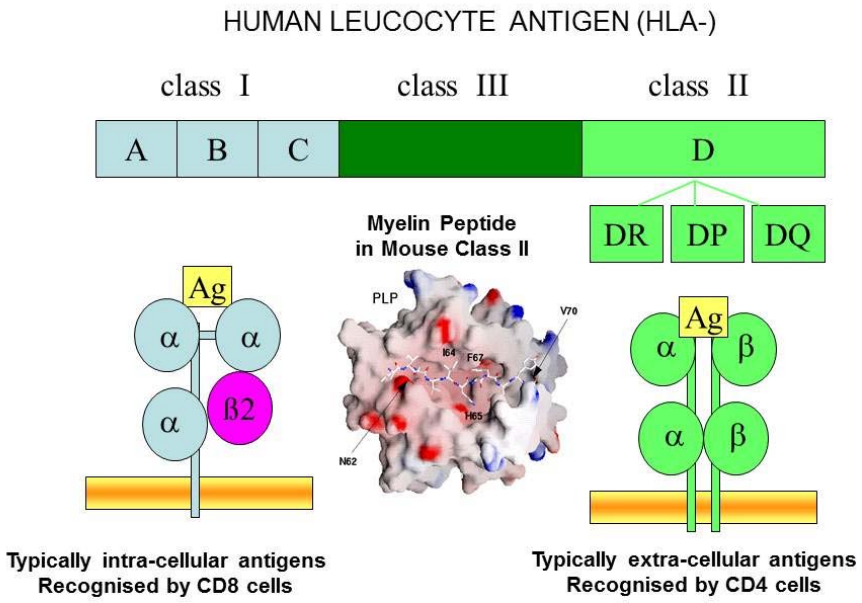
This class has 3 loci –DR, -DP, -DQ

It consists of 2 alpha chains of 35000Da molecular weight and 2 beta chains of 28000Da molecular weight non covalently bound to each other.

There are 100 alleles for –DR

Class 3

It consists of components of the complement cascade.



Each individual has 1 haplotype from each parent. An APC thus expresses 6 pairs of HLA.

The presence of many different HLA alleles within a population ensures that the adaptive immunity in at least some individuals in the whole group will be able to respond to a wide range of potential pathogens. Conversely some individuals may have an increased risk of immunologic diseases because of either aberrantly strong immune response to a benign pathogen or autoimmune disease arising from inappropriate recognition of host peptides as foreign.

Presence of certain HLA types have been linked with disease occurrence. The inappropriate expression of the antigen coupled with lapse of immune surveillance could lead to disease. The reason for this occurrence has been hypothesized as *molecular mimicry*. Clones of the immune cells can escape positive and negative selection process in the thymus. They are then activated by exogenous factors and mount a response against the self peptides. This hypothesis is present in the context of HLA B27.

HLA Disease association

HLA disease association is defined as the statistically increased frequency of a HLA haplotype in persons with that disease compared to the frequency in a disease free population.

The ratio of these frequencies is called relative risk.

HLA association identifies individuals at risk but it is not a diagnostic marker.

HLA associations of psoriasis

S.no.	HLA type	Charecteristics
1.	HLA- B13, -Bw57, -Cw6, -DR7	Early onset psoriasis
2.	HLA- A2, -B27	Late onset psoriasis
3.	HLA- Cw6	Exacerbation following streptococcal infections
4.	HLA- B13, -B17	Guttate and erythrodermic psoriasis
5.	HLA- Cw6, - B13, B16,B17	Psoriasis with or without arthritis
6.	HLA- B27, -B7, -B38, -B39	Psoriatic arthritis
7.	HLA- B27	Pustular psoriasis, acrodermatitis, psoriatic arthritis with spinal involvement.
8.	HLA- B38, -B39	Psoriatic arthritis, peripheral arthritis
9.	HLA- DR4	Rheumatoid like psoriatic arthritis
10.	HLA-Aw19, -Bw35	Pustulosis of palms and soles
11.	HLA- B39, -B27, -DQw3	Disease progression in early psoriatic arthritis
12.	HLA –B22	Protective for disease progression

Pathophysiology of psoriasis

Psoriasis is characterized by infiltration of the skin with activated T cells, these elaborate cytokines and growth factors which stimulate the keratinocytes and cause hyper proliferation.

Antigen triggers cause T cell proliferation. There is a dysregulation in T cells leading to increased proliferation of Th1 Th 17 cells and antigen presenting cells. These release cytokines and other growth mediators causing hyper proliferation of keratinocytes which is seen clinically as scaly lesions. There is increased production of vascular growth factors seen as Auspitz sign clinically.

Triggering and modifying factors of psoriasis

Psoriasis has a chronic relapsing and remitting course with certain triggers.

The factors which trigger and modify psoriasis are

1. Local injury to the skin can cause new lesion formation in the site of injury to the papillary dermis. This is called as Koebners phenomenon.
2. Seasonal variations- worsening in winter seasons.
3. Pregnancy- pregnancy generally causes remission. There maybe an exacerbation in the post partum period.
4. Emotional stress- upto 60% patients have exacerbation following stress.
5. Infections – many infections can cause exacerbations. URI especially with streptococcal species flares up psoriasis or precipitates Guttate psoriasis. Similarly HIV may exacerbate the disease but does not increase the disease frequency.
6. Drugs- the following drugs will cause exacerbation of psoriasis- beta blockers, lithium, Anti malarial,Imiquimod, Interferons α and γ, ACE inhibitors, sodium valproate, carbamazepines, clonidine, glibenclamide and tetracyclines.
7. Smoking and alcohol causes exacerbation.
8. Obese patients have a severe form of the disease.

Clinical features

Psoriasis presents with a chronic symmetrical erythematous well defined dry red scaly papules and plaques with a predilection for the extensor aspect of the limbs.

Clinical classification

1. Guttate psoriasis- small papules.
2. Chronic plaque psoriasis or *psoriasis vulgaris*- this is the commonest type seen in 90% patients
3. Exfoliative psoriasis or erythrodermic psoriasis
4. Pustular psoriasis
5. Psoriasis unguis
6. Mucuous membrane psoriasis
7. Arthropathis psoriasis
8. Regional variations- scalp, face, eyes, body flexures, scrotum, napkin area, palms and soles.

Psoriatic arthritis

Its an inflammatory arthritis with negative rheumatoid factor.

Arthritis occurs in 5-10% of psoriasis patients, it rarely precedes the skin involvement.

Presence of HLA B27, -DR3, -A26, -AB38 are associated with joint involvement.

There are 5 pattenrs of psoriatic arthritis.

Classic psoriatic arthritis

It occurs in 16% of the patients

It involves the Distal inter phalangeal joints of toes and fingers.

In acute stage the involved joint is swollen and tender and there is swelling of juxta articular tissue leading to the so called sausage appearance of joints of fingers and toes.

Rheumatoid type

Occurs in 15% patients

Symmetrical polyarthritis with proximal inter phalangeal joint involvement and negative rheumatoid factor.

Arthritis mutilans

It occurs in 5% of the patients

There is osteolysis and destruction of bones of the hands and feet resulting in telescoping of soft tissue and gross deformities.

Oligoarticular arthritis

Most common form of arthritis seen in 70% of patients

Single or few interphalangeal or metacarpophalangeal joints involved in asymmetrical manner.

Psoriatic spondylitis

There is an association between psoriasis and Ankylosing spondylitis. Though spine involvement is present not all patients will develop a full blown Ankylosing spondylitis.

Treatment

There are various treatment modalities available for psoriasis and the type of treatment depends on the severity of the disease, location of the lesion and associated systemic features.

Topical treatment

Glucocorticoids

Vitamin D analogues- calcipotriene, calcitriol

Topical retinoids- Tazarotene- teratogenic, contraindicated in pregnancy

Calcineurin inhibitors- Tacrolimus, pimecrolimus- newer modality not FDA approved.

PUVA

Psoralin with UV- A exposure. Psoralin is a photosentizer which activates with UV-A and clears the lesions.

UV-B or narrow band UV-B can also be used.

Systemic treatment

Systemic steroids are avoided as they can cause severe pustular psoriasis on withdrawal.

Methotrexate is most commonly used 7.5to 25mg single weekly dose.

Mechanism of action: It has two distinct mechanisms of action.

- In the rapidly dividing cells it acts by inhibiting the dihrdofolate reductase enzyme. This enzyme is required for the conversion of dihydro folate to tetrahydro folate which is essential for DNA and RNA synthesis.
- In autoimmune diseases it reduces the synthesis of leukotriene B4 in neutrophils, decreases the concentration of IL-1β in synovial fluid and suppresses cell mediated immunity.

It can cause hepatotoxicity, nephrotoxicity, acute pneumonitis and is a known teratogen. It is secreted in the tears. Ocular toxicities include periorbital edema, blepharoconjunctivitis, reduced reflex tear secretion and optic neuritis. These adverse effects can be reduced with folate supplementation.

Ciclosporine – it is a macrolide product of the fungus Beauveria nivea.

Mechanism of action: It is a calcinueurin inhibitor that eliminates T cell receptor signal transduction by acting at the NF- AT nuclear factor activated T lymphocytes. This down regulates the IL-2 gene transcription and expression of CD4 T lymphocytes.

It causes hypertension, nephrotoxicity, paresthesia, fatigue, hypertrichosis and gingival hyperplasia. Psoriasis patients treated with cyclosporine appear to be at a greater risk of developing primary skin cancers.

Given in a dose of 2.5-5mg/kg/day PO

Biologics

Etarnacept – it is a monoclonal antibody against TNFα

It is found to be effective in treatment of joint disease but not very effective in ocular inflammation. If patients on etarnacept develop uveitis it is advised to switch to a different TNFα inhibitor.

Ocular manifestations in psoriasis

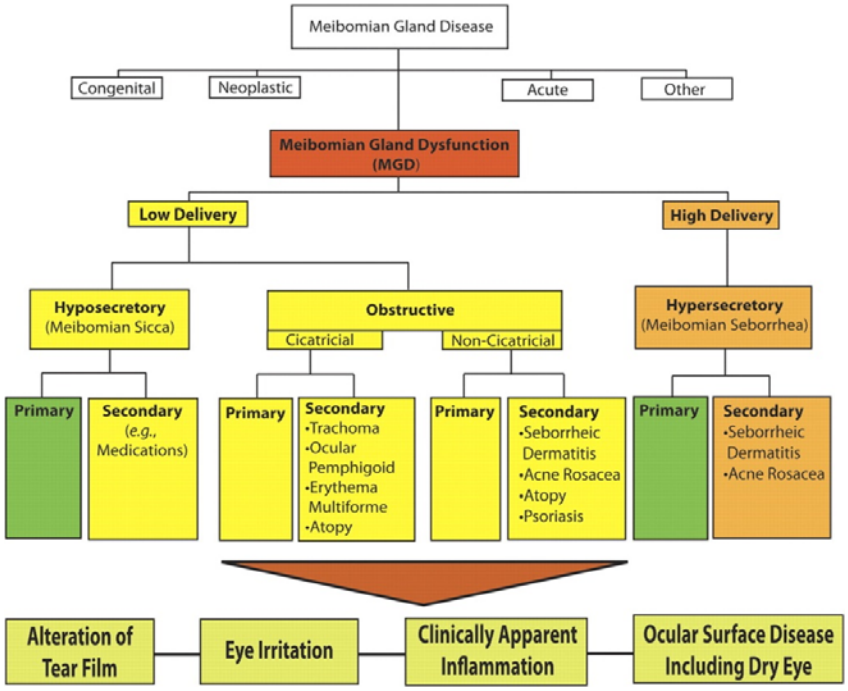
The involvement of eye in this skin disorder is known for many years but not very extensively documented. It causes inflammation of various coats of the eye and the various ocular inflammatory manifestations may show exacerbations along with dermatological exacerbations especially the epithelial inflammations.[4] The exact pathophysiology of the various features are not well known but a brief review of the manifestations and their possible cause of occurrence is as follows.

Eye lids

Eyelid involvement in psoriasis can be in the following forms

- Direct involvement of the lid with hyperkeratotic plaques, these can extend onto the lid margin also.
- Anterior blepharitis is a common manifestation. It is seen more commonly in patients with scalp psoriasis.
- Increased incidence of meibomian gland dysfunction has been reported in patients with psoriasis accounting for posterior blepharitis and evaporative dry eye.[4]
- Blepharitis can also occur as a result of treatment for psoriasis with drugs like retinoids.
- Long term blepharitis maybe associated with complications like trichiasis, ectropion, entropion.

- Psoriasis is found to be a cause of madarosis [5].



The above chart highlights the secondary obstructive decrease in Meibobian gland function.

Dry eye

Dry eye is a multifactorial disease of the tear film due to reduced tear production or excessive tear evaporation, with potential damage to the ocular surface. It is accompanied with symptoms of discomfort and visual disturbance.

Dry eye can be classified as aqueous tear deficiency(ATD) , evaporative tear deficiency (ETD) or combined. The characteristic findings for dry eye disease diagnostic testing are as follows

	Test	Findings
Aqueous tear deficiency (ATD)	Tear break up time	<10sec considered abnormal
	Ocular surface dye staining	Interpalpepbral corneal and bulbar conjunctival staining
	Schmiers test	5mm or less with anaesthesia is abnormal
Evaporatimeve tear deficiency (ETD)	Tear break up time	<10sec considered abnormal
	Ocular surface dye staining	Staining of inferior cornea and conjunctiva.

Etiological factors for dry eye in psoriasis include the following

- Systemic inflammatory diseases and Arthritis has been associated with increased risk of dry eye.
- Blepharitis and associated meibobianitis can increase dry eye [6] This type of dry eye is usually due to excess evaporation due to lipid deficiency.
- Chronic inflammation of the conjunctiva causes goblet cell dysfunction and may cause a reduction in basal tear secretion.
- Systemic drugs such as retinoids, PUVA therapy and the antimetabolites like methotrexate are associated with worsening. [7]

Pathophysiology - decreased tear secretion and clearance initiates an inflammatory response on the ocular surface mediated by cytokines. This theory supports the use of anti-inflammatory for the treatment of severe dry eye.

Mild to moderate dry eye is seen in psoriasis patients. This is not sight threatening but causes redness, discomfort and transient blurring of vision.

Sever dry eye may cause punctate corneal involvement, scarring thinning and vascularization, these are sight threatening and must be prevented by early recognition of the condition and prompt treatment.

Conjunctiva [4]

- *Conjunctival involvement in psoriasis is the commonest ocular finding.* Reported incidence are as high as 64.5 %.
- Conjunctivitis can be in the form of allergic conjunctivitis with follicles or papillae in the palpebral conjunctiva. Toxic conjunctivitis with secondary bacterial or viral infections are also reported. Though not sight threatening conjunctivitis causes redness, irritation and watering.
- Healing may lead to trichiasis , symblepharon or dry eye. Well demarcated yellow red plaques maybe seen in the palpebral conjunctiva. [9]

Cornea

- Corneal involvement by psoriasis is rare.
- Typical corneal lesion described by Pillat in 1934 consists of 3 distinct features- epithelium showing thickening with multiple erosions, Bowmans membrane showing infiltration with superficial vascularization and deeper stromal opacity.
- Marginal keratitis can occur though infrequently.
- Cornea maybe involved due to severe dry eye or blepharoconjunctivitis.
- Manifestations include thinning, scarring and superficial vascularization.

Episcleritis

- It is the inflammation of the episcleral tissue.
- Episclera is dense vascularised connective tissue between the Sclera and the Tenon's capsule.
- It has been reported to occur in psoriasis patients [(6)]. Patients present with sectoral or diffuse congestion, discomfort or mild pain.

Uvea

Inflammation of the uveal tract is called uveitis. About 25% of blindness in developing countries like India is due to uveitis and its related complications [9] Based on the location of maximum involvement, anatomically it is classified by Sun working group as

Type	Primary site of inflammation	Includes
Anterior uveitis	Anterior chamber	Iritis, Iridocyclitis, anterior cyclitis
Intermediate uveitis	Vitreous	Pars planitis, posterior cyclitis. Hyalitis
Posterior uveitis	Retina and choroid	Focal, multifocal or diffuse choroiditis, chorioretinitis, retinochoroiditis, retinitis, neuroretinitis
Pan uveitis	Anterior chamber, vitreous, retina, choroid	

Uveitis in psoriasis patients presents in the following ways

- Psoriasis patients have a slight damage to the blood aqueous barrier and can present with flare. The severity of flare is associated with the disease severity and not the duration of the disease or sex of the patient.[9]
- Uveitis has traditionally been associated with joint involvement but recent studies have shown uveitis to occur independent of joint involvement .Iritis in patients with psoriasis without joint involvement has characteristic features such as older age of onset approximately 48yrs, bilateral involvement, longer duration and requires oral treatment. Complications like retinal vasculitis, CME, papillitis maybe seen.
- 20% patients with psoriasis have joint involvement, 20% of these patients develop uveitis. The uveitis is usually acute anterior uveitis similar to HLA-B27 associated uveitis but with insidious onset, bilateral involvement, chronic course and associated with flare up.
- There is an association between HLA- B27 and early onset of psoriasis and psoriatic arthritis [10]. Patients with HLA B-27 have 1-2% lifetime risk of developing uveitis, this increases to 7% in patients with psoriatic arthritis.

- Possible mechanism of uveitis- pathogenesis

    1. Chronic intracellular infection of the joint or eye might stimulate an immune response using the MHC class 1 HLA B-27 molecule involving a CD8 T lymphocyte effector mechanism activated to kill the microbe but indirectly injuring the eye. i.e individuals bearing a specific HLA molecule might be predisposed to processing certain antigens such as an infectious agent that cross reacts with a self antigen, other individuals lacking this haplotype would not be so predisposed. Infectious triggers include Chlamydia trachomatis, Klebsiella, Yersinia, Shigella, Salmonella, Campylobacter jejuni.
    2. Possible molecular mimicry between HLA molecules and amino acid sequence of the antigens. Acute anterior uveitis is a CD4 Th1 mediated delayed hypersensitivity response. This is seen in response to triggers such as
        - Bacteria derived antigens like cell wall antigen or heat shock proteins trapped in the uvea
        - Endogenous autoantigens like melanin associated antigens, type 1 collagen, myelin associated proteins.

3. The T lymphocyte antigen receptor gene maybe the susceptibility factor.

- Severe sight threatening posterior segment involvement maybe seen in psoriasis patients, this is a under recognized phenomenon. [11] [12]
- Clinical presentation of uveitis
    - Acute anterior uveitis- patients present with pain , photophobia , redness. On examination anterior non granulomatous type of uveitis with fine KP's, flare and cells is common.
    - It maybe associated with intermediate uveitis presenting with pars planitis, vitritis, snow ball formation.
    - Rarely posterior involvement with a peripheral chorioretinitis occurs.
    - The patients may also have unexplained poor vision with no signs of acute inflammation.
- Due to the varied presentation any patient with defective vision must have an ophthalmic evaluation.

Part 2

AIM

Psoriasis is an autoimmune disease with many extra cutaneous manifestations. There is not much data on the ocular manifestations of psoriasis in south Indian population. The aim of this study is to analyze the various ocular abnormalities in patients with psoriasis.

MATERIALS AND METHODS

This is a cross sectional, descriptive, non interventional hospital based study. The period of study was from May 2012 to august 2013.

Institutional ethical committee approval for conducting the study was obtained.

Patients presenting to the dermatology department of Stanley medical college, diagnosed with psoriasis were examined for ocular manifestations at the department of ophthalmology, Stanley medical college. Sampling technique was consecutive and 75 patients (150 eye) were enrolled in this study.

Importance of ocular examination was explained to the patients. Evaluation procedures were explained and an informed consent was taken from all the patients. After obtaining the consent the 150 eye were thoroughly examined.

The following evaluation was done

- Relevant ocular history.
- Duration of psoriasis and the treatment taken.
- Best corrected visual acuity
- Slitlamp evaluation of the anterior segment.
- Posterior segment evaluation with indirect ophthalmoscope and slitlamp biomicroscopy using 90D.

- IOP measurement using Goldmann applanation tonometry.
- Dry eye evaluation by
    - Schirmer test using whatmann 41 filter paper. Schirmers 1 tests both basal and reflex tear secretion. It is done by placing the filter paper in an un anaesthetized cornea for 5 minutes. Wetting less than 10mm after 5 min is considered abnormal.

      Schirmers 2 tests the basal secretion it done after applying paracaine drops. Wetting less than or equal to 5mm after 5 min is considered abnormal.
    - Tear break up time- a TBUT of <10 seconds was taken as abnormal.
    - Ocular surface staining with fluorescein dye- interpalpebral corneal and bulbar conjunctival staining in ATD, inferior cornea and bulbar conjunctiva is seen in ETD.
- Fundus pictures and FFA was done when appropriate.
- X-rays were taken when required.

- INCLUSION CRITERIA
    - All psoriasis patients

- Exclusion criteria
    - Patients with other serious comorbid conditions
    - Patients on PUVA therapy
    - Patients with other systemic illness like DM ,HT, Bronchial asthma which may have similar ocular findings.

OBSERVATIONS AND DISCUSSION

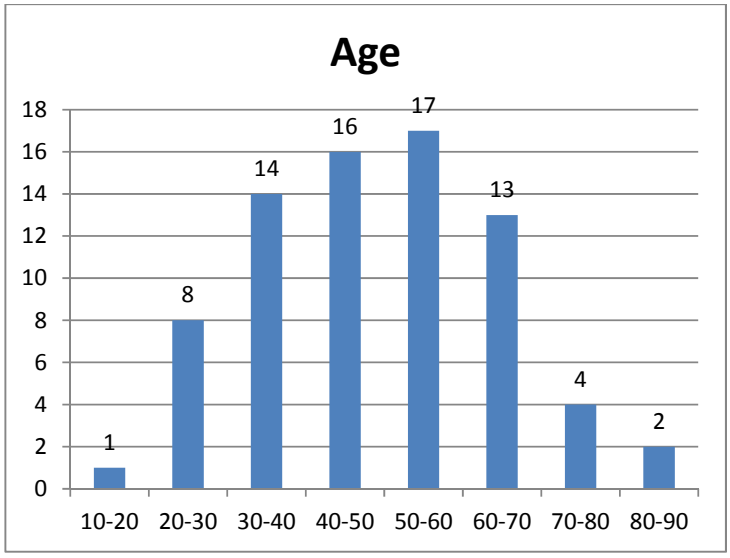
In this study, a total of 75 patients of psoriasis who were referred from department of dermatology Stanley medical college to the department of ophthalmology were enrolled in the study after obtaining informed consent and were subjected to through ocular examination.

DEMOGRAPHIC DATA

Age incidence

The age distribution of the patients included in this study is as follows:

GRAPH 1: Age distribution



Maximum no. of patients are in the age group of 30-70 yrs. The range included patients from 14 yrs to 80 yrs. The mean age group of the patient's is 48.24yrs.

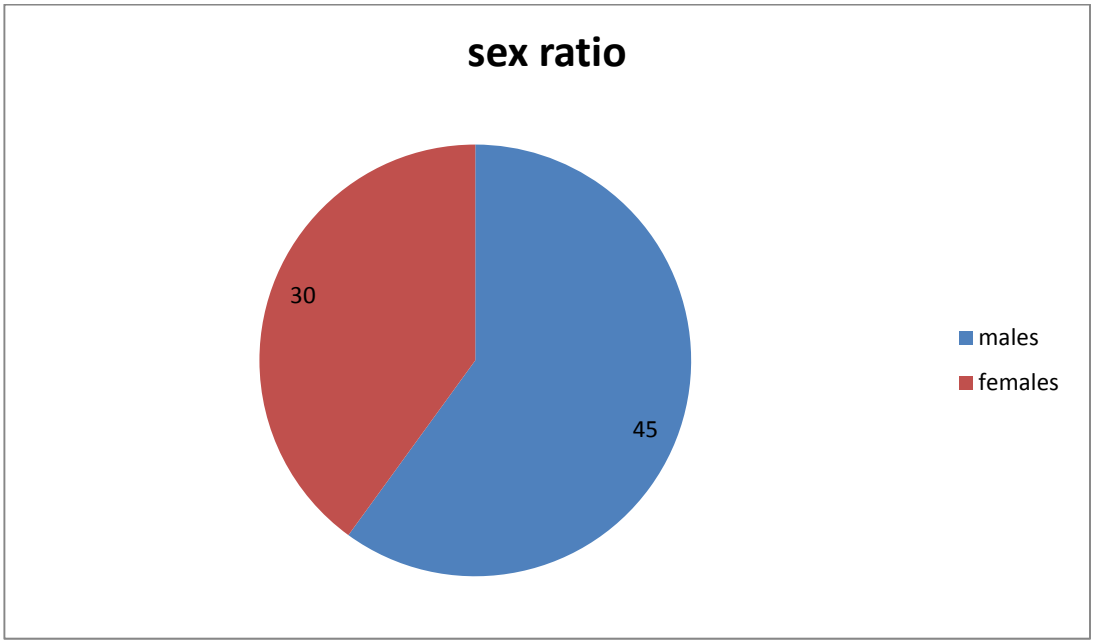
Sex ratio

The no. of males in this study were 45, forming 60% of the total no. of patients in the study population. The male : female ratio in this study was 3:2. Though there is no sex predilection for psoriasis world wide, Indian studies show a slight male preponderance.

TABLE 1: Sex ratio

Sex	No. of cases	%
Males	45	60%
Females	30	40%

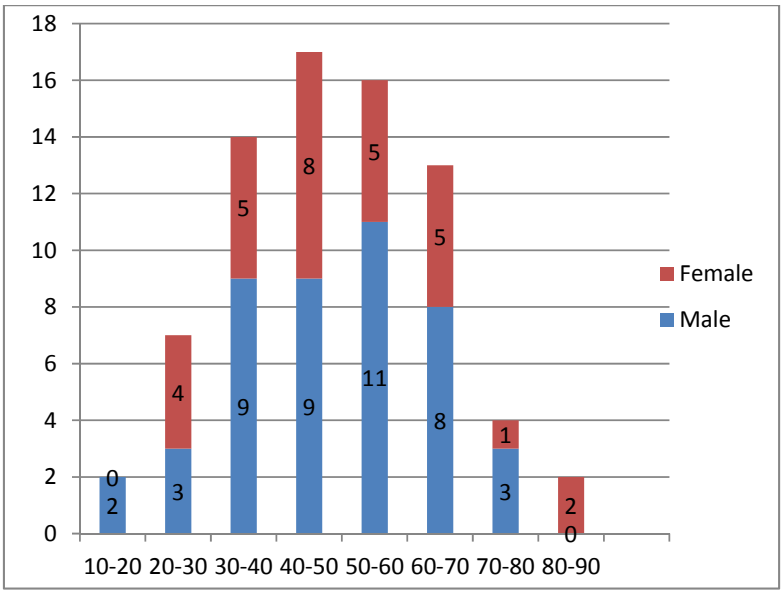
GRAPH 2: Sex ratio



Age wise gender distribution

The age wise male female distribution in the population is almost equal.

GRAPH 3: Age wise gender distribution:



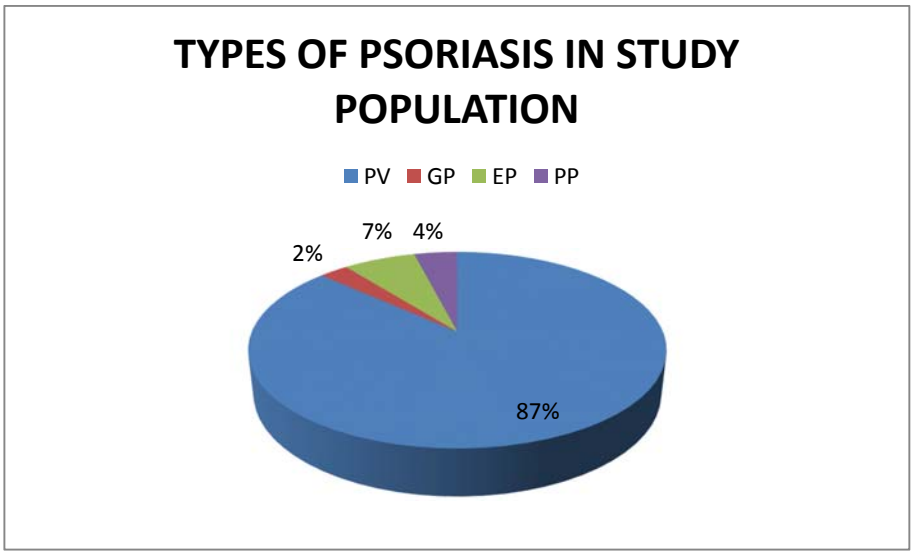
Types of psoriasis in the study population

The study group consisted of 87% patients of psoriasis vulgaris. 7% had Erythrodermic Psoriasis, 4% had Pustular Psoriasis and 2% had Guttate Psoriasis.

TABLE 2: Types of Psoriasis in study population

Type of psoriasis	No. of patients	%
Psoriasis vulgaris	65	87%
Erythrodermic psoriasis	5	7%
Guttate psoriasis	2	2%
Pustular psoriasis	3	4%

GRAPH 4: Types of Psoriasis in study population



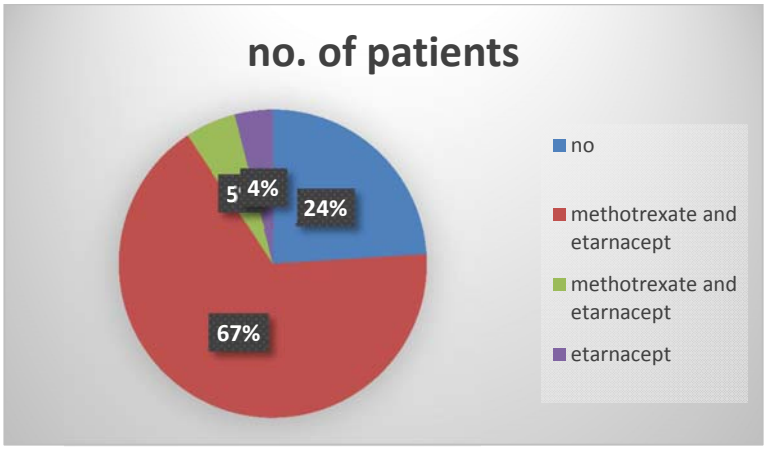
Treatment taken by the patients

The treatment taken by the patients in the study group is as follows:

TABLE 3: Treatment taken:

Treatment options	no. of patients
No	18
methotrexate and etarnacept	50
methotrexate and etarnacept	4
Etarnacept	3

GRAPH 5:



Majority of the patients were under treatment for their dermatological condition. 67% were prescribed T. Methotrexate. 24% were newly diagnosed patients and were not on any treatment at the time presentation.

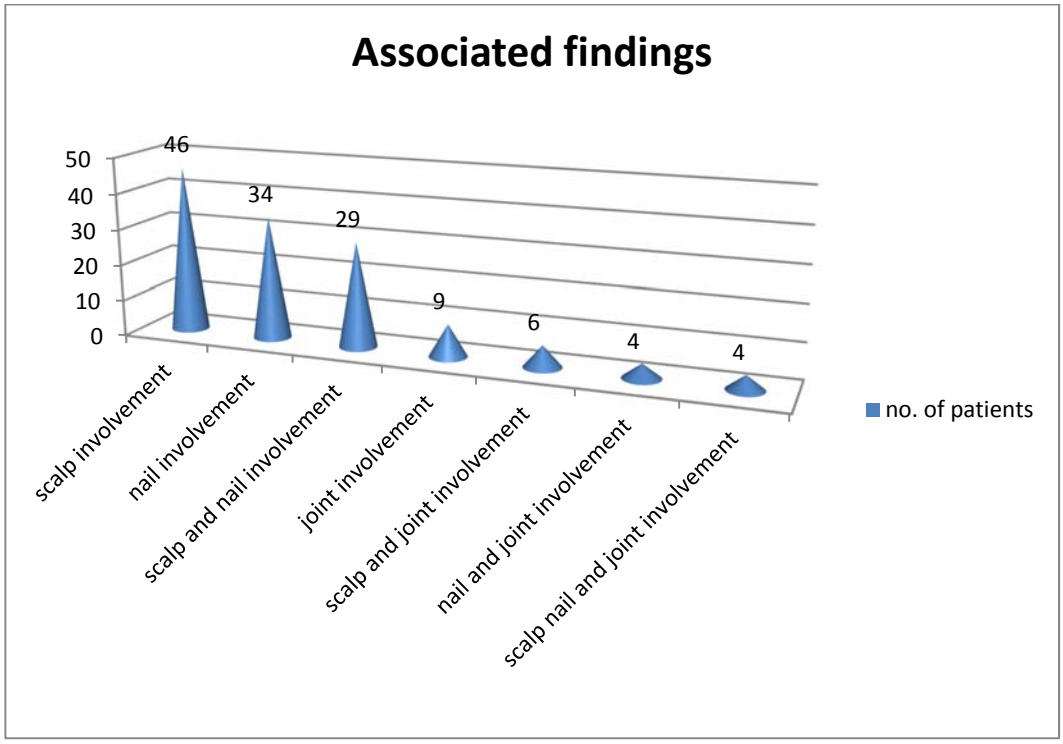
No. Of patients with, scalp involvement, nail involvement and joint involvement

Psoriasis can be plaque type involving any part of the body. The occurrence of scalp psoriasis is associated with increased ocular findings in many studies. The patients with scalp involvement in our study population was 61.33%. Nail involvement was seen in 45.33% patients and joint involvement was seen in 12% of the patients.

TABLE 4: scalp, nail and joint involvement in study population

Other findings	No. of patients	%
Scalp involvement	46	61.33%
Nails involvement	34	45.33%
Scalp and nail involvement	29	38.66%
Joint involvement	9	12%
Scalp and joint involvement	6	8%
Nail and joint involvement	4	5.33%
Scalp nail and joint involvement	4	5.33%

GRAPH 6: scalp, nail and joint involvement in study population



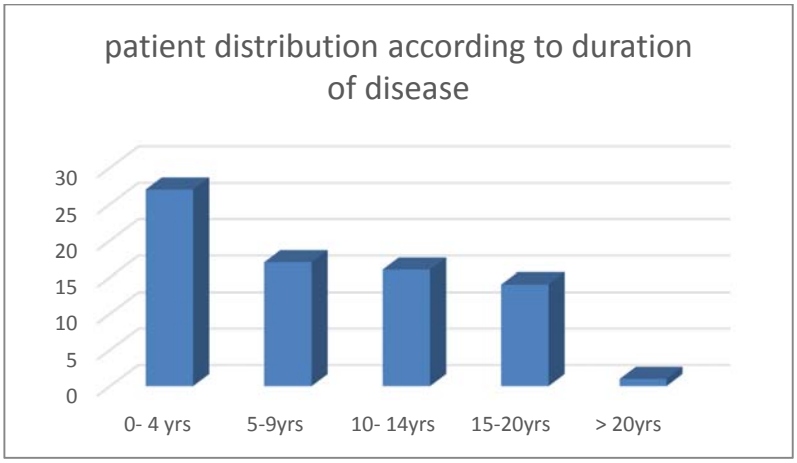
Duration of disease among the patients:

The duration of psoriasis among the various patients is as follows:

TABLE 5: Disease duration among study population:

Duration of disease	no. of patients
0- 4 yrs	27
5-9yrs	17
10- 14yrs	16
15-20yrs	14
> 20yrs	1

GRAPH 7: Disease duration among study population:



58.66% of patients are having duration of disease < 10 years. The average duration of disease in this study was 6yrs.

OCULAR MANIFESTATIONS

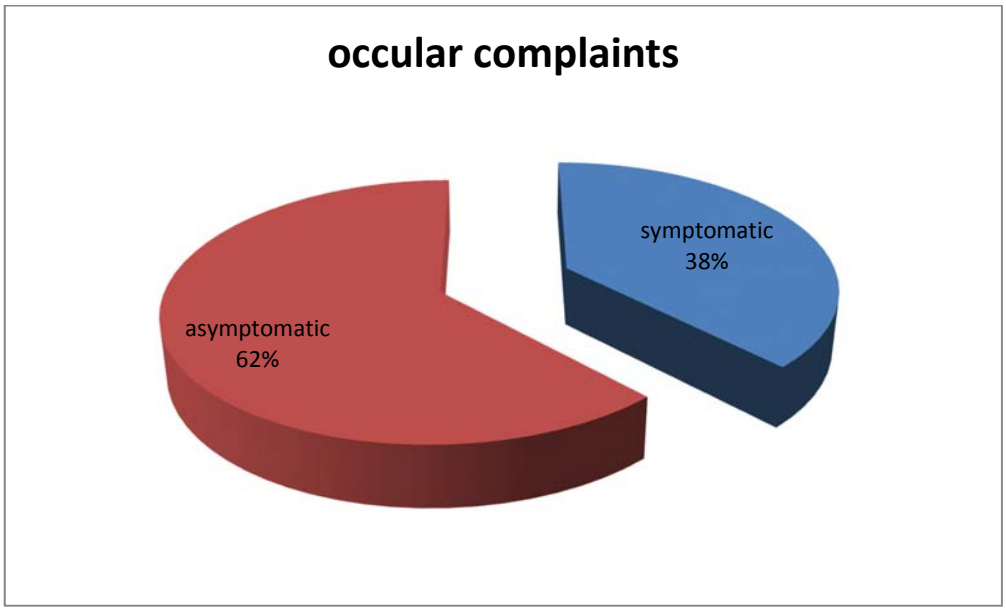
No. Of Patients Who Were Symptomatic

With regard to ocular complaints among the screened population, 38.66% were symptomatic whereas 61.33% were asymptomatic.

TABLE 6: Symptomatic and asymptomatic distribution of patients:

	NO. OF PTS	%
SYMPTOMATIC	28	37.33%
ASYMPTOMATIC	47	62.66%

GRAPH 8: Symptomatic and asymptomatic distribution of patients:



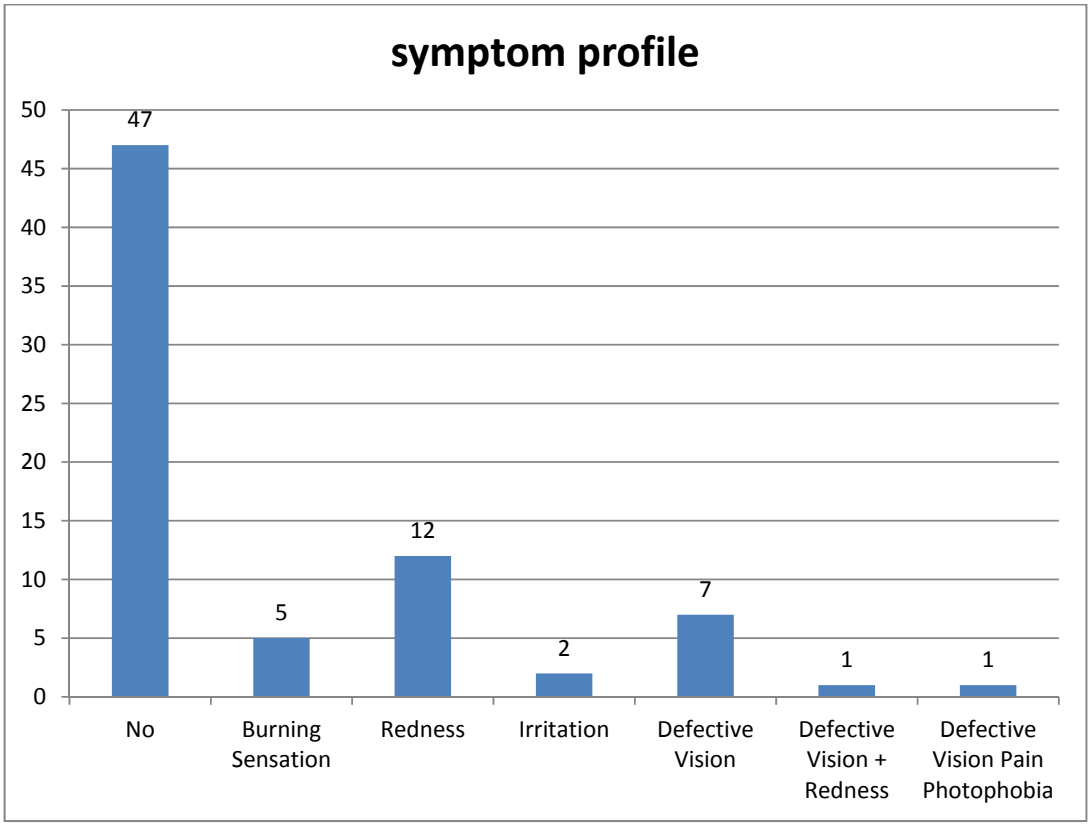
1. Symptom Profile

TABLE 7: symptom profile

Ocular Symptoms	No of Pts
No	47
Burning Sensation	5
Redness	12
Irritation	2
Defective Vision	7
Defective Vision + Redness	1
Defective Vision Pain Photophobia	1

Among the symptomatic patients the most common symptom was redness seen in 42.85% pts, followed by defective vision in 25% patients. 7% of the symptomatic patients had irritation 3.5% patients had pain photophobia and redness associated with defective vision.

GRAPH 9: symptom profile



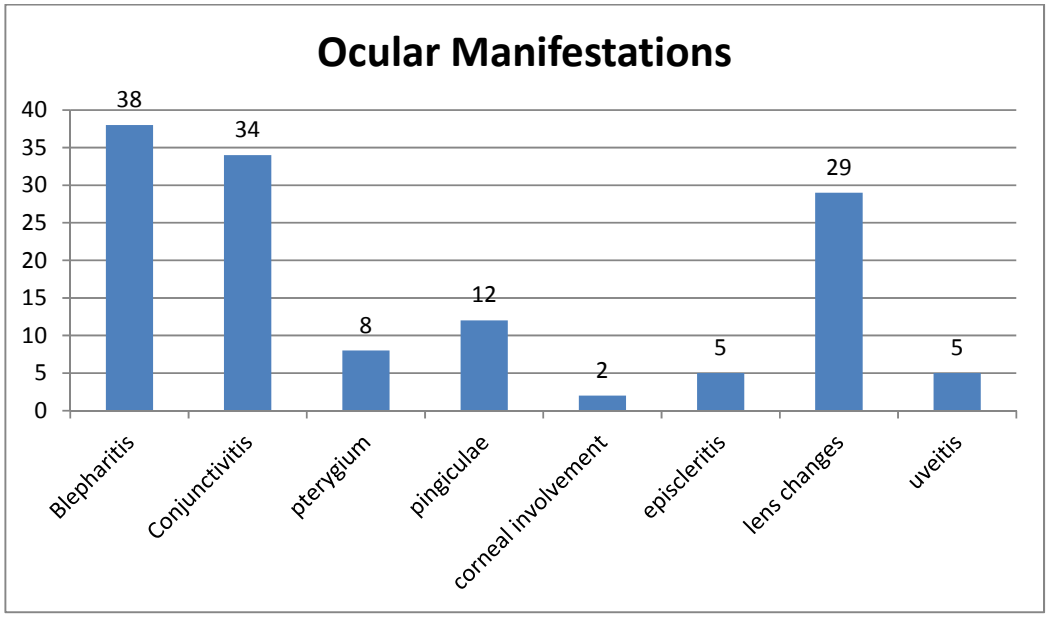
Various Ocular Findings Seen In Psoriasis Patients Is As Follows:

TABLE 8: OCULAR FINDINGS IN PSORIASIS

Findings	No. of eyes	%
Blepharitis	38	25%
Conjunctivitis	34	22.66%
Pterygium	8	5.33%
Pingicula	12	8%
Corneal involvement	2	1.3%
Episcleritis	5	3.33%
Lens changes	29	19.33%
Uveitis	5	3.33%

In my study group consisting of 150 eyes the various ocular findings observed were Blepharitis seen in 25% followed by Conjunctivitis in 22.66%. Corneal involvement in 1.3%. 3.4% of Episcleritis cases were seen.19.33% had lens changes. 3% of the patients had Uveitis.

GRAPH 10 : OCULAR FINDINGS IN PSORIASIS



Among the study population 25% had Blepharitis. It was seen as a direct extension of the plaques onto the lid in 11.33% of the patients. It was also seen apart from direct extension in 19.33% of the patients.

Conjunctival involvement in the form of pterygium and pingicula was seen in the study population but there is no increased association of occurrence of these conditions in psoriasis patients. 22.66% patients had conjunctivitis in our study.

Corneal involvement was seen in 2 eyes among the study population. Both the patients had nebular corneal opacities. No cases of keratitis or corneal vascularization were seen in the study population.

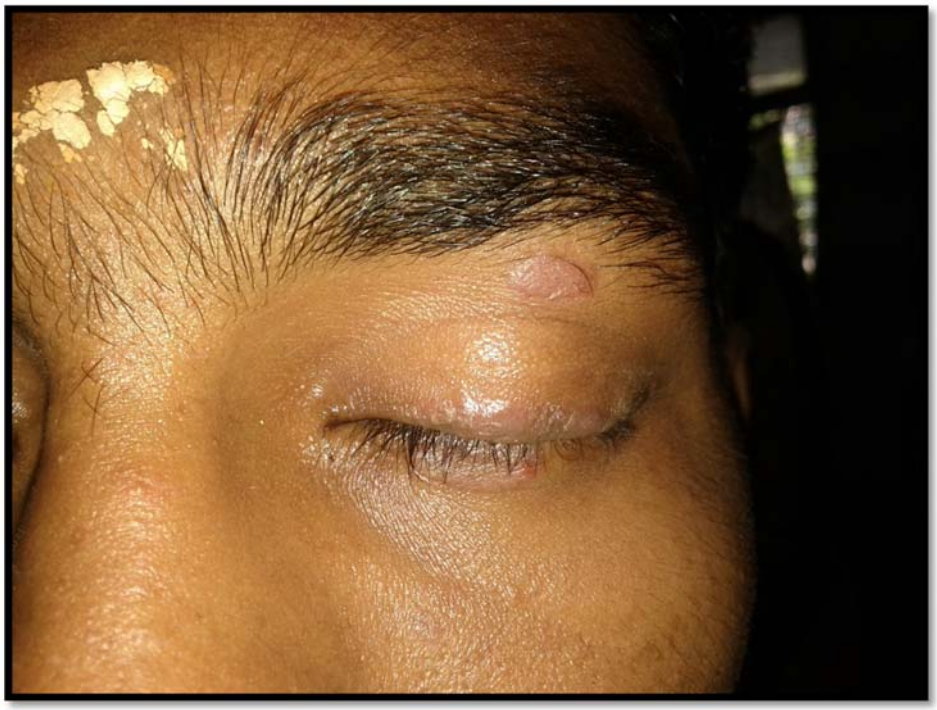
Episcleritis was seen in 5 eyes 3.3% of the population.

Lens changes were seen in 29 eyes. These were normal age related changes and no increase in the incidence of presenile cataract was noted.

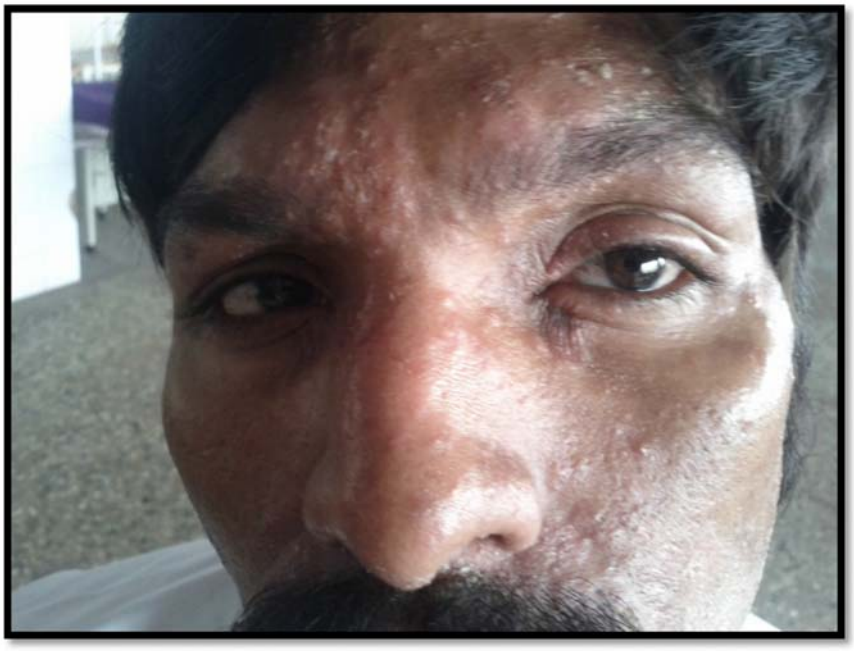
2 patients with uveitis were pseudophakic and other 2 did not have lens changes. No other cases of complicated cataract were noted among the study population.

Uveitis was seen in five eyes 3.33% of the population. One patient was referred from dermatology with complaints of pain, redness photo phobia and defective vision, he had a recurrent bilateral non granulomatous type of anterior and intermediate uveitis. This patient was not on immunosuppressive at the time of referral. On examination patient had circumciliary congestion, fine KP's on the cornea, flare 4+ and cells 3+ in AC, vitreous cells and later membrane formation. Other eye also has KP's flare 2+ and cells 1+ Patient had associated joint involvement for which he was referred to a Rheumatologist. Patient was started on topical and periocular steroids by us and later started on oral methotrexate by the Rheumatologist.

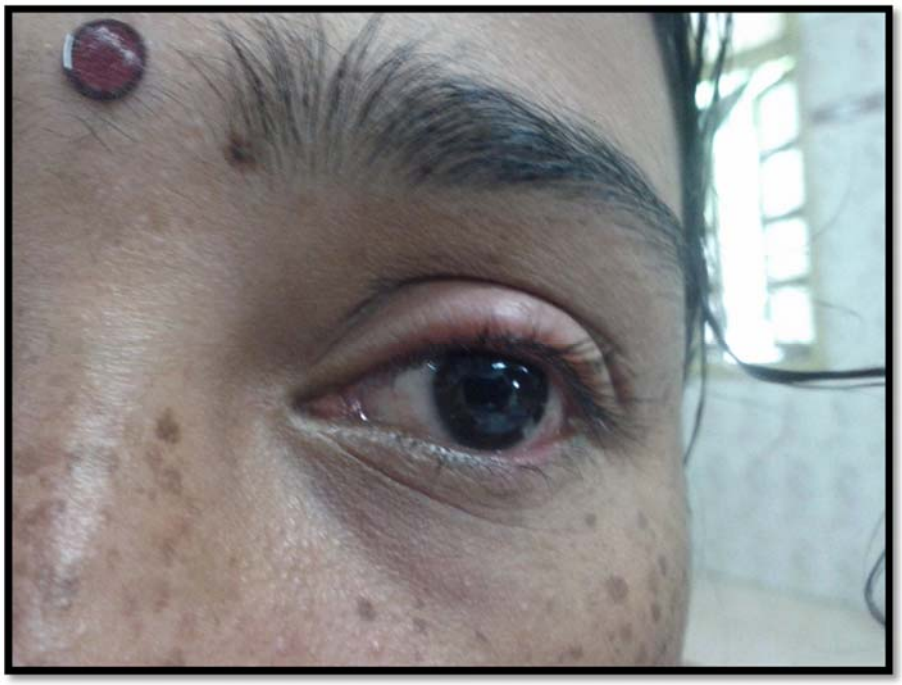
1 eyes of a patient had old K.P's and flare 1+ suggestive of previous attacks of uveitis. Patient was asymptomatic at the time of presentation though he had history of pain and redness previously. Patient was on immunosuppressive drugs for his dermatological lesions and had no recurrences of uveitis or pain during the study period.



Blepharitis with direct involvement of lid

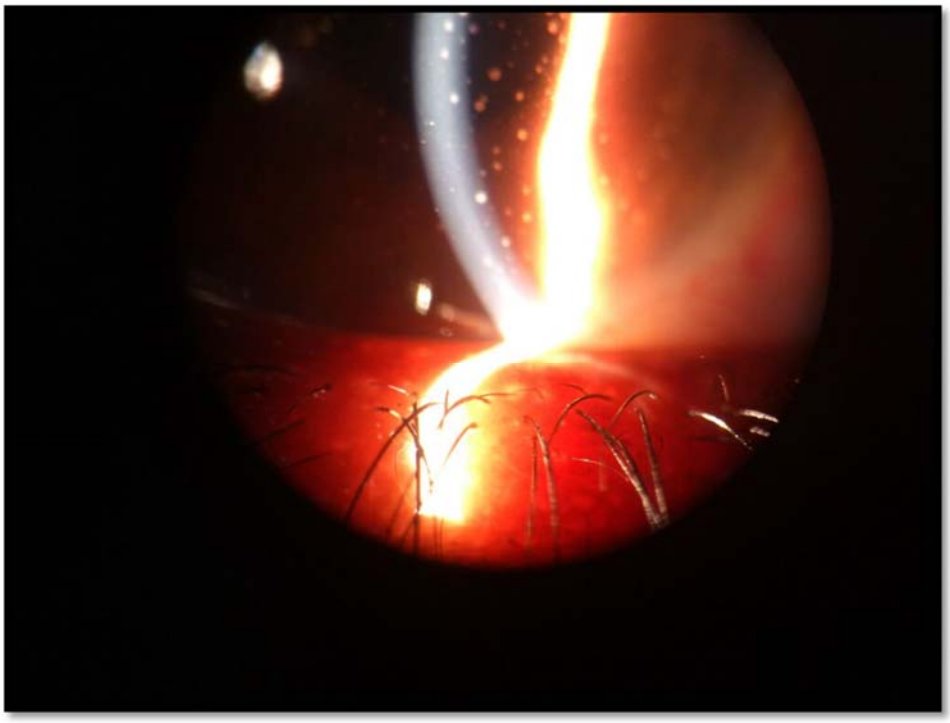


Blepharitis

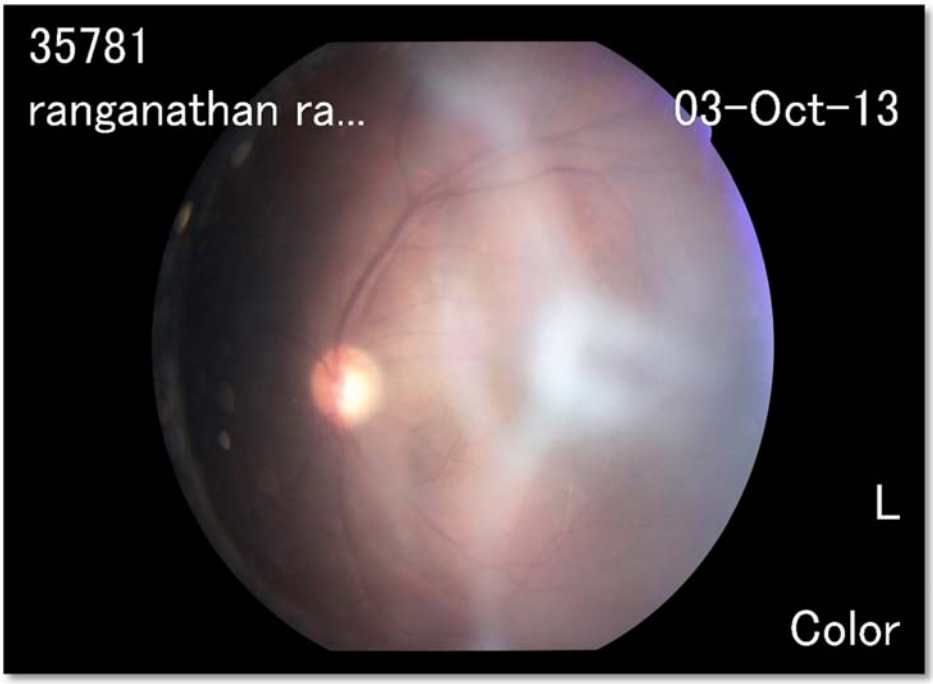


Conjunctivitis

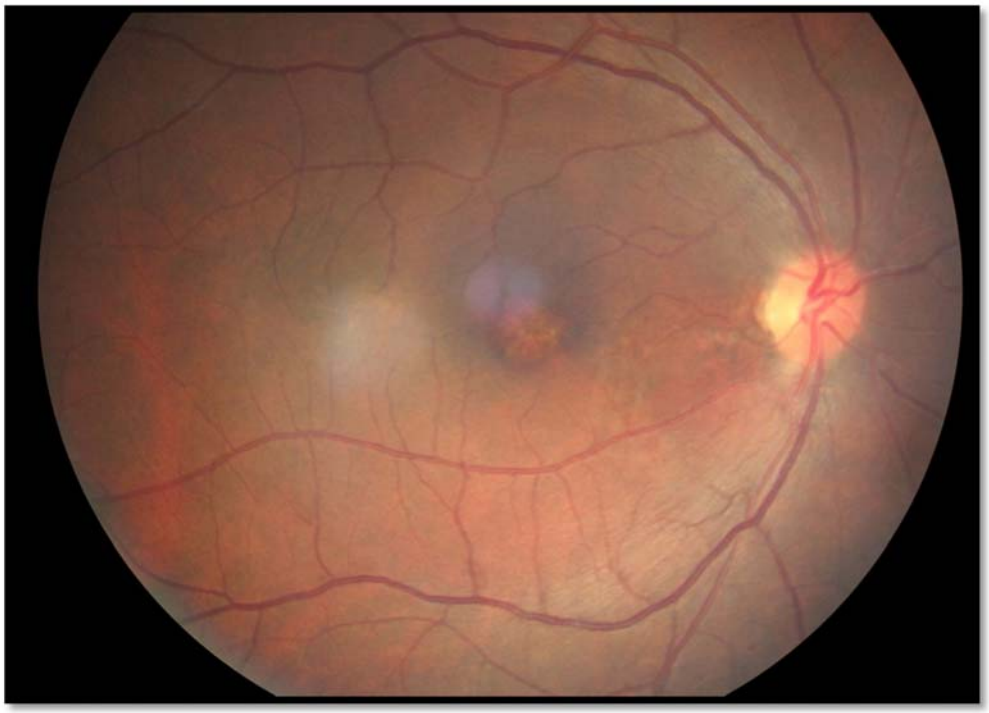
Episcleritis



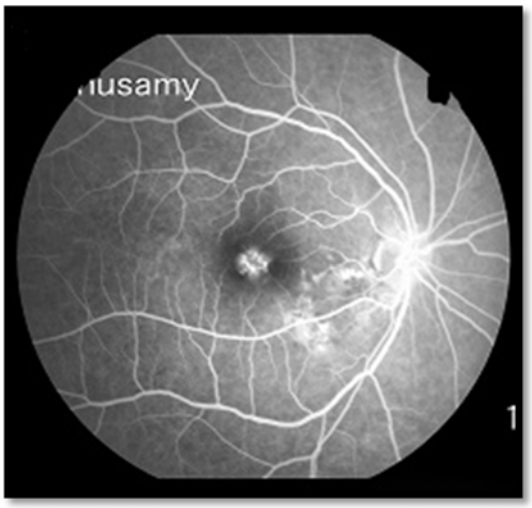
Anterior uveitis with fine KP's



Intermediate uveitis with membrane formation



Macular edema



FFA picture of macular edema

Two eyes of 2 patients presented with painless defective vision and were found to have macular edema and vascular sheathing in inferior quadrants in the periphery, probably due to previous uveitis. Macular edema was confirmed by FFA. Patients also had flare 1+ but no active cells at the time of examination. Patients were given periocular steroids for their macular edema. These patients had joint involvement and these patients were also started on methotrexate for their skin lesions and they did not have any acute episodes of uveitis during the study period.

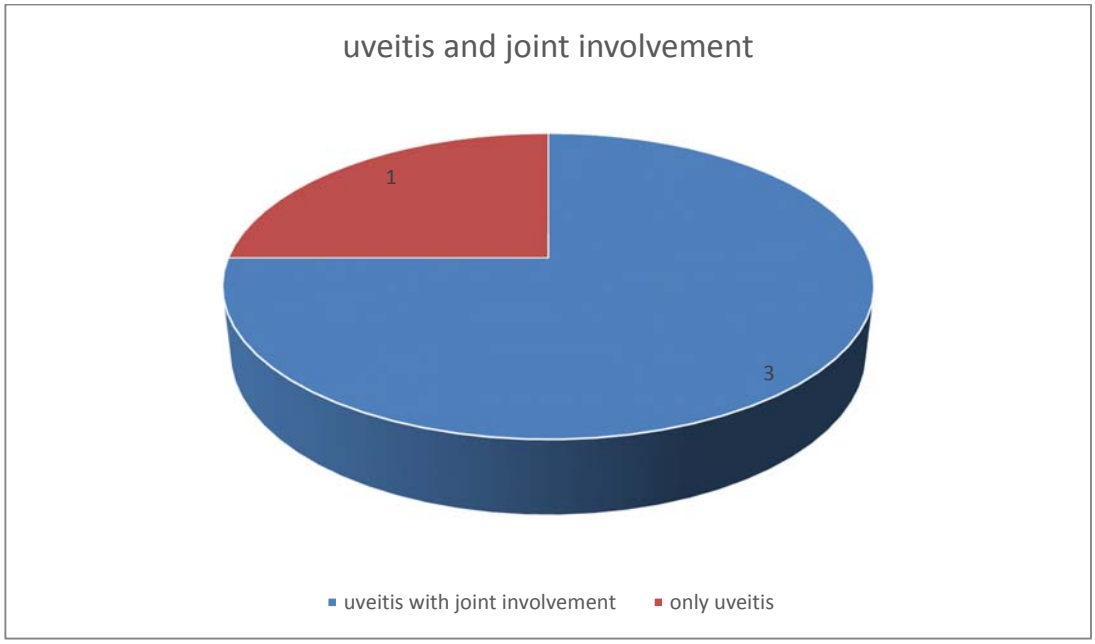
Uveitis and joint involvement

Table 9 Uveitis and joint involvement

Uveitis and joint involvement	No. of patients
Uveitis with joint involvement	3
Only uveitis	1

Among the 5 uveitis patients 4 had joint involvement (75%). 1 male patient with active uveitis had acute joint involvement also, sacroiliac joint was affected and was started on treatment. 2 female patients had peripheral joint involvement and were already on treatment, they had macular edema with periphebilits. 1 male patient (25%) had no joint involvement, he had chronic uveitis.

Graph 11 Uveitis and joint involvement:



Ocular manifestations in asymptomatic patients

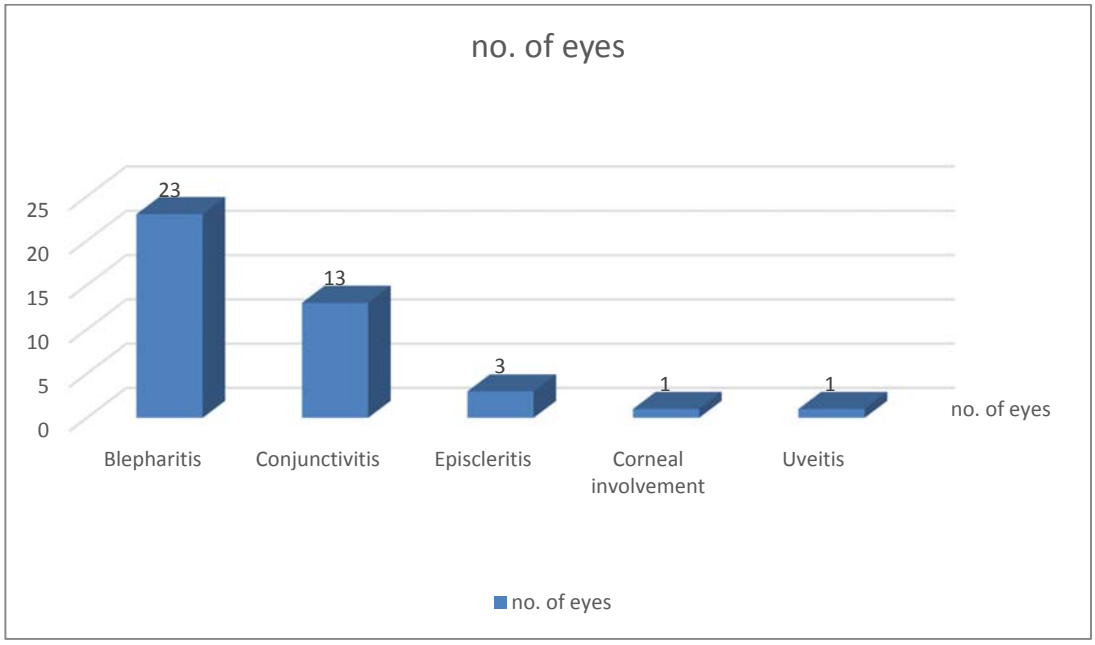
The various manifestations seen among the patients who were asymptomatic during the study period are as follows:

TABLE 10: Ocular manifestations in asymptomatic patients:

Manifestations	No. of eyes	%
Blepharitis	23	48%
Conjunctivitis	13	27.65%

Episcleritis	3	6.38%
Corneal involvement	1	2.12%
Uveitis	1	2.12%

GRAPH 12 : Ocular manifestations in asymptomatic patients:



Among the 75patients in the study population, 47 were asymptomatic.

Among those 47 patients the ocular manifestations observed were 23 eyes (48%) had Blepharitis, 13 eyes (27.65%) had Conjunctivitis, 3 eyes (6.38%) had Episcleritis , 1eye (2.12%) had Corneal involvement and 1eye (2.12%) patient with chronic Uveitis was asymptomatic. This highlights the need for screening of even the asymptomatic patients as they can also develop sight threatening complications.

Duration of disease and ocular manifestation

The association of duration of the disease and ocular manifestations is as follows:

TABLE 11: Duration of disease and ocular manifestations:

Disease	No. of	Blepharitis	Conjunctivitis	Corneal	Uveitis

duration	patients			involvement	
< 10years	44eyes	33eyes	39 eyes	2 eye	2 eyes
>10 years	31eyes	13 eyes	16 eyes	0	1 eye

Though the distribution of patients among the two groups is unequal there was no significant correlation between the duration of the disease and ocular inflammation in our study.

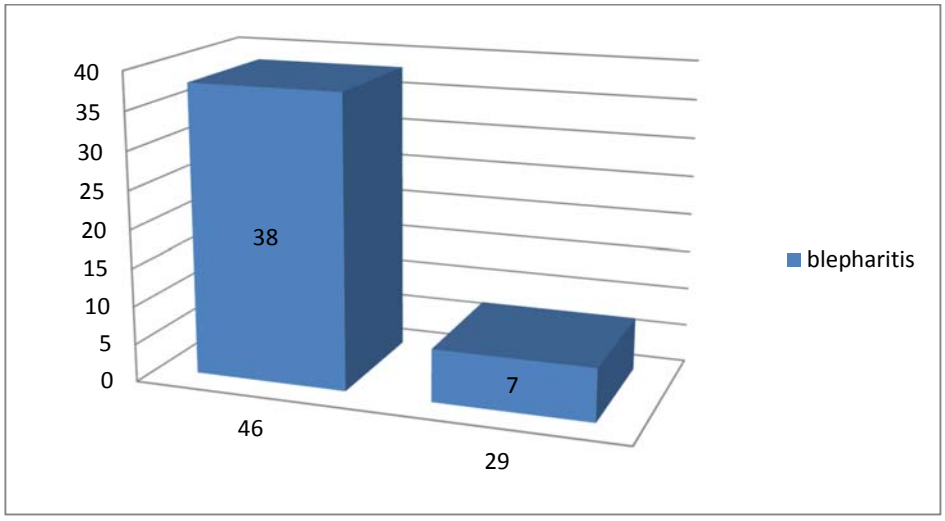
Scalp involvement and Blepharitis

The association of scalp involvement in psoriasis and Blepharitis in our study is as follows

TABLE 12: Association of scalp involvement and Blepharitis:

Scalp involvement	No. of patients	Blepharitis	%
Yes	46	38	82.66%
No	29	7	24.13%

GRAPH 13: Association of scalp involvement and Blepharitis:



Presence of scalp lesions is associated with occurrence of Blepharitis in 82% of patients in our study.24% of the patients without scalp lesions had Blepharitis.

OCULAR SURFACE DISORDER IN PSORIASIS PATIENTS

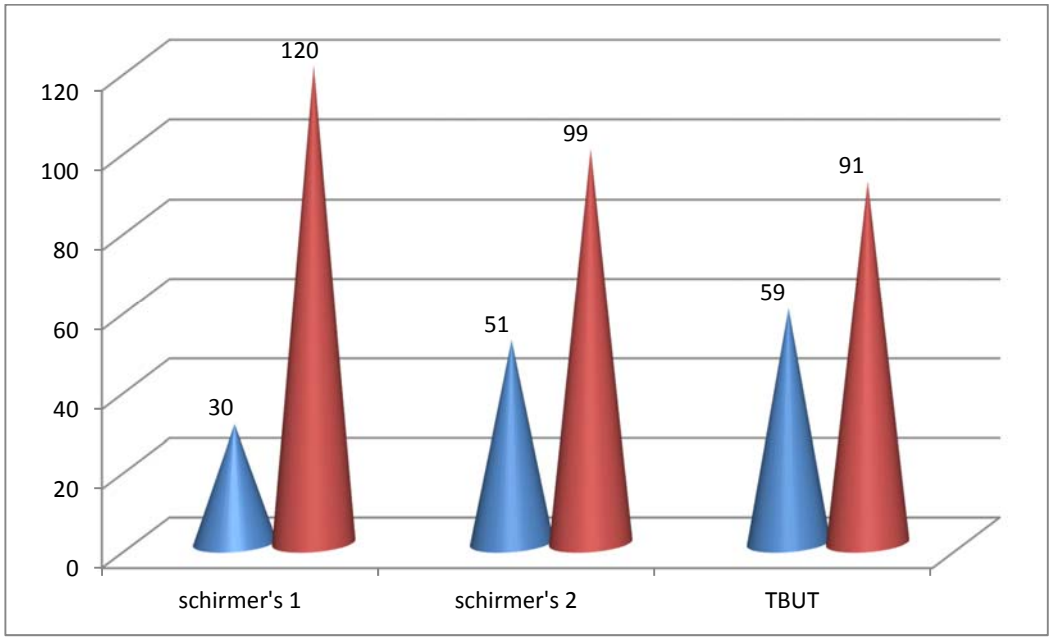
The ocular surface disorders seen among the study population is as follows:

TABLE 13: Ocular surface disorder in psoriasis patients:

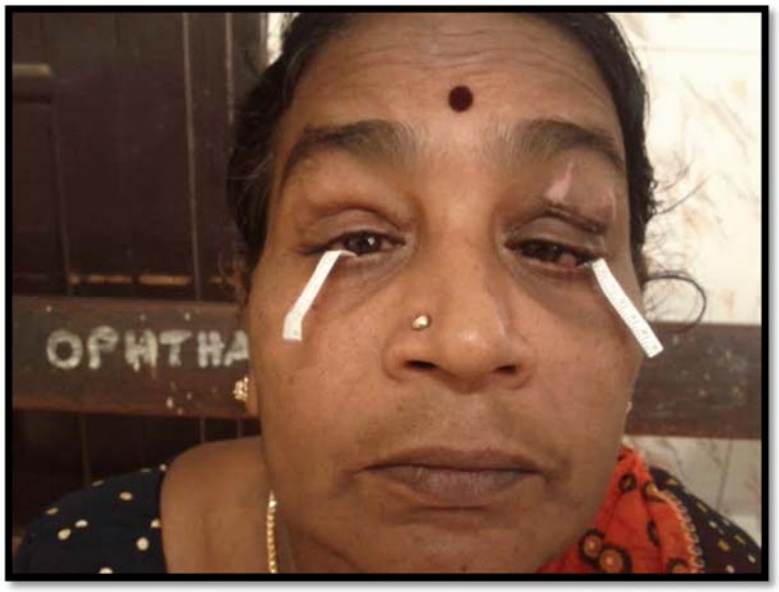
Test	No. of patients
Schirmer's 1 <10mm	30 (20%)
Schirmer's 1 >10mm	120
Schirmer's 2 <5mm	51(34%)

Schirmer's 2 >5mm	99
TBUT >10sec	91(60%)
TBUT <10 sec	59

GRAPH 14: Ocular surface disorder in psoriasis patients:



Scheirmer's 1 measures the reflex and basal tear secretions it was reduced in 30 eyes (20%), schirmer's 2 measures the basal secretion this was reduced in 51 eyes (34%) and 59 (59.8%) eyes had a reduced tear film break up time. These observations indicate that reflex secretion was unaffected but the basal secretion was more affected. The tear film instability was also seen in these patients, due to increased Meibobian gland dysfunction and Blepharitis.



Dry eye evaluation

DISCUSSION

Ocular manifestations in psoriasis has been studied by few other researcher's world over. In this study the patients belonged to age group of 10-80 years (graph1) with a clustering of patients in the average age range of 48.24 yrs. There was a slight male preponderance in the study but this is probably due to more access of male patients to health care services in our country (table 1, graph 2). The age wise distribution of the patients among the sexes was equal (graph 3).

Majority of the patients were having psoriasis vulgaris predominantly with joint involvement seen in 12% of the patients (table 3, graph 4).76% of these patients were on treatment for their dermatological condition (table 4, graph 5).

The duration of disease in the study population ranged from few months to more than 20 years with a mean range of 6 years duration of psoriasis (table 5, graph 7). Though the patients were not equally distributed with regard to duration of disease the ocular manifestations seen had no significant correlation between the duration of the disease and the ocular manifestations (table 11). Similar results were noted by Okamoto and Umebayasi [(1)] who noted an association between the increased presence of flare in patients with uveitis to be related to the severity of the disease and age of onset of disease and no relationship with the duration of disease.

Majority of the patients in our study were asymptomatic (table 6, graph 8). Amongst the asymptomatic patients also ocular manifestations were observed which included Blepharitis, Conjunctivitis, Episcleritis, Corneal involvement and Uveitis (table 10, graph 12). The presence of this sight threatening complication amongst the asymptomatic population was a cause of concern and a strong indicator that screening is essential in psoriatic patients.

Blepharitis:

Amongst the symptomatic patients redness was the most common symptom and Blepharitis was the most common finding (table 8).

Study	Blepharitis
Limba FB et al [3]	12.5%
Present study	25%

This is similar to other studies which have reported increased incidence of both anterior and posterior Blepharitis among the psoriasis patients. [2] The incidence of Blepharoconjunctivis in a study by Ibrahim Erbagci et al in the Turkish population was 64.5 %. [2]

Conjunctival involvement

Conjunctival involvement in the form of conjunctivitis , pterygium and pingicula was seen in our study this is similar to the findings seen in other studies.

Parameter	Limba FB [2]	J R Lambert [4]	Present study
Pterygium	5%	NA	5.33%
Pingicula	20%	NA	8%
Conjunctivitis	12.5%	19.6%	22.66%

The occurrence of pterygium and pingicula is not significantly associated with psoriasis and there is no increased incidence of its occurrence in psoriasis patients. The occurrence of conjunctivitis is associated to psoriasis and the incidence is similar to other studies.

Corneal manifestations:

Study	Corneal involvement
Peter Eustace et al [4]	Reported 2 cases of psoriatic patients with peripheral ulcerative keratitis which responded to steroids
Moadel K et al [5]	Reported a case of stromal abscess in a patient with psoriasis
Present study	Two patients with old nebular opacity no active keratitis.

Corneal involvement have been reported by Peter Eustace and Dermot Pierse [3] in the form of stromal involvement and peripheral ulcer with vascularisation. Moadel K also reported a case of corneal abscess without epithelial involvement in a psoriasis patient which responded well to topical steroids. [4] In our study two patients with corneal opacity were observed. No cases with active keratitis were seen probably because the patients were already on systemic immunosuppressive therapy.

Uveitis

Uveitis was seen in five eyes. 1 patient had active uveitis which was non granulomatous anterior and intermediate type. This patient had associated joint involvement in the form of sacroilitis. This is the classical way in which uveitis presents along with psoriasis. Usually it's an acute anterior uveitis but this patient had both anterior and intermediate uveitis. A bilateral, chronic uveitis with posterior pole involvement and insidious onset are characteristic of uveitis in psoriatic arthritis. HLA DR13, axial skeletal involvement in the form of syndesmophytes and bilateral sacroilitis are strong predictors of occurrence of uveitis in patients with joint involvement. [5]

Another patient with chronic uveitis had psoriasis for 20yrs but no joint involvement. Recent studies show that uveitis may occur in psoriasis patients even without joint involvement. [6]

Posterior segment involvement in uveitis is less well recognized than the anterior segment involvement. In our study 2 patients had macular edema and vascular sheathing. This is similar to other studies which have reported occurrence of posterior segment involvement in psoriatic uveitis. [6]

Studies	Uveitis
J R Lambert et al [4]- reported Iritis	7.1%
Limba FB et al [3]	5%
Chandra NS et al [8]	2%
Ruben Queiro et al [7]	18%
Present study	3.33%

The incidence of uveitis is our study is slightly less compared to other studies probably because most of the patient in our study were on immunosuppressive treatment for their skin lesions.

The characteristics of uveitis and joint involvement was reported by Eduardo s Paiva et all in the Ann of Rheumatic disease [9] they reported 100% of patients with uveitis and axial arthritis to be males. Similarly the patient with uveitis in our study had axial involvement and was a male patient. They reported bilateral involvement in 37.5 % in our study it was seen in 20 % of the patients. They reported chronic duration for 31% of the patients and posterior uveitis in 44%. Posterior involvement was seen in 40% in our study

Parameter	Eduardo. S Paiva et al [9]	Present study
No. of patients with axial involvement and uveitis who were males	100%	100%
Bilateral involvement	37.5%	20%
Posterior involvement	44%	40%

In our study there was a strong correlation between the occurrence of scalp lesions and Blepharitis seen in 82% patients (table 12, graph 13).

Dry eye:

There is an increased incidence of dry eye in patients with psoriasis. In our study there was reduced TBUT and Schirmers level in the patients. Similar results were reported by Her Y et al in 2013 [7] They evaluated dry eye, tear film function and ocular surface changes in 30 patients and compared to 30 controls and found no significant change in the Schirmers values but a reduction in TBUT and alteration in conjunctival cytology with reduced goblet cells. Keratoconjunctivitis sicca was also the commonest finding reported in a study among the Brazilian patients with psoriatic arthritis. [8]

Studies	Dry eye
J R Lambert et al [4]	2.7%
Lamba FB et al [3]	15-22%
Chandran NS et al [8]	Increased prevalence
Ibrahim Erbagci et al [2]	Increased incidence of TBUT reduction.
Her Y et al [9]	TBUT reduction, conjunctival cytology- reduced goblet cells
Present study	Reduced reflex tear secretion and TBUT

Results

The total number of patients in this study were 75. The age distribution ranged from 14 to 80 yrs with average age being 48.24 yrs.

Males formed 60% of the study population with a male to female ratio of 3:2

87% of the study population consisted of patients with psoriasis vulgaris. Scalp involvement was seen in 61.33% of patients, nail involvement in 45.33% and joint involvement was seen in 12% of the population.

62.66% of the patients were asymptomatic whereas only 37.33% of the patients had some symptoms. The most common symptom was redness followed by defective vision, irritation, pain and photophobia.

There was no association of disease duration and the ocular manifestations.

Of the 150 eyes most common ocular manifestation was Blepharoconjunctivits seen in 25% of the population. Among the patients with scalp involvement 82% had Blapharitis also.

Corneal involvement in the form of old nebular opacities was seen in 1.3% patients.

Episcleritis was seen in 3.3% of the population.

Acute non granulomatous anterior uveitis was seen in 2 eyes. This patient had associated joint involvement also. Chronic uveitis was seen in 1 eye of a

patient without joint involvement. Defective vision due to macular edema probably as a complication of uveitis was seen in 2 eyes of 2 patients.

Joint involvement associated with uveitis was seen in 75% of the patients and 25% had uveitis without joint involvement.

There was increased occurrence of dry eye in these patients as observed by reduced Schirmer's and tear break up time.

Ocular manifestations were seen even in the asymptomatic patients with Blepharoconjunctivitis being the most common finding, seen in 48% of asymptomatic patients. One patient with chronic uveitis was asymptomatic and the presence of this indicates that routine evaluation of patients is essential.

CONCLUSION

Psoriasis is a chronic dermatological disease with extra cutaneous involvement of the eye. It can affect almost all structures of the eye from anterior to posterior segment, as a part of the disease process. The various treatment modalities for the condition may also increase the ocular morbidity.

The various manifestations include Blepharoconjunctivitis being the most common finding followed by Episcleritis and Uveitis. Among these uveitis is a potential sight threatening complication and must be detected early and treated promptly to prevent irreversible loss of vision.

The patients are usually asymptomatic as the manifestations are often subtle and easily missed. Uveitis may present with defective vision alone and no other symptoms of acute uveitis and hence a high degree of suspicion is required for early diagnosis and prompt treatment.

The ocular manifestations have been traditionally associated with joint involvement but they may be seen in patients even without joint involvement as seen in our study. Hence all patients with psoriasis irrespective of joint involvement must be screened for ocular manifestations.

The occurrence of Blepharitis was more in patients with scalp involvement and so those patients with scalp psoriasis must be evaluated for **B**lepharitis and lid hygiene must be taught.

There is an increased prevalence or dry eye among psoriasis patients. The patients must be evaluated to be diagnosed and treated in the early stages before severe keratoconjunctivitis occurs to prevent irreversible ocular surface changes.

Psoriasis affects the skin, joint and eyes. The exact mechanism of this is unknown but T cell mediated responses as postulated. Due to multi system involvement a combined treatment approach involving screening and early treatment of ocular manifestations in psoriasis patients is required to reduce the morbidity of the patient and for complete patient care.

Part 3

Abbreviations used

B- blepharitis

CPN- colour pattern normal

DL- direct involvement of lid.

E- etarnacept

EP- erythrodermic psoriasis

FFA- Fundus Fluorescence Angiogram

GP- Guttate Psoriasis

HLA- Human Leucocyte antigen

IMC- immature cataract

M- methotrexate

Mand E- methotrexate and etarnacept

MC- mature cataract

MHC- major histocompatibility atigen

n- no

N- normal

ND- normal depth

NS- Nuclear sclerosis

PCIOL- posterior chamber Intra ocular lens

PV- Psoriasis Vulgaris

RAPD- relative afferent pupillary defect

RTL – reacting to light

Y- yes

PROFORMA CASE SHEET

NAME: AGE: SEX:

occupation:

Presenting complaints:

- H/o redness
- H/o pain in the eyes
- H/o watering
- H/o irritation
- H/o defective vision
- H/o photophobia.
- H/o discharge

Past history:

Duration of Psoriasis:

Treatment history:

Joint, scalp, nail involvement:

Other systemic diseases:

Family history:

Treatment history:

Ocular examination:

	RE	LE
Vision		
Vision with pin hole		
Retinoscopy		
Subjective		
Eyelids		
Eyelashes		
EOM		
Conjunctiva		
Cornea		
AC		
Iris		
Pupil		
Lens		
IOP		
Duct:		
SLE:		

Fundus:

Schmiers test

l : RE

LE

ll: RE

LE

TBUT:

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S.N	Name	Age	Sex	Type Of Psoriasis	Duration Of Psoriasis	Occular Symptoms	Scalp Involvement	Nail Involvement	Joint Involvement	Drugs	Vision R	Vision L	Eyelids R	Eyelids L	Eye Lashes R	Eye Lashes L	Conjunctiva R	Conjunctiva L	Cornea R	Cornea L	Ac R	Ac L	Iris R	Iris L	Pupil R	Pupil L	Lens R	Lens L	Fundus R	Fundus L	Iop R	Iop L	Schmiers 1R	Schmiers 1 L	Schmiers 2 R	Schmiers 2 L	Tbut R	Tbut L
1	Parmeshwari	42	F	PV	5YRS	No	N	N	NO	M	6/6	6/6	N	N	N	N	conci	EPISC	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	c.d 0	c.d (	17	17	>10	>10	>5	>5	>10	>10
2	Alfred	76	M	PV	5YRS	No	Y	Y	NO	No	6/36	6/36	B	B	N	N	N	N	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	IMC	IMC	N	N	16	16	9	9	4	4	>10	<10
3	Gangadharan	32	M	PV	1YRS	Burning	Y	N	NO	No	6/6	6/6	n	n	N	N	Pingi	pingi	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	12	14	>10	>10	>5	>5	>10	>10
4	Sathish	21	M	PV	1YRS	No	Y	N	NO	M	6/6	6/6	DL	n	n	n	conju	conju	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	12	12	>10	>10	>5	>5	>10	>10
5	Logu	32	M	PV	6MONTHS	No	N	Y	NO	M	6/6	6/6	N	N	N	N	conju	conju	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	14	16	>10	>10	>5	>5	>10	>10
6	Kuppuram	66	M	PV	15YRS	Redness	Y	N	NO	M	6/24	6/24	N	N	N	N	conju	conju	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	IMC	IMC	N	N	18	18	10	10	4	4	>10	<10
7	Arivaraghan	44	M	PV	5YRS	No	Y	N	NO	M	6/6	6/6	N	N	N	N	N	N	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	12	14	>10	>10	>5	>5	>10	>10
8	Selvaraj	63	M	PV	1MONTH	No	N	N	NO	M	6/12	6/12	N	N	N	N	N	N	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	PCIOL	PCIOL	N	N	14	12	>10	>10	>5	>5	>10	>10
9	Ruban	14	M	GP	1MONTH	No	N	N	NO	M	6/6	6/6	N	N	N	N	CONC	CONC	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	14	14	>10	>10	>5	>5	>10	>10
10	Murugsan	58	M	PV	15YRS	No	N	N	NO	M	PL-	6/18	N	N	N	N	N	N	n	OLD KP	ND	flare	CPN	CPN	RAPD	3mm RTL	IMC	IMC	OPTI	N	10	16	>10	>10	>5	>5	>10	>10
11	Ponnan	36	M	PV	10YRS	No	N	N	NO	M	6/6	6/6	N	N	N	N	N	N	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	TILTE	TILT	14	14	>10	>10	>5	>5	>10	>10
12	S.Lakshmanan	42	M	PV	3YRS	Redness	Y	N	NO	M	6/6	6/6	N	N	N	N	conju	conju	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	12	12	>10	>10	>5	>5	>10	>10
13	Radhakrishnan	55	M	PV	10YRS	Irritatic	Y	N	NO	M	5/60	6/60	N	N	N	N	PTER	PTER	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	16	16	8	8	3	3	>10	<10
14	Padmavathy	28	F	PV	15YRS	Redness	Y	N	NO	No	6/6	6/6	B	B	N	N	conju	conju	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	12	12	>10	>10	>5	>5	>10	>10
15	Lakshman	45	F	PV	15YRS	No	N	Y	NO	M	6/6	6/6	N	N	N	N	N	n	N	N	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	16	16	>10	>10	>5	>5	>10	>10
16	Munusamy	70	M	PV	2YRS	Burning	Y	Y	NO	M	6/36	6/60	B	B	N	N	N	N	INFEF	INFERIC	ND	ND	PSEUI	PSEUI	3mm RTL	3mm RTL	NS	PCIOL	N	N	20	14	>10	>10	5	5	>10	<10
17	Raja	37	M	PV	6YRS	Burning	N	N	NO	No	6/6	6/6	N	N	N	N	conju	conju	clear	CLEAR	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	14	14	8	10	4	5	>10	<10
18	Nazer Ahmed	57	M	PV	10YRS	Redness	Y	Y	NO	E	6/36	6/36	N	N	N	N	N	N	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	14	12	>10	>10	>5	>5	>10	>10
19	Habibullah	65	M	EP	4YRS	Irritatic	Y	Y	NO	No	6/18	6/18	B	B	N	N	N	N	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	IMC	IMC	N	N	16	14	4	5	4	5	>10	<10
20	Padma	54	F	PP	20YRS	Redness	Y	Y	NO	M Ar	6/12	6/24	N	N	N	N	N	N	clear	clear	ND	ND	CPN	CPN	IRREGULAI	3mm RTL	PCIOL	PCIOL	N	N	14	14	5	6	4	4	>10	<10
21	Ravi	46	M	PV	7YRS	No	N	N	NO	M	6/9	6/9	B	B	N	N	N	N	NEBU	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	MYE	N	14	12	>10	>10	>5	>5	>10	<10
22	Nagapushpam	42	F	EP	10YRS	Redness	N	N	NO	M	4/60	6/18	N	N	N	N	PTER	PTER	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	IMC	PCIOL	N	N	16	16	>10	10	10	2	>10	<10
23	Santharam	60	M	PV	6YRS	No	N	N	NO	M	6/36	6/36	N	B	N	N	PTER	N	clear	clear	SHAI	SHAL	CPN	CPN	3mm RTL	3mm RTL	IMC	IMC	N	N	14	16	>10	>10	2	4	>10	<10
24	Samatha	80	F	EP	10YRS	Defecti	Y	Y	NO	No	PL+	3/60	B	B	N	N	N	N	clear	clear	SHAI	SHAL	CPN	CPN	3mm RTL	3mm RTL	MATU	NS	NO \	NO\	18	18	7	8	4	4	>10	<10
25	Ranganathan	60	M	PV	1YRS	No	Y	Y	NO	No	5/60	6/60	N	N	N	N	PTER	N	clear	clear	SHAI	SHAL	ATROI	ATRO	3mm RTL	3mm RTL	IMC	IMC	ARM	ARM	16	16	>10	9	>5	4	>10	<10
26	Elumalai	58	M	PV	18YRS	Defecti	Y	Y	NO	No	6/24	6/24	B	B +	N	N	Pingi	pingi	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	IMC	IMC	N	N	18	18	10	>10	3	>5	>10	>10
27	Lakshmi	55	F	PV	6YRS	Defecti	N	N	YES	M	6/36	6/36	N	N	N	N	Pingi	pingi	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	MAC	MA(	14	12	>10	>10	>5	>5	>10	>10
28	Sakera Begum	38	F	PV	10YRS	No	Y	N	NO	M	6/6	6/6	N	N	N	N	N	N	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	18	16	>10	>10	>5	>5	>10	>10
29	Anand	27	M	PV	2YRS	Redness	Y	Y	NO	M	6/6	6/6	DL	DL	N	N	EPISC	EPISC	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	12	12	>10	>10	>5	>5	>10	>10

30	Ranganathan	57	M	EP	6YRS	No	Y	Y	YES	M	6/36	6/36	DL	DL	N	N	N	N	clear	clear	SHAI	SHAL	CPN	CPN	3mm	RTL	3mm	RTL	IMC	IMC	N	N	20	22	10	10	3	3	>10	<10
31	Murugamal	67	F	PV	8YRS	Rednes	Y	Y	NO	M	6/12	6/12	DL	N	N	N	N	N	clear	clear	ND	ND	ATROI	ATRO	3mm	RTL	3mm	RTL	PCIOL	PCIOL	N	N	14	12	10	>10	4	>5	>10	<10
32	Varalakshmi	30	F	PV	8MONTHS	Defecti	N	N	YES	M	5/60	6/9	N	N	N	N	N	N	clear	clear	ND	ND	CPN	CPN	IRREGULAI	3mm	RTL	clear	clear	MAC	N	12	18	>10	>10	4	3	>10	<10
33	Selvam	40	M	PV	10YRS	No	Y	N	YES	M	Ar	6/6	6/6	N	N	N	N	N	N	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	12	16	>10	>10	>5	>5	>10	<10
34	Vikram	28	M	PV	4YRS	No	Y	N	NO	E		6/6	6/6	DL	DL	N	N	N	EPIS(	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	16	16	>10	>10	4	5	>10	<10
35	Sambantham	63	M	PV	15YRS	No	Y	Y	NO	M		5/60	PL+	N	N	N	N	N	N	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	MATU	NS	NO \	NO\	18	18	>10	>10	3	3	>10	<10
36	Daniel	36	M	PV	10YRS	No	Y	Y	YES	M		6/6	6/6	N	N	N	N	N	N	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	12	12	>10	>10	>5	>5	>10	>10
37	Sahul Ahmed	47	M	PV	6-7YRS	Defecti	N	N	NO	M	Ar	6/24	6/24	N	N	N	N	N	conju	clear	NEBUL/	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	IMC	clear	N	N	14	14	>10	>10	>5	>5	>10	>10
38	Laurance	31	M	PV	3YRS	No	Y	N	YES	No		6/6	6/6	N	B	N	CRU	N	conju	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	14	14	>10	>10	>5	>5	>10	>10
39	Muniyammal	47	F	PV	35YRS	Defecti	N	N	NO	M		6/60	6/60	N	N	N	N	N	N	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	IMC	N	N	18	18	>10	>10	4	5	>10	<10
40	Chitra	51	F	PV	17YRS	No	Y	Y	YES	M		2/60	2/60	N	N	N	N	N	N	clear	clear	ND	IRRE(	CPN	IRIS C	3mm	RTL	COLOBOM	clear	PCIOL	N	CON	16	12	>10	>10	5	5	>10	<10
41	Mani	44	M	PV	12YRS	No	Y	Y	YES	M		6/9	6/9	N	N	N	N	N	N	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	14	12	>10	>10	>5	>5	>10	>10
42	Venkatesan	52	M	PV	10YRS	No	Y	Y	NO	No		6/36	6/36	N	DL	N	N	N	N	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	IMC	IMC	N	N	12	12	>10	>10	4	5	>10	<10
43	Ranganathan	57	M	PV	3MONTHS	Defecti	N	N	YES	M		6/24	2/60	n	n	n	n	n	ccc	kps	kps	flare	flare	CPN	CPN	3mm	RTL	2mmrtl	PCIOL	PCIOL	N	N	15	18	>10	>10	>5	>5	>10	<10
44	Hemanth	76	M	PV	5YRS	No	N	N	NO	M		6/6	6/6	DL	DL	n	n	conju	conju	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	16	16	>10	>10	>5	>5	>10	>10
45	Banu	32	F	PV	5YRS	No	Y	N	NO	No		6/6	6/6	DL	DL	n	n	conju	conju	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	12	14	>10	>10	>5	>5	>10	>10
46	Anitha	21	F	GP	1YRS	No	Y	Y	NO	No		6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	12	12	>10	>10	>5	>5	>10	>10
47	Niveda	32	F	PV	1YRS	No	Y	Y	NO	M		6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	14	16	>10	>10	>5	>5	>10	>10
48	Kajal	66	F	EP	6MONTHS	Burning	N	N	NO	M		6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	18	18	9	8	4	5	>10	<10
49	Banzer	44	F	PV	15YRS	No	Y	Y	NO	M		6/6	6/6	B	B	n	n	conju	conju	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	12	14	>10	>10	>5	>5	>10	>10
50	Venugopal	63	M	PV	5YRS	No	Y	Y	NO	M		6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	14	12	>10	>10	>5	>5	>10	>10
51	Chandrshekar	24	M	PV	1MONTH	No	N	Y	NO	M		6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	14	14	>10	>10	>5	>5	>10	>10
52	Imran	58	M	PV	1MONTH	No	N	N	NO	M		6/6	6/6	B	B	n	n	conju	conju	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	10	16	>10	>10	>5	>5	>10	>10
53	Azad	36	M	PV	15YRS	No	N	N	NO	M		6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	14	14	>10	>10	>5	>5	>10	>10
54	Fathima Bee	42	F	PV	10YRS	No	N	N	NO	M		6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	12	12	9	9	3	3	>10	<10
55	Kartar Bee	55	F	PV	3YRS	No	Y	Y	NO	M		6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	16	16	10	10	5	4	>10	<10
56	Machagandhi	28	F	PP	10YRS	Rednes	Y	Y	NO	M		6/6	6/6	DL	DL	n	n	conju	conju	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	12	12	>10	>10	>5	>5	>10	>10
57	Zareena	45	F	PV	15YRS	No	Y	Y	NO	No		6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	16	16	>10	>10	>5	>5	>10	>10
58	Rahamdh Bee	70	F	PV	15YRS	No	N	N	NO	M		6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	imc	imc	N	N	20	14	>10	>10	>5	>5	>10	>10
59	Sharafath	37	M	PV	2YRS	No	Y	N	NO	M		6/9	6/9	n	DL	n	n	conju	conju	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	14	14	>10	>10	>5	>5	>10	>10
60	Hakim	57	M	PV	6YRS	No	N	Y	NO	No		6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	14	12	>10	>10	>5	>5	>10	>10
61	Tamilarasi	65	F	PV	10YRS	No	Y	Y	NO	E		6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	16	14	>10	>10	>5	>5	>10	>10
62	Jayesh	54	M	PV	4YRS	Rednes	Y	Y	NO	No		6/6	6/6	B	B	n	n	conju	conju	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	14	14	>10	>10	5	2	>10	<10
63	Adil Hassan	46	M	PV	20YRS	No	Y	N	NO	M	Ar	6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm	RTL	3mm	RTL	clear	clear	N	N	14	12	>10	>10	>5	>5	>10	>10

64	Madan	42	M	PP	7YRS	No	N	N	NO	M	6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	16	16	>10	>10	>5	>5	>10	>10
65	Gopi	60	M	PV	10YRS	No	N	N	NO	M	6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	14	16	>10	>10	>5	>5	>10	>10
66	Nazeera Begum	80	F	PV	6YRS	Defecti	N	Y	NO	M	pl+	6/18	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm RTL	IRREGULA	MATU	pciol	NO \	N	18	18	>10	>10	>5	>5	>10	>10
67	Geni Das	60	F	PV	10YRS	Rednes	Y	Y	NO	No	6/6	6/6	B	B	n	n	conju	CON.	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	16	16	>10	>10	>5	>5	>10	>10
68	Dayanithy	58	M	PV	1YRS	No	Y	N	NO	No	6/6	6/6	B	B	n	n	conju	conju	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	18	18	>10	>10	>5	>5	>10	>10
69	Yasmin	55	F	PV	18YRS	No	Y	N	NO	No	6/12	6/12	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	14	12	>10	>10	>5	>5	>10	>10
70	Jammaludin	38	M	PV	6YRS	No	N	N	NO	M	6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	18	16	>10	>10	4	4	>10	<10
71	Jency	27	F	PV	10YRS	No	Y	Y	NO	M	6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	12	12	9	7	5	3	>10	<10
72	Santhana Kumar	57	M	PV	2YRS	Defecti	Y	Y	NO	M	6/24	6/24	B	B	n	n	conju	conju	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	20	22	>10	>10	>5	>5	>10	>10
73	Deepa	67	F	PV	6MONTHS	Burning	Y	Y	NO	M	6/6	6/6	n	n	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	14	14	10	10	5	5	>10	<10
74	Loganayagi	30	F	PV	2YRS	Rednes	Y	N	NO	M	6/6	6/6	DL	B	n	n	n	n	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	12	12	>10	>10	>5	>5	>10	>10
75	Bhanabhagyam	40	F	PV	1YRS	No	N	N	NO	M	6/6	6/6	n	n	n	n	n	EPIS(	clear	clear	ND	ND	CPN	CPN	3mm RTL	3mm RTL	clear	clear	N	N	16	16	>10	>10	>5	>5	>10	>10

others

episceritis

RE EXOTR traumatic optic atrophy with old kps

ALTERNATE DIVERGENT SQUINT

PREVIOUS EPISCLERITIS

MACULAR EDEMA

episceritis

MACULAR EDEMA

episceritis

HETEROPHORIA BE uveitis

A STUDY OF OCULAR MANIFESTATIONS IN PSORIASIS PATIENTS

INTRODUCTION

Psoriasis is associated with several extracutaneous manifestations of which ocular complications are common. It may be associated with many manifestations such as blepharitis, conjunctivitis, dry eye, episcleritis, scleritis and uveitis. Of these uveitis is a serious and sight threatening complication.

Psoriasis may affect the eye due to direct involvement by the disease or by immune mediated mechanisms. The treatment modalities such as retinoids and puva can also affect the eye.

Signs and symptoms of ocular psoriasis may be subtle and overlooked but a thorough understanding of ophthalmic involvement is important to the comprehensive care of patients with psoriasis.AIM :The aim of this study is to determine the prevalence of ocular abnormalities in psoriasis patients and to correlate them with the underlying duration of disease.MATERIALS AND METHODS:75 psoriasis patients attending Dermatology OPD in Stanley medical college hospital from May2012-Aug2013 were included in this study.All patients were explained about the purpose of the study and an informed consent was taken.Examination included

- Relevant ocular history.
- Duration of psoriasis and the treatment.
- Uncorrected and best corrected visual acuity
- Slitlamp evaluation of the anterior segment.
- Fundus evaluation of the posterior segment.
- IOP measurement using applanation tonometry.
- Schmeirs test and TBUT test.
- Systemic examination

INCLUSION CRITERIA:All psoriasis patients. Exclusion criteria:Patients with other serious comorbid conditions.Patients on PUVA therapy.Patients with other systemic illness like DM ,HT, Bronchial asthma which may have similar ocular findings.

Results

The total number of patients in this study were 75. The age distribution ranged from 14 to 80 yrs with average age being 48.24 yrs.

Males formed 60% of the study population with a male to female ratio of 3:2

87% of the study population consisted of patients with psoriasis vulgaris. Scalp involvement was seen in 61.33% of patients, nail involvement in 45.33% and joint involvement was seen in 12% of the population.

62.66% of the patients were asymptomatic whereas only 37.33% of the patients had some symptoms. The most common symptom was redness followed by defective vision, irritation, pain and photophobia.

There was no association of disease duration and the ocular manifestations.

Of the 150 eyes most common ocular manifestation was Blepharoconjunctivits seen in 25% of the population. Among the patients with scalp involvement 82% had Blapharitis also.

Corneal involvement in the form of old nebular opacities was seen in 1.3% patients.

Episcleritis was seen in 3.3% of the population.

Acute non granulomatous anterior uveitis was seen in 2 eyes. This patient had associated joint involvement also. Chronic uveitis was seen in 1 eye of a patient without joint involvement. Defective vision due to macular edema probably as a complication of uveitis was seen in 2 eyes of 2 patients.

Joint involvement associated with uveitis was seen in 75% of the patients and 25% had uveitis without joint involvement.

There was increased occurrence of dry eye in these patients as observed by reduced Schirmer’s and tear break up time.

Ocular manifestations were seen even in the asymptomatic patients with Blepharoconjunctivitis being the most common finding, seen in 48% of asymptomatic patients. One patient with chronic uveitis was asymptomatic and the presence of this indicates that routine evaluation of patients is essential.

CONCLUSION

Psoriasis is a chronic dermatological disease with extra cutaneous involvement of the eye. It can affect almost all structures of the eye from anterior to posterior segment, as a part of the disease process. The various treatment modalities for the condition may also increase the ocular morbidity.

The various manifestations include Blepharoconjunctivitis being the most common finding followed by Episcleritis and Uveitis. Among these uveitis is a potential sight threatening complication and must be detected early and treated promptly to prevent irreversible loss of vision.

The patients are usually asymptomatic as the manifestations are often subtle and easily missed. Uveitis may present with defective vision alone and no other symptoms of acute uveitis and hence a high degree of suspicion is required for early diagnosis and prompt treatment.

The ocular manifestations have been traditionally associated with joint involvement but they may be seen in patients even without joint involvement as seen in our study. Hence all patients with psoriasis irrespective of joint involvement must be screened for ocular manifestations.

The occurrence of Blepharitis was more in patients with scalp involvement and so those patients with scalp psoriasis must be evaluated for **B**lepharitis and lid hygiene must be taught.

There is an increased prevalence or dry eye among psoriasis patients. The patients must be evaluated to be diagnosed and treated in the early stages before severe keratoconjunctivitis occurs to prevent irreversible ocular surface changes.

Psoriasis affects the skin, joint and eyes. The exact mechanism of this is unknown but T cell mediated responses as postulated. Due to multi system involvement a combined treatment approach involving screening and early treatment of ocular manifestations in psoriasis patients is required to reduce the morbidity of the patient and for complete patient care.

Key words : psoriasis, keratoconjunctivtis, Blepharitis, uveitis,