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Research article

OCULAR MANIFESTATIONS IN HANSEN'S DISEASE- A CLINICAL STUDY

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ABSTRACT

Background: Leprosy or Hansen's disease is a chronic mildly contagious granulomatous disease of tropical and subtropical regions caused by the rod shaped bacillus, Mycobacterium leprae. It affects the skin, peripheral nerves in the hands and feet, mucous membrane of nose, throat and eyes. When left untreated, it is capable of producing various deformities and disfigurements. **Aim:** To study the ocular involvement in patients with Leprosy under the parameters of age group, sex type and duration of leprosy. To study the different ocular manifestations and identify the potentially sight threatening lesions and provide early management. **Methods:** This was a prospective study which included 50 cases diagnosed with Hansen's disease. Detailed history and thorough clinical examination was done. Potentially sight threatening lesions were managed conservatively or surgically. **Results:** Out of 50 cases of Leprosy, 58% had ocular involvement and majority were in the age group 21-40years. Ocular involvement was predominantly seen in Lepromatous type with 35% having ocular lesions. The most common ocular manifestation observed was superciliary madarosis (48%). Potentially sight threatening lesions accounted for 72.4% of which lagophthalmos was common. No cases of blindness seen. **Conclusion:** Visual impairment is preventable in Leprosy if detected early. The risk of ocular complications increases with the duration of the disease, despite being treated with systemic anti-leprosy drugs.

Keywords: Leprosy (Hansen's disease), Lepromatous, Tuberculoid, Slit skin smear, Ocular involvement

INTRODUCTION

Leprosy or Hansen's disease is a chronic infectious disease caused by an intracellular rod shaped acid fast bacilli Mycobacterium leprae which affects the skin, nasal mucosa, peripheral nerves and the anterior segment of the eye.[1] Mycobacterium leprae was discovered by a Norwegian physician G.Armauer Hansen in the year 1874.[1] The most ancient writings of ''SUSHRUTA SAMHITA'' compiled in 600 BC refers to leprosy as Vat Rakta or Vat Shonita and Kushtha [2, 3]. Leprosy occurs in all ages and both sexes. Male: Female ratio is 2:1[4]. Leprosy bacillihave a Predilection for neural tissue and their target is Schwann cell. The fate and type of leprosy depends on the resistance and immunity of the affected individual[5] (Jopling, Mc Douglass 1996). There are 11million cases throughout the world and about 1/3rd have ocular manifestations.[6] Prevalence of blindness due to leprosy is 4.7% of the population in India.[7,8] Various studies shows ocular involvement in Leprosy patients. The frequency and types of involvement depends on the duration and form of the disease.[2, 9] Ocular lesions are common in lepromatous type ofleprosy and presents with lepromatous nodules, conjunctivitis, keratitis, pannus, scleritis and uveitis. Lesions are rare in tuberculoid type of leprosy and are

secondary to the involvement of branches of facial nerve which presents with paralytic lagophthalmos, exposure keratitis and neurotrophic keratitis. Acute iridocyclitis and scleritis are seen in type 2 lepra reaction occurring in lepromatous leprosy.[6] Blindness has been reported in 7% of patients secondary to lagophthalmos, uveitis, exposure keratitis and cataract[8]. Proper attention and early detection can prevent potentially sight threatening lesions.

MATERIALS AND METHOD

The present study was carried out in the outpatient Department of Ophthalmology and inpatient department of Dermatology at Meenakshi Medical College and Hospital, Kanchipuram from March 2012-May 2014. In this study a total of 50 patients were taken, 38 males and 12 females of the age group 20years and above. Prior to the study an informed consent form from the patients and ethical clearance was obtained from the Institutional Ethics Committee. **Inclusion Criteria:** All diagnosed cases of leprosy. Old and new cases, both genders and age group of 20 years and above.**Exclusion Criteria:**Non compliant patients, Patients with preexisting ocular disorders due to other causes than leprosy.

Type of study: A cross sectional descriptive study for a period of 14 months.

P**rocedure**: Relevant details of both ocular and systemic history, including details of lepra reaction and clinical examination of patients were recorded on a proforma. A detailed slit lamp examination of the anterior segment of eye was done. Visual Acuity recorded with help of Snellen's chart[10]. Corneal sensation was checked with a wisp of cotton. Intra ocular pressure recorded with help of Schiotz tonometer[10]. Fundus examination with 78 D and Indirect Ophthalmoscopy was done. Lab investigations like haemogram, ESR, Urine routine and RBS done. Slit skin smear and skin biopsy from the ear lobe was performed by the Dermatologist and report obtained as positive for M.leprae (Ziehl Neelsen technique)[11].Patients were started on systemic anti leprosy drugs (multi drug therapy) and treatment for lepra reactions.

Common side effects documented in these patients due to medications were diffuse pigmentation, gastritis and light headedness. Patients with ocular manifestations were treated accordingly to their need of Lubricant eye drops, topical antibiotic with steroid drops, eye ointments, frequent blinking exercises, physiotherapy, and lid taping at night time and spectacle correction.

RESULTS

In this study of 50 patients with leprosy, majority belonged to the age group of 21-40years (46%). 76% were males and 24% were females. Out of 50 cases, 30% were tuberculoid type, 22% lepromatous type and 48% borderline type. Out of 50 cases 58% had ocular involvement in which 45% were within the age group 21-40years. Out of the 29 cases with ocular involvement 72% were males. 35%with ocular manifestations were of lepromatous type of leprosy. 41.4% gave a positive history of lepra reaction. The ocular involvement was directly proportional to the duration of leprosy. 55% had leprosy more than 5 years. Superciliary madarosis (48%) was the most common ocular manifestation. The potentially sight threatening lesions were Lagophthalmos (35%), seen more in lepromatous type (14%). 28% had corneal hypoesthesia, 21% with exposure keratitis, 17% had corneal opacity, anterior uveitis and conjunctivitis each accounted for 7%. It was interesting to note that 60% of patients with lagophthalmos had exposurekeratitis.

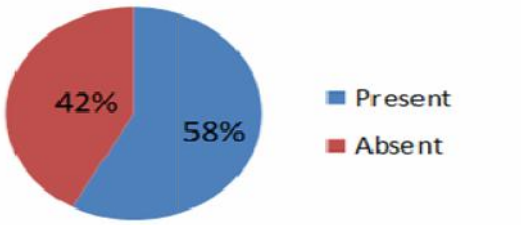

Fig1: Ocular involvement in Leprosy

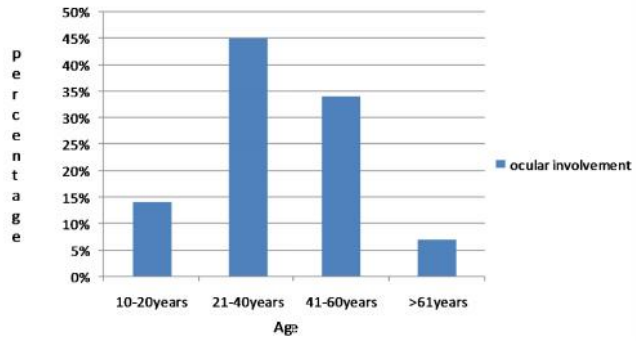

Fig2: Distribution of patients with ocular involvement according to age

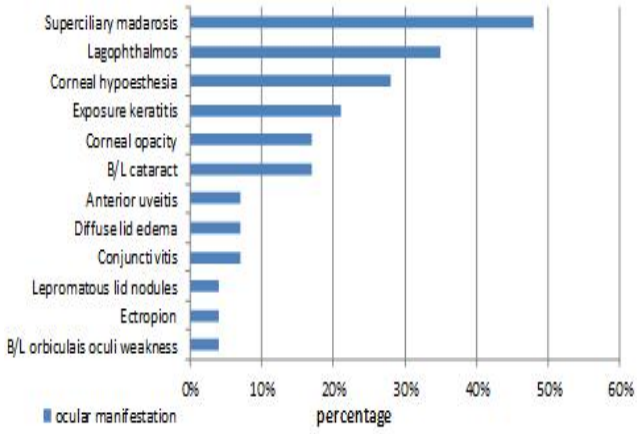

Fig 3: Distribution of ocular manifestations in Leprosy

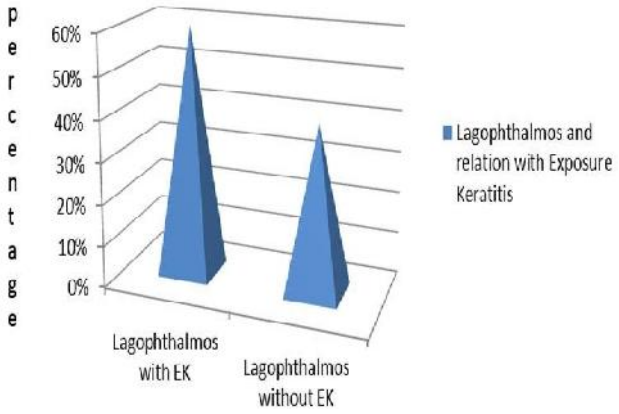

Fig 4: Lagophthalmos and relation with Exposure Keratitis

DISCUSSION

The involvement ofthe eyess in leprosy is due tothe infiltrationn of the tissues by the bacilli and damage to the nerves[12]. In this study, 58% of the patients had ocular involvement. This can be compared to other studies of Wani.S.et al 2005 which showed 69% of ocular involvement, Gnanadoss A S et al 1986 showed 59.2% [13]. Studies conducted by Shields shows 33% of potentially sight threatening lesions which included keratitis, iritis, lagophthalmos and secondary glaucoma[14]. In our study the potentially sight threatening lesions were lagophthalmos, exposure keratitis, uveitis, corneal hypoesthesia and corneal opacity which accounted nearly for 72.4%. Majority of the patients in our study were of the age group 21-40 years and male predominance was seen in both for, affected eyes with leprosy (76%) and ocular involvement (72%). This can be compared with the study by Wani.S et al (82.6%) [12] which also showed predominance for men. This study further shows that ocular manifestation were seen more in lepromatous leprosy (75.36%) followed by borderline (14.49%) and tuberculoid leprosy (10.14%) [12]. In our study conducted, ocular involvement was 35% in lepramotous, 31% in borderline and 17% in tuberculoid type. The reason being that M.leprae has a favourable environment in the anterior segment of the eye and the bacilli are found more in lepromatous type of leprosy. Madarosis was the commonest ocular manifestation in our study, which was about 48% when compared to Shield's 1974 (54%) [14] and Acharaya B P (59.2%)[15] and Wani. S. et al (72.46%)[12]. Lagophthalmos accounts for 35% in our studywhen compared to Wani.S et al (28.98%)[12] , Acharaya B P (34.3%)[15] , Lamba et al 1983 (13%)[16] , Shields 1974 (29%)[14] and Weerekon 1972 (27%)[17]. Lagophthalmos is commonly associated with lepra reaction in the face and damage to the facial nerve and also depends in patients with lepromatous leprosy (14%) which is similar to the observation by Wani.S et al (18.84%) [12]. In this study corneal involvement was seen in 66% of the patients, corneal hypoesthesia 28%, exposure keratitis 21% and corneal opacity in 17%. In the study conducted by Wani.S et al corneal involvement (36.23%) [12] . Radhakrishnan N et al observed that the major cause of blindness in leprosy was exposure keratitis due to lagophthalmos (23%) and leucoma (25%) [18]. Cataractous changes in lens were seen in 17% of the patients, but it was not a complication due to leprosy or MDT but merely due to senile lens changes in the older age group of the patients in our study. This is also supported by the study from Gnanadoss A S et al[13]. Iris pearls seen in anterior uveitis are said to be the pathognomic of leprosy [19, 20]. But in our study uveitis was observed only in 7% of the patients when compared to Wani S et al[12] which showed 31.88%. This probably is due to the small sample size of our study and also the duration of leprosy not been more than 10 years for all patients, because uveitis is seen mostly in chronic cases of leprosy. This is supported by various studies, like Lamba 1983 [16] (14%), Hornblass 1973[21] (16%) and Gnanadoss A S et al 1986[13] (5.6%). In this study all patients with ocular manifestations were either treated formerly (58.6%) or presently (41.4%) with systemic anti leprosy drugs. Courtright et al suggested that ocular pathology will still occur in MDT treated leprosy patients[22]. This treatment does not prevent the occurrence of ocular lesions[12]. The

duration of MDT has been for 12 months and should be completed at least within the first18 months after diagnosis of Hansen's disease. Moreover, once the patient is on treatment the ocular reaction is seen more in the first 6-12 months due to reactions[23]. The progressive leprosy related lesions are the result of chronic nerve damage.

CONCLUSION

The risk of ocular lesions increases with the duration of disease, lepra reaction and facial patches in this reaction. Screening of all patients affected with leprosy can help in identifying the potentially sight threatening lesions which can be treated early. Visual impairment if detected early is preventable. The Multi Drug therapy for leprosy has improved the outcome of the affected with leprosy, but does not retard the development of ocular complication.

Limitations: Owing to the small sample size in this study many other ocular manifestations could not be assessed. A relationship between uveitis, Complicated cataract and leprosy can be suggested if the patients present with a longer duration of leprosy more than 10 years, as in this study we had only 4 patients in that category.

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Conflict of Interest: Nil

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