

MODERN TRENDS IN MANAGEMENT OF MOOREN'S ULCERVinod Kumar Baranwal¹, Rajendra Prasad Gupta², K. Satyabala³, Shikhar Gaur⁴¹Professor and HOD, Department of Ophthalmology, Army College of Medical Sciences and Base Hospital, Delhi Cantt.²Principal and Professor, Department of Ophthalmology, MIMER Medical College, Talegaon (D), Pune.³Eye Specialist (Retired), Department of Ophthalmology, IAM, Bangalore.⁴Eye Specialist, Department of Ophthalmology, Military Hospital, Mhow.**ABSTRACT****BACKGROUND**

Mooren's ulcer is a chronic peripheral corneal ulceration featuring conjunctival immunoglobulin deposits. It is considered as the result of a limbic immune process with hyperactivation of T and B lymphocytes. The exact aetiology remains unknown. The response to topical steroid therapy, immunosuppressants and surgical procedures is usually poor and the visual outcome can be devastating. We report our good results in managing these cases with 3 days of intravenous methylprednisolone and 3-7 months of cyclosporine eyedrops.

MATERIALS AND METHODS

We treated 27 patients of Mooren's ulcer with 1 g intravenous methylprednisolone for 3 days along with topical cyclosporine eyedrops for 3-7 months.

RESULTS

Six patients had Mooren's ulcer in both eyes. Six patients had Mooren's ulcer in their one eye. All these 12 cases had poor response to topical steroids and conjunctival peritomy and Mooren's ulcer was progressing. Three patients had progressing Mooren's ulcer in their eyes despite lamellar keratoplasty and topical steroids therapy. Twelve patients were freshly diagnosed as Mooren's ulcer. All these twenty seven cases were treated by giving 3 doses of 1 g intravenous methylprednisolone over 3 days along with topical cyclosporine A (0.05%) eyedrops. They responded very well to the treatment and corneal healing was obtained in 5-7 months of treatment. No adverse effects of above treatment were seen in any case.

CONCLUSION

We report the effectiveness of 3 doses of 1 g intravenous methylprednisolone given over 3 days along with topical cyclosporine eyedrops in treatment of Mooren's ulcer. We propose the above regime for treatment of Mooren's ulcer. The benefit is most likely due to temporary switching off the immunodamaging process by short course of high-dose methylprednisolone followed by immunosuppression by cyclosporine A.

KEYWORDS

Immunosuppression, Immunodamaging, Autoimmune, Peritomy, Cyclosporine A, Ulcus Rodens, Lamellar Keratectomy.

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BACKGROUND

Mooren's Ulcer (MU) is a rare, idiopathic, painful, relentless and chronic ulcerative keratitis that begins peripherally and progresses circumferentially and centrally. There is no associated scleritis. It is typically seen in healthy adult men. However, it can occur at any age and in both sexes. Mooren's ulcer is a distinct entity, but it is a diagnosis of exclusion. It is believed to be an autoimmune disease though exact process is not known. Patients typically present with pain out of proportion to the inflammation, redness, tearing and photophobia.¹ There may be a decrease in visual

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acuity secondary to iritis, central corneal involvement and irregular astigmatism corneal thinning. Complications from MU may include iritis, hypopyon, glaucoma, cataract and perforation of cornea.² Various treatment modalities have been advised for a case of MU. These include topical/systemic steroids, cycloplegics, antibiotics, therapeutic soft contact lens or patching of the eye, conjunctival resection, cryotherapy of limbal conjunctiva, keratoepithelioplasty, systemic cytotoxic chemotherapy, keratectomy, etc. However, despite all these available modalities, treatment of MU is still unsatisfactory. We propose to treat cases of MU with 1 g intravenous methylprednisolone for 3 days along with topical cyclosporine eyedrops for 3-7 months.

MATERIALS AND METHODS

We treated 27 cases of Mooren's ulcer over 6 year's period from April 2010 to July 2016 in Democratic Republic of Congo (DRC) in Africa and India. In all cases, detailed history was taken and thorough clinical examination was done to

exclude underlying systemic illness. Detailed ocular examination was done in each case. Laboratory tests done in all cases included complete blood count with differentials, blood sugar, Erythrocyte Sedimentation Rate (ESR), Fluorescent Treponemal Antibody-Absorption Test (FTA-ABS), Antinuclear Antibody (ANA) and Rheumatoid Factor (RF), TPHA and VDRL, urinalysis, electrolytes and chest roentgenogram. Based on the clinical presentation and negative workup for the underlying systemic diseases, a diagnosis of Mooren’s ulcer was made. In twelve cases, Mooren’s ulcer was progressing despite treatment with topical steroids and peritomy. Three patients were not happy despite undergoing lamellar keratoplasty and topical steroid therapy. Twelve cases were directly taken up for treatment by our regimen based on good results obtained by us in 15 cases. All cases were given slow intravenous infusion of 1 g methylprednisolone daily for 3 days after hospitalisation under cardiac monitoring at the beginning of treatment. Topical cyclosporine A (0.05%) eyedrops were also started at the same time and were continued till patient became asymptomatic and eyes quiet. The cases were followed up for a minimum period of 2 years after they became asymptomatic.

RESULTS

The age of patients ranged from 24 years to 71 years (Table 1). 20 out of 27 cases were male (Table 2). Six patients had Mooren’s ulcer in both eyes. Six patients had MU in their one eye. All these 12 cases had poor response to topical steroids and conjunctival peritomy and Mooren’s ulcer was progressing (photo 1(a)). In all these 12 cases, affected cornea healed after 3 doses of 1 g intravenous methylprednisolone infusion given over 3 days treatment at the onset of therapy along with 3-6 months of topical cyclosporine A eyedrops (photo 1(b)). Three patients who did not improve with lamellar keratoplasty and topical steroid therapy, also responded to our regimen. Corneal healing was obtained after 5 months of treatment. Based on our above response, 12 patients who presented with a furrowed Mooren’s ulcer were straight away treated by giving 3 doses of 1 g intravenous methylprednisolone over 3 days along with topical cyclosporine A for 4-7 months (photo 2(a)). They responded very well to the treatment (photo 2(b)). No adverse effects of above treatment were seen in any case.

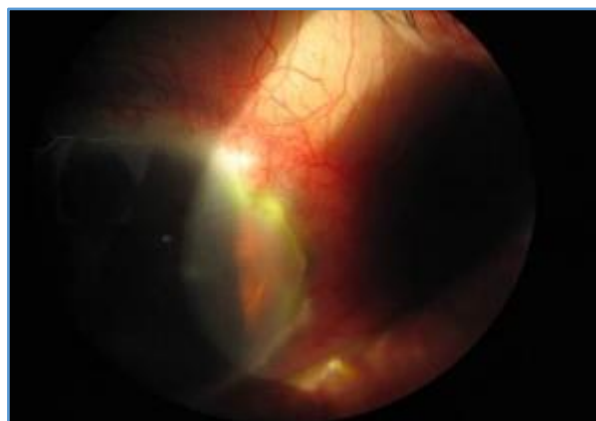


Photo 1(a). Mooren’s Ulcer Case before Treatment

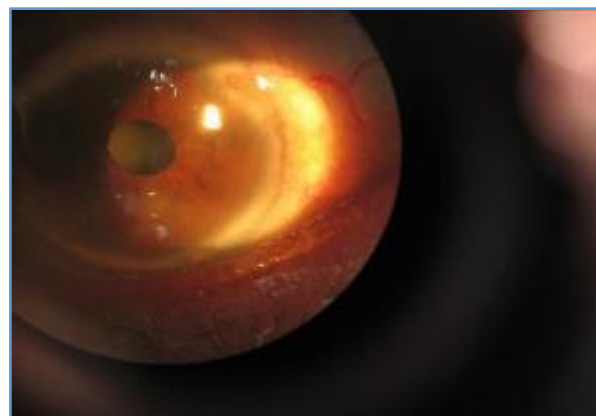


Photo 1 (b). Mooren’s Ulcer Case after Treatment

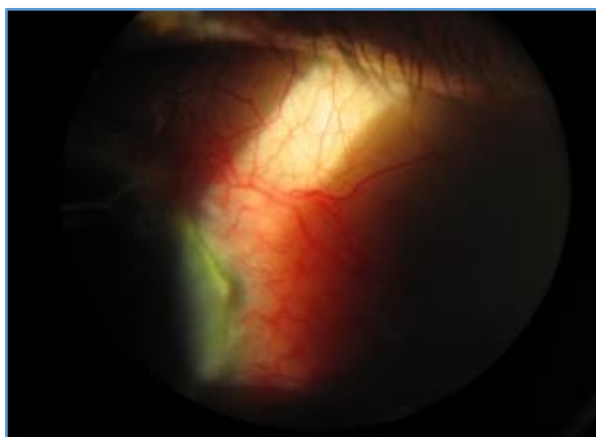


Photo 2(a). Mooren’s Ulcer Case before Treatment

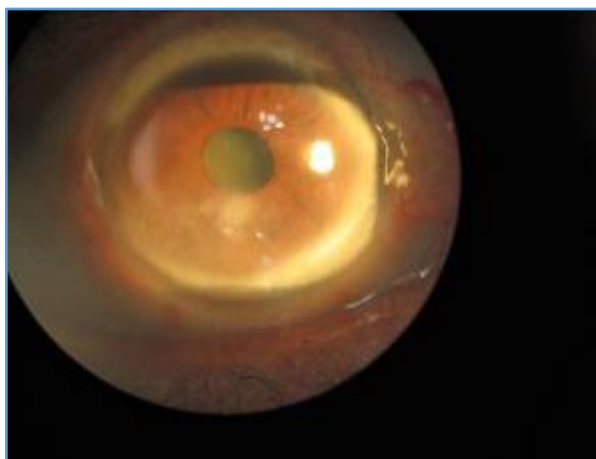


Photo 2 (b). Mooren’s Ulcer Case after Treatment

| Sl. No. | Age Group (Years) | Number of Cases | Percentage (%) |
|---------|-------------------|-----------------|----------------|
| 1. | 0-20 | 0 | 0 |
| 2. | 21-40 | 5 | 18.51 |
| 3. | 41-60 | 12 | 44.44 |
| 4. | 61-80 | 10 | 37.03 |

Table 1. Age Distribution of Cases

| Sl. No. | Sex | Number of Cases | Percentage (%) |
|---------|--------|-----------------|----------------|
| 1. | Male | 20 | 74.07 |
| 2. | Female | 7 | 25.92 |

Table 2. Sex Distribution of Cases

DISCUSSION

Mooren's Ulcer (MU) is a rare, idiopathic, painful, relentless, chronic ulcerative keratitis that begins peripherally and progresses circumferentially and centrally. There is no associated scleritis. It is typically seen in healthy adult men. However, it can occur at any age and in both sexes. It was first described by Bowman in 1849 and McKenzie in 1854 as "chronic serpiginous ulcer of the cornea or *ulcus rodens*."^{1,3} However, it was Mooren who was the first to clearly define and describe this corneal condition as a clinical entity and published several cases in 1863.⁴ Mooren's ulcer was divided into three types by Watson-Unilateral Mooren's ulceration, Bilateral aggressive Mooren's ulceration and bilateral indolent Mooren's ulceration.⁵

Mooren's ulcer is a distinct entity, but it is a diagnosis of exclusion. However, relationship has been reported with infectious diseases like tuberculosis, syphilis, helminthiasis and hepatitis C, in addition to trauma, both physical and operative.^{6,7,8,9,10} It is believed to be an autoimmune disease though exact process is not known. Proteolytic enzymes and activated neutrophils have been noted by various observers in these cases.^{11,12,13,14} Other workers have suggested that autoimmune response occurs in response to trauma, infection or systemic illness.^{11,15} Symptoms of a case of Mooren's ulcer include severe pain out of proportion to inflammation, redness, watering and photophobia. Visual acuity maybe decreased due to astigmatism, iridocyclitis and central corneal involvement. Cornea shows peripheral patchy stromal infiltrates, which coalesce.^{16,17,18} Limbus is involved and ulcer enlarges to involve cornea circumferentially and then centrally. Finally, whole of the cornea is affected. The ulcer has an undermined overhanging edge. Disease causes severe pain. Finally, whole of the cornea is thinned, scarred and vascularised. Various complications include corneal perforation, uveitis, cataract and glaucoma.

Most experts would agree on a stepwise approach to the management of Mooren's ulcer. Initially, patient is put on topical steroids in association with cycloplegics and prophylactic antibiotics.^{19,20} Various treatment modalities tried in case of Mooren's ulcer includes steroids - topical or systemic, topical tetracycline, medroxyprogesterone, patching, conjunctival resection, cryotherapy and cytotoxic drugs.^{12,16,17,19,20,21} The most commonly used cytotoxic agents include cyclophosphamide (2 mg/kg/day), methotrexate (7.5 to 15 mg once weekly), azathioprine (2 mg/kg/day) and oral cyclosporine A (3-4 mg/kg/day). Administering physician must be vigilant about the serious side effects of these drugs like anaemia, alopecia, nausea, nephrotoxicity and hepatotoxicity. Superficial lamellar keratectomy has been advised by some if all above measures fail. Corneal perforations are treated by glue or keratoplasty depending on the size.^{19,21} However, the results of keratoplasty are not very encouraging.^{2,12} Despite all above measures, treatment of Mooren's ulcer is not satisfactory. Our regimen of 3 doses of 1 g intravenous methylprednisolone given over 3 days along with topical cyclosporine A eyedrops in treatment of Mooren's ulcer is

really effective. We propose the above treatment for treating a case of Mooren's ulcer. This high dose of methylprednisolone therapy probably acts initially due to its anti-inflammatory action. Long-term benefit is due to temporary switching off of the immunodamaging process as a consequence to lymphopenia and decreased immunoglobulin synthesis. In addition, there is minimal suppression of pituitary-adrenal axis with this short regimen. Cyclosporine is a specific T-cell inhibitor. It selectively inhibits T-lymphocyte proliferation, IL-2 and other cytokine production. It also inhibits response of inducer T cells to IL-1 without any effect on suppressor T cells. Unlike cytotoxic immunosuppressants, it is free of toxic effects on bone marrow and reticuloendothelial system.

CONCLUSION

We report the effectiveness of 3 doses of 1 g intravenous methylprednisolone given over 3 days along with topical cyclosporine. A eyedrops in treatment of Mooren's ulcer. We propose the above treatment for cases of Mooren's ulcer.

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