Immunosuppressives in Peripheral Ulcerative Keratitis

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MJAFI 2005; 61 : 195-196

Key Words : Peripheral ulcerative keratitis; immunosuppressives

Introduction

Peripheral ulcerative keratitis (PUK) is a crescent shaped, destructive, inflammatory lesion of perilimbal cornea. It is always associated with an epithelial defect and usually has a subepithelial infiltrate at its central edge [1]. Moreover most, but not all forms of PUK have associated inflammation of adjacent conjunctiva, episclera or sclera. PUK may be the presenting manifestation of a potentially lethal systemic autoimmune vasculitic disease or may even herald the onset of a potentially lethal systemic disease [2].

Case Report

A 30 year old lady presented with complaints of watering, intolerance to bright light and foreign body sensation in her left eye of 3 months duration. Initially she had watering and redness of left eye and then also noticed a small white spot in nasal portion of her cornea. Along with foreign body sensation, she had gradual increase in size of the white spot, photophobia and pain in left eye. She did not give any history of trauma, similar complaints in the past, joint pains or any other systemic complaints. General physical examination was normal. On ocular examination, her visual acuity was 6/6 both eyes. Right eye was normal. Examination of left eye revealed circumcorneal congestion especially in nasal quadrant with epithelial defect from 7 to 9 O'clock hours at limbus on fluorescein staining. Infiltrates were seen along inferior edge of ulcer and less than 25% stromal involvement was present. No associated anterior chamber activity was present. Microbiological analysis of ulcer was non-contributory. A complete haemogram, urinalysis, rheumatoid factor and radiographs of joints were normal. She was diagnosed as having peripheral ulcerative keratitis in her left eye and treated with topical antibiotics; cycloplegics and diluted topical steroids with tear supplements. The ulcer did not progress further and the epithelial defect healed.

Two months later, she presented with increase in symptoms and unaided vision in left eye was 6/12 improving to 6/6. The ulcer had increased in size in both centripetal and circumferential directions from 6.30 to 11 O'clock (Fig 1). The

depth of ulceration had increased to more than 50% of stroma. Patient was treated with topical full strength prednisolone acetate eye drops, antibiotics and cycloplegics but with no relief. Patient underwent a short course of systemic steroids and then put on Tab Methotrexate 7.5 mg/week with healing of ulcer over next one month with peripheral corneal thinning and vascularization. She was maintained on the same regimen and followed monthly with no further recurrences for three months and thereafter three monthly. She was also advised to have her blood total leucocyte count, differential leucocyte count and platelet count done every two weeks and to be reviewed by her physician.

Discussion

The unique anatomic and physiologic characteristics of peripheral cornea explain the predilection to be involved in a variety of disorders. The peripheral cornea also contains a reservoir of inflammatory cells, including neutrophils, eosinophils, lymphocytes, plasma cells and mast cells as well as Langerhans cells [3]. Due to the presence of Langerhans cells IgM, C1 and the inflammatory cells, the peripheral cornea is thus more susceptible than the central cornea to ulceration in many infectious as well as non-infectious local and systemic diseases. PUK is always a local destructive process mediated by the final common pathway of collagenolytic and proteolytic enzyme release from inflammatory cells [4]. Not all types of PUK are associated with inflammation of the adjacent conjunctiva, episclera and sclera.

Approximately 50% of all non-infectious PUK have an associated collagen vascular disease [1]. Many systemic diseases are associated with PUK. PUK has been described in patients with rheumatoid arthritis, Wegener's granulomatosis, relapsing polychondritis, systemic lupus erythematosus (SLE), Polyarteritis nodosa (PAN), microscopic polyangiitis, Churg-Strauss syndrome, Sjogren's syndrome and erythema elevatum diutinum [5,6]. PUK can occur at any point of the

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Fig. 1 : Shows slit lamp photograph of left eye showing active peripheral corneal ulcer nasally

systemic disease or even herald the onset of one, but commonly occurs after systemic manifestations occur. Rheumatoid arthritis (RA) is the most common systemic disease associated with PUK, but tends to occur late in the course of the disease process; indicating worsening of the disease [1,7]. McKibben et al [8] had carried out a three year study in the United Kingdom to ascertain the epidemiology of PUK in the setting of collagen vascular disease and the incidence was approximately calculated as three cases per million per year.

It is equally important to rule out local causes; infectious and non-infectious. Microbial infections including *acanthamoeba*, phlyctenulosis, marginal keratitis, vernal keratoconjunctivitis, immune corneal rings, corneal degeneration and Mooren's ulcer have to be ruled out [9]. Mooren's ulcer presents as a chronic unilateral or bilateral painful ulceration of peripheral cornea, usually in the inter-palpebral fissure [10]. There is no associated scleritis. It typically occurs in healthy young adult men without any associated systemic disease; it is a disease of exclusion. Iritis and secondary glaucoma can occur. Pain can be very severe. Circumferential and central spread with upto one-half stromal thickness involvement and a steep overhanging edge is seen. Autoimmune etiology has been postulated.

A thorough history and local examination is important as also full general examination with relevant diagnostic tests and tissue biopsy if needed. Treatment modalities include local therapy with topical lubricants, antibiotics,

topical steroids, conjunctival resection, tissue adhesive, bandage and contact lens application. Immunosuppressives are needed in cases associated with systemic or local autoimmune disease and in Mooren's ulcer or PUK unresponsive to aggressive conventional medical or surgical therapy [1,4,11].

Our patient had progressive non-infectious PUK, which did not respond to conventional medical management but showed good response to treatment with methotrexate. Systemic examination did not reveal any underlying autoimmune disorder in our patient. We are keeping the patient on regular follow-up to monitor the disease process and for the side-effects of immunosuppressives. As our case illustrates, judicious and timely use of immunosuppressives is important in retarding the progress of PUK and healing of the ulcer.

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