

Epidemic Keratoconjunctivitis in Al-Ramadi City

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Summary:

Background: Epidemic keratoconjunctivitis (EKC) is a viral conjunctivitis caused by a group of adenoviruses. EKC is highly contagious and has a tendency to occur in epidemics.

Objectives: The aim of this study is to evaluate the efficacy of fluorometholone (0.1%) eye drop in the management of viral EKC in Al-Ramadi city .

Patients and methods: 300 patients were examined in the private clinic at Al-Nahrain Eye Specialty center from February 2009 to September 2011 and follow up of the patients extended from 3 months to 12 months. Those patients were divided into two groups: first group includes 150 patients (95 males and 55 females, aged from 1 year to 65 years) was treated by cold compresses with lubricant eye drop without the use of fluorometholone eye drop. Second group includes 150 patients (80 males and 70 females, aged from 1 year to 65 years) was treated by cold compresses with lubricant eye drop and fluorometholone (0.1%) eye drop.

Results: Regarding the first group, this study showed that recovery without sequelae was noted in 63 (42%) patients. Corneal subepithelial opacities were detected in 76 (50.6%) patients, while 10 (6.6%) patients developed conjunctival scarring, and only one (0.6%) developed conjunctival cyst.

Data from the second group showed that 120 (80%) patients recovered without complications, while 30 (20%) patients developed subepithelial opacities and no one (0%) developed conjunctival scarring or conjunctival cyst.

Conclusion: Use of fluorometholone eye drop in treatment of EKC : Alleviate the patient's symptoms, decrease the course of the disease and decrease the occurrence of subepithelial opacities.

So it is recommended to use fluorometholone (0.1%) eye drop in the treatment of EKC.

Key Words: Epidemic keratoconjunctivitis (EKC), fluorometholone (0.1%) eye drop, Al-Ramadi city.

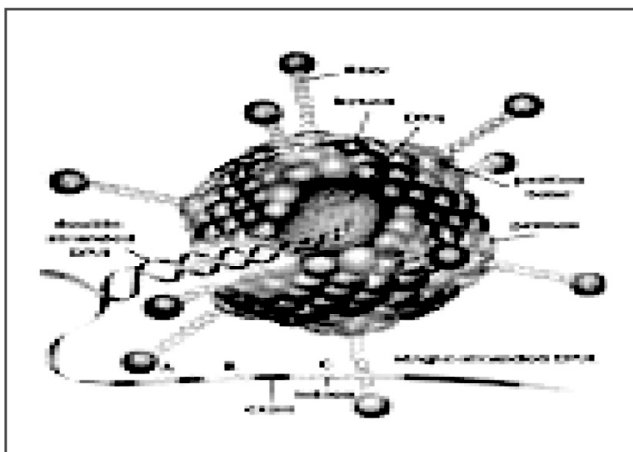
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Introduction:

Epidemic keratoconjunctivitis (EKC) is a viral conjunctivitis caused by adenovirus serovars 8, 19, and 37.⁽¹⁾

Adenovirus is a non-enveloped double-stranded DNA virus as shown in figure no.(1)

Figure no.(1) adenovirus



Alternative names to EKC: pink eye, shipyard conjunctivitis, Sanders' disease, Sanders-Hogan syndrome. Shipyard disease or shipyard eye, a form of EKC, occurred during World War II. James Sanders, an English physician, was the first to describe

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EKC. EKC is the most severe type of viral conjunctivitis and is associated with Keratitis in about 80% of cases⁽¹⁾. EKC is highly contagious and has a tendency to occur in epidemics (it is named epidemic for the epidemic way the infection spreads). EKC epidemics tend to occur in closed institutions (e.g., schools, hospitals, camps, nursing homes, workplaces). Direct contact with eye secretions is the major mode of transmission. Other possible methods of transmission are air droplets and possibly swimming pools.

- People get epidemic keratoconjunctivitis by coming into contact with tears or discharge from the eyes of an infected person and then touching their own eyes. This can happen by touching the hands of someone with the infection, or by touching contaminated surfaces or objects.
- Usually the symptoms develop between 5 days and two weeks after exposure to an infected person or surface, however this can take longer.

Reasons behind the infectious transmission of EKC in hospitals and clinics include the fact that⁽²⁾:

- (1) the virus (adenovirus type 19) remains viable for 5 weeks
- (2) the virus is resistant against standard disinfectants such as 70% isopropyl alcohol and ammonia.
- (3) the virus sheds from the eye 3 days before symptom onset and 14 days after.

EKC is one of the most common causes of acute conjunctivitis. The onset of EKC is often unilateral, with both eyes subsequently being affected but the first eye usually being

more severely affected⁽³⁾. The characteristic clinical features of EKC is sudden onset of acute follicular conjunctivitis, with watery discharge, hyperemia, chemosis, and ipsilateral preauricular lymphadenopathy.

Membranes and pseudomembranes can occur, with a distinguishing corneal involvement that ranges from diffuse, fine, superficial keratitis to epithelial defects to subepithelial opacities. Diagnosis is mainly clinical. Treatment is mostly symptomatic (cold compresses and artificial tears^(4,5)).

Patients and Methods:

300 patients were examined in the private clinic at Al-Nahrain Eye Specialty center (Al-Ramadi city - Cinema street) from February 2009 to September 2011. All patients completed follow up period of 12 months.

Patients who did not complete this follow up period were excluded. Patients were divided into two groups, each group includes 150 patients .The range of age of patients in each group was from 1 year to 65 year, while the sex distribution of cases was different between the two groups as in the first group the sex distribution of cases was 95 male and 55 female , while in the second group was 80 male and 70 female. Regarding the management of patients with EKC , each group was managed differently as in the first group the patients with EKC was manage by using (cold compresses, Lubricant eye drops 4-5 times daily, Antibiotic chloramphenicol eye drop six times daily and chloramphenicol eye ointment once by night) but didn't use fluorometholone eye drop. Chloramphenicol was used in all patients to prevent secondary bacterial infection

which could change the course of the disease and the response to steroid treatment so that the efficacy of fluorometholone could be more precisely studied among patients with pure adenoviral infection,while the second group of patients with EKC was managed in the same way of management of the first group except that fluorometholone eye drop(0.1%), 3-4 times daily was used as shown in table no.(1)

Table (1) show the type of management of patients with EKC of first and second group.

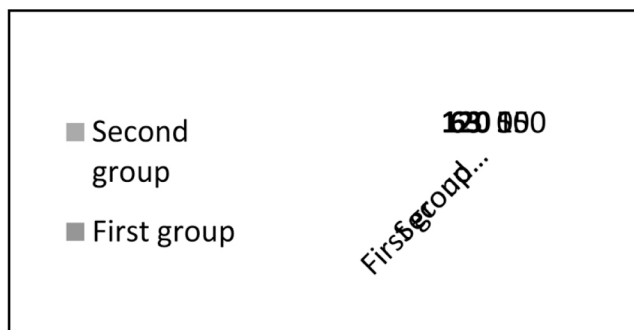
Type of management of patients with EKC	
First group(150 patients)	Second group (150 patients)
Cold compresses	Cold compresses
Lubricant eye drops (4-5 times daily)	Lubricant eye drops (4-5 times daily)
Manual removal of pseudomembranes with non-toothed forceps	Manual removal of pseudomembranes with non-toothed forceps
Antibiotic: (chloramphenicol eye drop six times daily, chloramphenicol eye ointment once by night)	Antibiotic: (chloramphenicol eye drop six times daily, chloramphenicol eye ointment once by night)
Without use of steroid	Topical steroid (fluorometholone eye drops 0.1%, 3-4 times daily)

Results:

The results of our study is summarized in table no.(2) and graph no. (1),(2),(3),(4) and (5) and pictures (1,2 and 3).

Table (2): compares the results of follow up between the two groups of patients with EKC in .

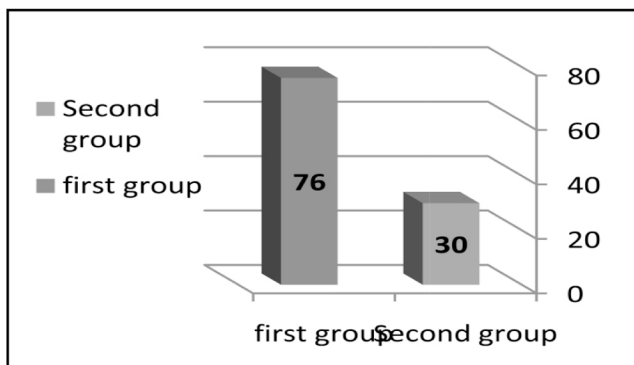
Results of follow up of patients EKC	First group		Second group	
	number	Percentage	number	percentage
Recovery without sequelae	63	42%	120	80%
Subepithelial infiltrate	76	50.6%	30	%20
Persistence of subepithelial opacities for year	40	26.6%	8	5.3%
Conjunctival scarring	10	6.6%	0	0%
Conjunctival cyst	1	%0.6	0	0%



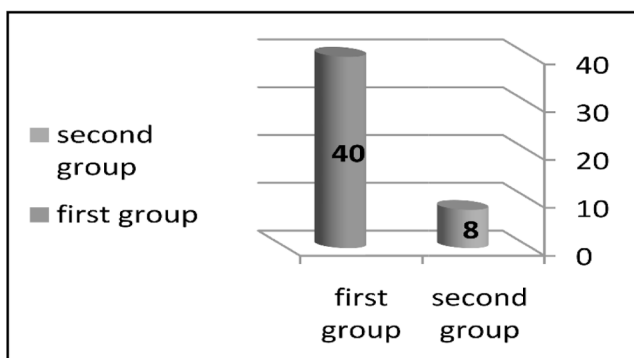
Graph no.(1) show Recovery without sequelae



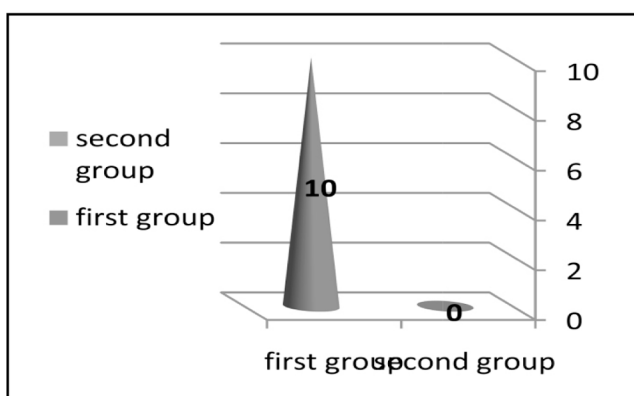
Picture no.(1) show redness and lacrimation of patient eye with EKC



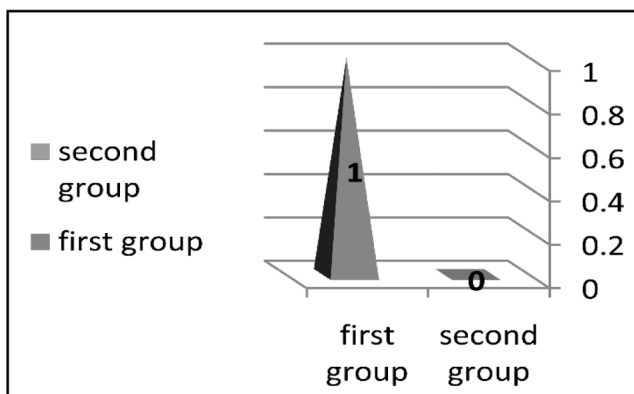
Graph no.(2) show Subepithelial infiltrate



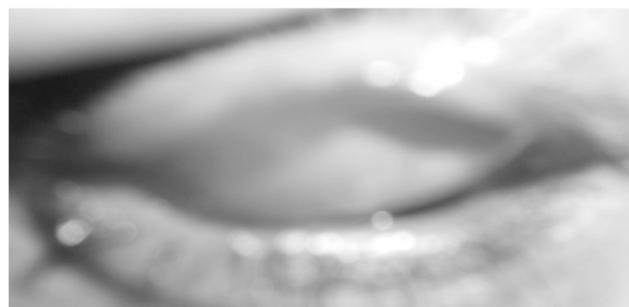
Graph no.(3) show Persistence of subepithelial opacities for year



Graph no.(4) show Conjunctival scarring



Graph no.(5) show Conjunctival cyst



Picture no.(2) show the inflammatory conjunctival membrane



Picture no.(3) show removal of the conjunctival membrane

Discussion:

EKC is annoying disease producing discomfort and is highly contagious. EKC is a self-limiting disease. It tends to resolve spontaneously within 1-3 weeks without significant complications. In 20-50% of cases, corneal opacities can persist for few weeks to months (rarely up to 2 y). This phenomenon can significantly decrease visual acuity and cause glare symptoms. Excimer laser phototherapeutic keratectomy (PTK), along with low-dose mitomycin, can be used to remove subepithelial opacities.⁽⁶⁾ In rare cases, conjunctival scarring and symblepharon can occur secondary to membranous conjunctivitis. Subepithelial opacities which persist for months or years lead to blurring of vision and increase the discomfort of the patient after resolution of infection. Treatment for adenoviral conjunctivitis is supportive (There is no treatment proved to be curable). No evidence exists that demonstrates efficacy of antiviral agents. Antiviral (cidofovir) and cyclosporine eye drops were tried in some patients but without definite benefit⁽⁷⁾. In this study fluorometholone (0.1%) eye drop was used in the management of EKC. Fluorometholone is a synthetic glucocorticoid with a local anti-inflammatory action approximately 40 times greater than that of hydrocortisone. fluorometholone demonstrated a lower propensity to increase intraocular pressure than did dexamethasone. In the present study, it was found that the Recovery without sequelae after infection with viral EKC is higher (80%) in those who use fluorometholone (0.1%) eye drop compared with (42%) in those who didn't use it

as shown in table no.(2) and graph no.(1). Also it was noted that the Subepithelial infiltrate was found in(20%) of patients who use fluorometholone (0.1%) eye drop and in (50.6%) of patients who didn't use it as shown in table no. (2) and graph no.(2). Regarding the Persistence of subepithelial opacities for a year, it was reported in (26.6%) of patients who use fluorometholone (0.1%) eye drop and in (5.3%) of patients who didn't use it as shown in table no.(2) and graph no.(3). This study showed that Conjunctival scarring occurred only in patients who didn't use fluorometholone (0.1%) eye drop (6.6%) and Conjunctival cyst also occurred only in patients who didn't use fluorometholone (0.1%)eye drop (0.6%) of patients as shown in graph no.(4) and (5). There are many studies which discussed the role of fluorometholone like two studies done by A Kupferman; H M Leibowitz , first study was about (Therapeutic effectiveness of fluorometholone in inflammatory keratitis) and in this study they measure the ability of 0.1% fluorometholone ophthalmic suspension to reduce the numbers of polymorphonuclear leukocytes

that invaded the cornea.The data demonstrate that topically administered fluorometholone is an effective therapeutic agent and that it compares favorably in anti-inflammatory activity with dexamethasone and prednisolone preparation ⁽⁸⁾.While the second study was about: (Penetration of fluorometholone into the cornea and aqueous humor). This study showed that fluorometholone penetrated into the cornea and aqueous humor following topical administration of a standard drop. The amount of drug measured in each location was less than that previously documented for dexamethasone and prednisolone preparations. In contrast to these more conventional steroids, the ocular penetration of fluorometholone appeared to be unaffected by the presence or absence of the corneal epithelium or of intraocular inflammation ⁽⁹⁾.The results of this study was compared with results of study done by Adel Mohamed Waly in kafji national hospital (Saudi Arabia) ⁽¹⁰⁾ in which he used fluorometholone (0.1%) eye drop in the management of epidemic keratoconjunctivitis. as shown in table no.(3)

Table (3) comparison between this study and study done by Adel Mohamed Waly in kafji national hospital (Saudi Arabia)

Comparison between our study and other study	The present study (Epidemic keratoconjunctivitis in Al –Ramadi city)	New Management Of Epidemic Viral Keratoconjunctivitis Adel Mohamed Waly -kafji national hospital (Saudi Arabia)
Duration of the study	33month	42month
Recovery without sequelae	80%	86.6%
Subepithelial infiltrate	20%	13.4%
Persistence of subepithelial opacities for year	5.3%	4.1%

Conclusion:

The use of fluorometholone (0.1%) eye drop in management of viral EKC :Alleviate the patient's symptoms redness ,swelling, discomfort ,photophobia ,pain ,and tearing,(Decrease the course of the disease .Decrease the occurrence of subepithelial opacities.So it is recommended to use fluorometholone(0.1%) eye drop in the treatment of EKC.

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