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Original Research Paper

Ophthalomology

A STUDY ON CONJUNCTIVITIS OUTBREAK IN A TEACHING HOSPITAL IN WESTERN INDIA

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ABSTRACT

AIMS &OBECTIVES:

- To contemplate epidemiology of an outbreak of conjunctivitis in a teaching hospital.
- To study significant signs and symptoms of disease.
- To discuss preventive measures applicable at respective levels in minimizing outbreaks.
- To note patterns of transmission within family and community.

METHODS: Retrospective data were collected based on conjunctivitis cases that appeared in OPD on daily basis from 12 july, 2023 to 12th August, 2023 at GMERS hospital, Gotri, vadodara. Detailed history - mode of onset, duration, progression of symptoms, clinically evident signs, type of severity on presentation, probable mode of transmission, infection of other family members were elicited in each case. Conjunctival swabs were sent for the patients presented with discharge. Based on the clinical signs and symptoms probable diagnosis of viral conjunctivitis was made. **RESULTS:** There were 1584 cases of conjunctivitis noted; among them 320 (20.2%) were children, 117(7.4%) were adolesecent, 1147(72.4%) were adults among them 658(57.4%) males, 489(42.6%) females. The median age in children was 7years, ranged between 1 to 12 years. Median age in adults was 34 years, ranged between 20-75 years. 62% cases were of moderate severity on presentation. The pattern of epicurve shows fast spread of infection in community, strongly suggesting person to person transmission, with 50% of initial cases in the family was from the child infected from school. 80% cases developed second eye infection within 48hrs of development of first eye symptom. **CONCLUSION:** Person to person contact transmission has led to this outbreak in community, where significant part of the outbreak has been contributed by school going children, followed by its transmission to its respective family members, community. Education, awareness, hygiene, prompt isolation and adopting preventive measures would prevent such outbreaks in future.

KEYWORDS : Viral Conjunctivitis, Outbreaks, Epidemiology, Transmission.

INTRODUCTION-

An alarming increase in conjunctivitis cases has emerged as a major global health concern, affecting a significant number of people across continents. India has currently witnessed an outbreak of conjunctivitis, commonly known as Pink eye.

Viral conjunctivitis is responsible for majority of conjunctivitis, accounting for 75% cases. Viral conjunctivitis is a highly contagious acute infection caused by adenovirus. [1]

Adenoviruses are robust, resilient to standard disinfection and can easily be transmitted in settings with a high population density. The probable route of spread is via droplets and secretions from respiratory tract and eye. [2] Asymptomatic infected patients and staff can propagate the virus unknowingly, similarly ophthalmologists can act as a vector causing transmissions. [3,4]

MATERIAL AND METHODS:

Retrospectively data were collected based on the conjunctivitis cases that appeared in OPD on daily basis from 12 july, 2023 to 12th August, 2023 at GMERS hospital, Gotri, vadodara.

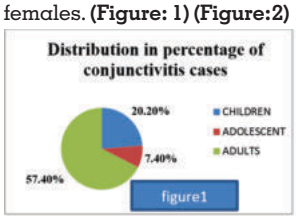
Detailed history of mode of onset, duration, progression of symptoms, clinically evident signs, type of severity on presentation, probable mode of transmission, infection of other family members were elicited in each case. Based on clinical signs and symptoms conjunctivitis probable diagnosis of viral conjunctivitis was made. All patients were examined under slit lamp examination on oblique illumination. Corneal sensitivity tested by cotton wisp. Evidence of acute coryza with any recent history of fever was sought in every case. Palpation of pre auricular lymph nodes + examination of throat performed. Conjunctival swabs were sent for 85 patients presented with discharge.

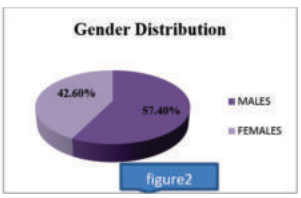
Conjunctivitis signs and symptoms were graded based on the severity accordingly:

- Mild- congestion only at upper palpebral conjunctiva+lower palpebral conjunctiva+ fornix, with watering
- Moderate- palpebral+bulbar congestion+ with foreign body sensation, watering, subconjunctival hemorrhage in one or two quadrants, +/- coryza.
- Severe- bulbar +palpebral congestion+ subconjunctival hemorrhage in >2 quadrants, +/- lid edema, foreign body sensation, +/- coryza, +/- lymphadenopathy

RESULTS

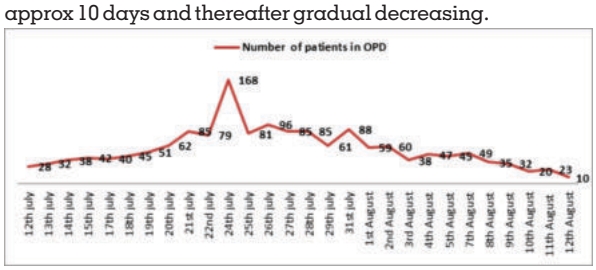
There were 1584 cases of conjunctivitis noted; among them 320 (20.2%) children, 117(7.4%)adolesecent, 1147(72.4%) were adults among them 658(57.4%) males, 489(42.6%) females. **(Figure: 1) (Figure:2)**



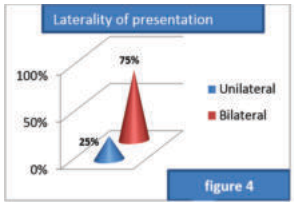


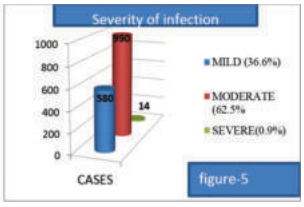
Median age in children was 7years, ranged between 1-12 years. Median age in adults was 34years, ranged between 20 to 75 years.

An epicurve (figure:3) has been plotted showing number of Conjunctivitis cases reported on daily basis in OPD. Sundays were excluded from graph. The pattern of epicurve showed fast spread of infection in community strongly suggesting person to person transmission, with exponential growth, followed by sharp decline then maintaining plateau phase for approx 10 days and thereafter gradual decreasing.



75% (1190)cases were bilateral, amongst it 80% cases developed second eye infection within 24- 48hrs of development of the first eye symptom and remaining 20% developed bilateral infection simultaneously. 25% (394) cases were unilateral on presentation. (Figure:4)





According to signs and symptoms on presentation, conjunctivitis cases were graded as mild, moderate and severe. 62.5% cases accounted for moderate severity on presentation, 36.6% cases were mild cases who were presented within hours to 1 day of presentation. 0.9% cases were of severe grading, amongst them few had already taken some local eyedrops (documents not available)which did not improve rather worsened which impelled them to seek medical advice. No complicated case was observed in the OPD.

Observation

Epidemiological: Increase in cases of conjunctivitis started with the onset of monsoons with heavy rains and humidity. Attending crowded OPD clinics, common public transports, schools and common work place, has led to exponential growth of cases. Rapid person to person transmission suggests short incubation period. Probable route was hand to eye, droplet spread in the community. Lack of isolation overcrowding, unawareness, unrestricted travel enhanced the rate of spread in community.

Clinical

Signs:

- Bulbar +forniceal +palpebral conjunctival congestion were present in almost all cases- 95%(figure 6a)
- conjunctival discharge: mucoid/ mucoprulent discharge- 20% (figure 6b)
- chemosis- 3% (figure 6c)
- Lid edema-4%(figure 6c)
- follicles on lower palpebral conjunctiva- 20%(figure 6d)
- Pre auricular lymphadenopathy on affected side- 9%.
- 2nd eye infection- 75% (figure 6 e)
- subconjunctival hemorrhage- 65%(figure 6 f)
- sore throat / pharyngo conjunctival fever.-22%

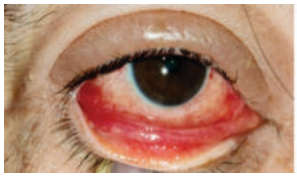


Figure 6a

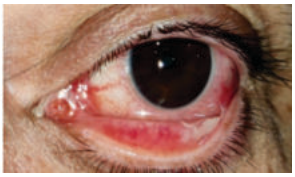


Figure 6b

Figure 6c,d

Figure 6 e

Figure 6f

Figure 6f

Laboratory:

Bacteriology conjunctival swab reports showed only pus cells, no bacterial organisms were isolated. Virology- Gold standard test for adenovirus is virus isolation and cell culture. laboratory confirmation of adenovirus is done by detecting viral DNA Polymerase chain reaction[5]However, in our study diagnosis of viral conjunctivitis was made solely based on clinical signs.

CONCLUSION

In this study initial cases are assumed to be school going children accounting 20.2 % of major cases of conjunctivitis. Extracting from history of each case it is noted that approx 50% cases had got conjunctivitis from school going child in family, followed by rest members in family. 30% got infection from work place, 15% cases got exposure from crowded places. 5% cases history could not be elucidated. (Figure:7)

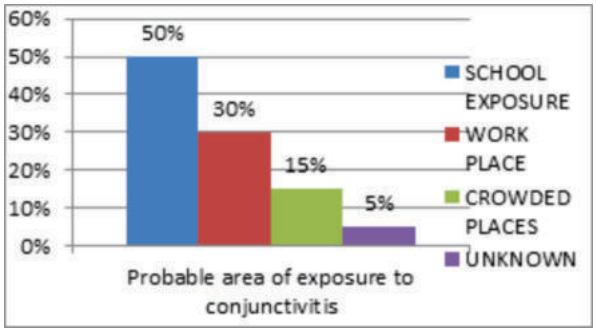


Figure 7

In our study probable diagnosis of viral (adenoviral) conjunctivitis was made based on clinical findings. Signs and symptoms favouring a case to Adenoviral conjunctivitis are-

- Rapid epidemic spread.
- positive contact history (family members, school children, work place, overcrowded place)
- Serous/ mucoid discharge
- Follicles formation
- Subconjunctival hemorrhage.
- Lymphadenopathy+ evidence of pharyngitis + /- Fever.

Treatment:

Conjunctivitis is a self limiting condition, chemosis, lid edema, pain and subconjunctival hemorrhage has impelled most of the patients to seek medical advice. Treatment of viral conjunctivitis is symptom oriented, since no standardized specific therapy has yet been established. Good hygiene practice includes vigorous disinfection of hands, instruments, avoid touching eyes, nose, mouth is imperative to prevent adenovirus spreading[6]

Basic treatment of conjunctivitis was given to the patients without any treatment modifications. All patients were

ensured and explained the importance of maintaining lid hygiene and personal hygiene. Patients were asked to irrigate their eyes with normal clean drinking water 6 hourly, inorder to wash away toxins, debris and inflammatory mediators from conjunctival sac. Cold compression followed by antibiotic eye drops, lubricating eye drops and anti histamines were given according to signs and symptoms. Low dose soft steroids were given in few selected cases with severe congestion.

Although the use of steroids in viral conjunctivitis is still controversial. Literature reports that both long and short term use of topical steroids enhances adenovirus replication and prolongs viral shedding. [7,8] Most cases of conjunctivitis were completely cured with no residual complications.

DISCUSSION:

Outbreak of conjunctivitis is a serious public health concern as it is highly contagious and person to person transmission rate is high. It can be easily missed out at the earliest incubation period when physician may contaminate itself and spread the disease to others, therefore a high level of vigilance, hygiene is crucial. Most of the patients in community do not seek medical consultation until signs and symptoms interfere their daily activities. Some of the patients even self medicate themselves and seek medical consultation only after worsening or non improvement of symptoms. Management decisions in treating an adenoviral conjunctivitis plays an important role in containing the outbreaks and minimizing the patient's morbidity. Therefore udiciously case by case approach is required in treatment of conjunctivitis.

Preventive measures that can be taken into account at respective levels:

Strategies to be followed at home to reduce the transmission risks:

- Meticulous and frequent hand hygiene after any probable contact at home.
- Avoid eye rubbing and Towel sharing.
- Maintain isolation of the infected
- wear protective eye glasses.
- Avoid going to the overcrowded places, schools, workplace- this will break the contamination chain in the community at an individual level.

Strategies To Prevent Spread In The Clinic:

- Disinfection of instruments and clinical surfaces after examining an infected person
- proper hand hygiene to be maintained especially when a case of adenovirus is suspected.
- Educate Patients about the infectivity window and the risk they carry in the community.
- wearing disposable gloves, while examining every patient.
- Triage of suspected cases of adenoviral infection so that they are seen earlier this will reduce the contact time exposure for other patients.

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