

## PROFILE OF VIRAL CONJUNCTIVITIS

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**ABSTRACT: INTRODUCTION:** Viral conjunctivitis is most commonly seen in the outpatient department. A variety of viruses which are responsible for conjunctival infection, of which Adenovirus is the most common. It is highly contagious during the first 2 weeks of infection. It can cause corneal involvement within 4-5 days after the onset of symptoms. Corneal lesions range from SPK (Superficial Punctate Keratitis) to epithelial defects. These corneal lesions may cause intense photophobia and impairment of vision. **AIM:** To find out the commonest etiological agent, to study the clinical features and complications related to it. **METHODOLOGY:** This study was carried out prospectively. 100 patients who came to outpatient department between October 2013 to October 2014 were enrolled in the study. All the age groups and both the genders were included. Patients underwent slit lamp examination and were diagnosed clinically. 25 cases were submitted for Gram staining and Polymerase Chain Reaction (PCR) study to know the type of virus and serotype. **RESULT:** 100 patients were diagnosed with viral conjunctivitis and were kept on follow up. 21percent of patients developed SPK. Adenovirus 8 was found to be more common than other viruses. **CONCLUSION:** The present study showed Adeno virus to be the most common etiological agent causing viral conjunctivitis and complications like subepithelial opacities and diminished vision.

**KEYWORDS:** Sub Conjunctival Haemorrhage (SCH), Superficial Punctate Keratitis (SPK), Sub Epithelial Opacities, Petechial Hemorrhages, Polymerase Chain Reaction (PCR).

**INTRODUCTION:** According to WHO corneal diseases constitute the 2<sup>nd</sup> most common cause of blindness in the world at present.

A variety of viruses cause conjunctivitis. Of them Adenovirus is the most common and is highly contagious during the first 2 weeks of infection.<sup>1</sup>

Epidemic keratoconjunctivitis is caused by adenoviruses.<sup>2</sup>

These viruses are transmitted through droplets and smears of infected body fluids that enter the human body through nose, throat and conjunctiva.

The period of viral incubation is 2 to 12 days.

The disease is probably contagious even before symptoms arise and it certainly remains so, as long as the virus can still be demonstrated in body fluids. This period usually lasts for two to three weeks from the date of transmission of the virus. Ocular adenoviral infection can cause corneal involvement within 4-5 days after the onset of symptoms.

Corneal lesions range from diffuse fine superficial punctate keratitis to epithelial defects and finally to sub epithelial nummular opacities which can last long, even for years.

These nummular opacities can impair vision significantly and can cause glare. Corneal involvement causes intense photophobia due to punctate epithelial lesions. Later, subepithelial infiltrates develop at the level of Bowman's membrane as a hypersensitivity reaction to viral

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antigen. These infiltrates coalesce to form deeper sub epithelial lesions to produce nummular keratitis.

## AIMS AND OBJECTIVES:

- To study the clinical aspects of viral conjunctivitis.
- To study the complications related to viral conjunctivitis.
- To find out the commonest etiological agent of viral conjunctivitis in study population.

**MATERIAL AND METHODS:** The present study is a prospective study. 100 patients with viral conjunctivitis who attended to OPD in Princess Esra Hospital between October 2013 to October 2014 were enrolled in the study.

Patients of all age groups and both genders were included in the study. Follow up was done for 3 months. We have excluded all cases with allergic conjunctivitis and other chronic conjunctivitis and patient not willing for followup. After obtaining informed consent of every patient, a detailed examination was done including history, clinical features, visual acuity, slit lamp examination and systemic examination.

In 25 cases, two conjunctival swabs were taken, one from inferior tarsal conjunctiva and the other from lower fornix under topical anaesthesia under strict asepsis to avoid contamination of specimen.

One swab from each case was sent for Gram's stain to rule out bacterial conjunctivitis and the other swab was stored in viral transport medium and sent for study of Polymerase Chain Reaction (PCR)<sup>3</sup> to confirm the diagnosis of viral conjunctivitis and the type of virus.

Meanwhile, patients were treated with topical antibiotic<sup>4</sup>.

After 1 week, patients were reviewed to detect corneal involvement. Patients were assessed on the basis of questionnaire which included the level of improvement of symptoms, symptoms that suggested corneal involvement, similar complaints in other members of the family. Slit lamp examination was done to look for corneal lesions. Patients were followed up once in a week until conjunctivitis resolved.

Corneal lesions were assessed in each follow up with current treatment for 3 months.

## OBSERVATION AND RESULTS:

In our study, most of the patients were males (56%).

Most common age group was between 20-40 years (46%)

Most common eye involved was right eye (56%)

AGE GROUP (YRS)	CASES INVOLVED	PERCENTAGE
0-20	21	21%
20-30	24	24%
30-40	22	22%
40-50	21	21%
50-60	4	4%

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60-70	7	7%
>70	1	1%
Table 1: AGE GROUP		

Gender	No. of Cases involved	Percentage
Male	56	56 %
Female	44	44 %
Table 2: GENDER		

Symptoms at Presentation	No. of Cases involved	Percentage
Redness	100	100%
Pain	60	60%
Watering	58	58%
Discharge	45	45%
Photophobia	10	10%
Itching	24	24%
Blurring of vision	14	14%
Table 3: SYMPTOMS AT PRESENTATION		

Findings of Conjunctiva	No. of Cases involved	Percentage
Conjunctival congestion	100	100%
Petechial hemorrhages	38	38%
Congestion of fornices	27	27%
Sub conjunctival haemorrhage	6	6%
Table 4: FINDINGS OF CONJUNCTIVA		

On slit lamp examination, the most common conjunctival finding was congestion in 100%, petechiae in (38%), congestion of fornices in 27% and sub conjunctival haemorrhage in 6% of cases.

Slit lamp examination with corneal involvement	No. of Cases involved	Percentage
Superficial punctate keratitis	21	21%
Subepithelial opacities	15	15%
Table 5: SLIT LAMP EXAMINATION WITH CORNEAL INVOLVEMENT		

On Slit lamp examination of patients with corneal involvement, 21% had superficial punctate keratitis, and 15% had sub epithelial opacities.

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GRAM STAIN	NO. OF CASES	PERCENTAGE
NEGATIVE	21	84
PUS CELLS	3	12
GRAM POSITIVE COCCI	1	4

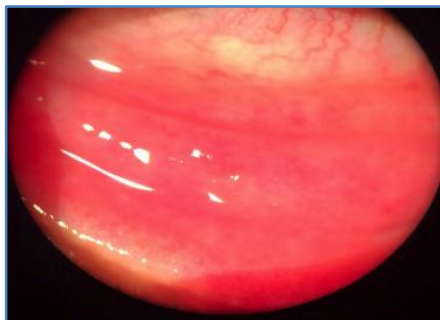
Table 7: CONJUCTIVAL SWAB RESULT: (25 CASES)

Gram positive cocci were identified in 1 case.

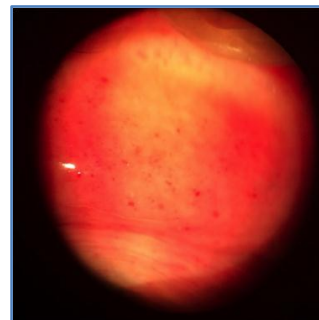
Viral Serotype	NUMBER	PERCENTAGE
ADENOVIRUS 8	19	76%
ADENOVIRUS 3	4	16%
ADENOVIRUS 19	1	4%
ADENOVIRUS 24	1	4%
HERPES SIMPLEX VIRUS	0	0%
EBSTEIN BARR VIRUS	0	0%
ENTEROVIRUS AND COXSACKIE VIRUS	0	0%

TABLE 8: VIRUS ISOLATED

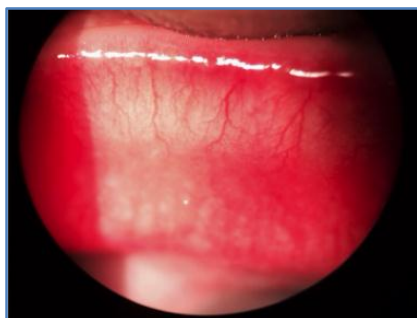
ADENOVIRUS 8 was the most common isolated serotype.



**Conjunctival Congestion  
In lower fornices**



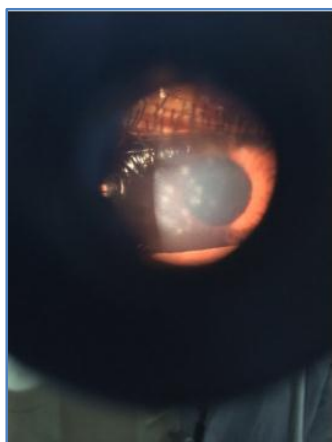
**Viral Conjunctivitis with Petechial  
Haemorrhages in upper palpebral conjunctiva**



**Congestion seen in upper  
Palperabral Conjunctiva**



**Subepithelial Opacities seen  
in Adenovirus Conjunctivitis**



**Superficial punctate keratitis  
seen in Adenovirus Conjunctivitis**

**DISCUSSION:** In our study 100 patient were enrolled. Most of the patients completed the require period of 3 months follow up.

In our study 46% of the patients were in the age group of 20-40 years. Similar results were obtained in the studies done by Dr. Sheeja Vishwanath et al<sup>5</sup> and Aoki Koki et al.<sup>6</sup> In the study done by Dr. Sheeja Vishwanath et al<sup>5</sup> the age incidence was 40% in the age group of 20 to 40 years followed by 40 to 60 years (27%). In the study by Aoki Koki et al,<sup>6</sup> it was 48% in the age group of 20 to 39 years.

In our study 56% were males and 44% were females. Similar results were obtained in the study by Dr. Sheeja Vishwanath et al.<sup>5</sup> Out of 55 patients they studied, 52.72% (29) were males and 47.28% (26) were females. The slightly higher prevalence in males was due to the fact that males are more involved in outdoor activities. Right eye was effected 56% and left eye was affected in 44% of our cases.

In our study, the symptoms noted were; Redness in 100%, Pain in 60%, Watering in 58%, Mucoïd discharge in 45% and Itching in 24% of the cases. In the study by Uchio E et al<sup>7</sup> the symptoms noted were; Redness in 100%, Mucoïd discharge in 82.6%, itching 52.2% and watering in 30.4% of cases.

All patients had conjunctival congestion, 38% of the patients had fine petechial haemorrhages in upper and lower tarsal conjunctiva, 27% of patients had Petechiae with papillary reaction of conjunctiva, 21% of patients had superficial punctate keratitis. In the study done by Dr. Sheeja Vishwanath et al<sup>5</sup> they reported conjunctival congestion and conjunctival papillae in all patients (100%), sub conjunctival haemorrhage in 10.90%, petechial hemorrhages in 63.63%, superficial punctuate keratitis in 24% and sub conjunctival haemorrhage in 6% of cases.

In our study 15% of patients had sub epithelial opacities at the end of 3 months follow up. Similar results have been obtained by Dr. Sheeja Vishwanath et al<sup>5</sup> who reported keratitis in 10.8% of cases.

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Most common virus found under Polymerase chain reaction was Adenovirus 8 (76%). Similar result have been obtained by Aoki koki et al adenovirus 8 (60.6%).

## CONCLUSION:

- Majority of the patient were in the age group of 20-40 years (46%).
- Males were more affected (56%)
- The presentation was unilateral in (90%) and bilateral in (10%) of cases.
- 37% had history of contact from other members of the family.
- Redness was present in all the patients, pain was present in (60%), Watering in (58%), Mucoid discharge in (45%).
- All patient had conjunctival congestion predominantly in the fornices. The predominant feature noted in the conjunctiva was fine petechiae in the upper and lower tarsal conjunctiva which was seen in 38%, sub conjunctival haemorrhage was in 6% of cases.
- 21% of patients had superficial punctate keratitis.
- 15% of the patients had subepithelial opacities on follow up visits.
- Adenovirus 8 was the most common serotype involved.
- Superficial punctate keratitis in adenovirus conjunctivitis progressed to sub epithelial opacity at the end of 1 month.
- Viral conjunctivitis is a common ocular condition to the outpatient department. The present study showed that Adenovirus 8 was the most common etiological agent causing viral conjunctivitis and the most common serotype causing subepithelial opacities which affected vision.

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