

## A Study of Viral Dermatoses in A Tertiary Care Center

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### Abstract

Background: Clinically viruses can present as variety of manifestation ranging from exanthem, pustular eruption to fungating tumours. Viral infections are generally characterized by typical patterned evolution & seasonal variability. History and clinical symptoms are first clues to diagnoses viral infection. Laboratory support is required to confirm the diagnosis, to define the course of the disease to decide antiviral therapy & to epidemiologically monitor the disease. Viral culture is the gold standard for viral diagnosis.

Most important virus causing dermatoses is Human Herpes Virus (HHV) type 1-8.

Type 1	Herpes Simplex Virus 1	Herpes Labialis
Type 2	Herpes Simplex Virus 2	Herpes genitalis
Type 3	Cytomegalovirus (CMV)	
Type 4	Varicella Zoster Virus (VZV)	Chicken pox, Herpes zoster
Type 5	Epstein Barr Virus (EBV)	Infectious Mononucleosis, Oral Hairy Leukoplakia, GianattoCosti Syndrome, CTCL
Type 6-8		PityriasisRosea, Roseolainfatum

Human papilloma virus (HPV) causes warts and Erythrodisplasiaverruciformis, Pox virus causes Molluscum Contagiosum,

Aim and objective of the study was to analyze the incidence, pattern of occurrence, association, special attention to provocative factors if any, investigations to establish any provocative factors, complications of viral dermatosis among the patients attending department of dermatology, venereology, leprologyat tertiary care centre ,Gujarat.

Materials and methods: Seven hundred cases of viral dermatosis were studied at the department of dermatology, venereology, leprology, tertiary care centre, Gujarat during a span of two years. A detailed clinical evaluation and cutaneous examination followed by relevant investigations was carried out. The findings were recorded in a proforma for analysis and interpretation of data.

Results: Out of seven hundred patients attending the department of Dermatology, venereology, Leprology during a span of two years, 235(33.5%) patients had herpes zoster, 15(2.2%) patients had chicken pox,150(21.4%) had herpes simplex,200(28.5%) had warts including 43(21.5%)

condyloma accuminata and 100 (14.4%) patients had molluscum contagiosum. Herpes zoster was found to be most common viral dermatosis with highest incidence of 33.5%. Male predominance was seen in all viral dermatosis. Majority of cases were seen in the 21-30 year age group. Conclusion: The results of incidence and clinical pattern, complications of all viral dermatosis is almost parallel to previous studies. Any factor of immunosuppression should be checked, in disseminated and long lasting cases. This study provides a preliminary baseline data for future clinical research. It might also help to assess the changing trend of viral dermatosis.

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**Keywords:** Viral infections, Human Herpes Virus (HHV), Human papilloma virus (HPV)

### Introduction

Herpes zoster is caused by the neurodermotropic virus called 'varicella zoster virus' distributed worldwide. It manifests as a result of reactivation of the virus laid dormant in the sensory ganglion<sup>[1]</sup>,<sup>[2]</sup> following a clinical or sub clinical varicella (chicken pox) infection early in life or in utero. Genital herpes is an infection with herpes simplex virus type 1 (HSV-1) or type type 2 (HSV-2) & is among the most common sexually transmitted diseases (STD). Cutaneous warts are caused by Human Papilloma Virus (HPV). Genital warts are signs of highly contagious Sexually transmitted disease caused by some types of HPV. Molluscum contagiosum is classified within pox virus family in a specific genus, the molluscipox.<sup>[3]</sup> Widespread & refractory mollusca on the face are seen most commonly in HIV disease<sup>[4]</sup> & also with iatrogenic immunosuppression.

### Materials and methods

Seven hundred cases of viral dermatosis were studied for 2 years at the department of Dermatology, venereology, Leprology, tertiary care centre, Gujarat. In all patients a detailed history was taken and thorough clinical examination was carried out with due consent. Along with baseline investigations (complete haemogram, Urine routine and microscopy, Renal function test, Liver function test, X ray chest, HBsAg, VDRL, Enzyme –linked immunosorbent assay test for HIV antibodies) in all patients, skin biopsy [The base of the lesion

was injected with 1% lidocaine (local anesthesia). and skin sample was collected with biopsy punch. Tissue sample was sent to laboratory for testing] and tzanck smear examination for ballooned epithelial cells and multinucleated giant cells was done in specific cases. Patients were treated according to the disease and were followed up to observe improvement and complications of disease and treatment.

### Inclusion criteria:

All patients attending dermatology OPD during the span of the study of any age and both sexes were included in the study.

### Exclusion criteria:

Patients not willing to give consent for examination or investigations.

### Results

A total of seven hundred viral dermatosis were studied in a span of two years. The observed series consist of 235(33.5%) cases of herpes zoster, 15 (2.2%) cases of chicken pox, 150(21.4%) cases of herpes simplex, 200(28.5%) cases of warts, 100(14.4%) cases of molluscum contagiosum.

Herpes zoster was found to be most common viral dermatosis with highest incidence of 33.5%.

The male to female ratio was 1.4:1. Male predominance was seen in all viral dermatosis.

Most of the viral dermatosis showed maximum incidence in the age group of 21-30 years. Chicken pox, molluscum contagiosum were seen in younger age group.

**Table 1: Pattern of dermatosis with sex distribution of viral dermatosis.**

Conditions	Male	Female	Total
Herpes Zoster	143 (60.85%)	92 (39.15%)	235 (33.5%)
Chicken pox	7 (46.66%)	8 (53.33%)	15 (2.2%)
Herpes simplex Herpes Labialis Herpes progenitalis	55(55%) 34 (68%)	45(45%) 16 (32%)	150 (21.4%)
Warts	131(65.5%)	69 (34.5%)	200 (28.6%)
Molluscum contagiosum	57 (57%)	43 (43%)	100 (14.3%)
Total	409(58.4%)	291(41.5%)	700

**Table 2: Age distribution.**

Condition	Most common age group (no of cases)
HerpesZoster	21-30yrs (49 cases)
Chicken pox	0-10yrs (9 cases)
Herpes simplex Herpes Labialis Herpes progenitalis	21-30yrs (30 cases) 21-30yrs (35 cases)
Warts	21-30yrs (100 cases)
Molluscum contagiosum	11-20yrs (46 cases)

**Table 3: Distribution of skin lesions with regard to sensory dermatome in Herpes Zoster.**

Distribution of Skin lesions	Male	Female	Total	Percentage %
<b>Spinal Dermatome</b>				
Thoracic	60	48	108	46 %
Cervical	35	22	57	24.2%
Lumbar	18	18	36	15.3%
Sacral	7	3	10	4.3%
<b>Cranial Nerve</b>				
Trigeminal-Ophthalmic	10	10	20	8.5%
Maxillary	1	0	1	0.4%
Mandibular	0	0	0	
Facial	0	0	0	
Auditory	1	0	1	0.4%
Disseminated	1	1	2	0.85%
Total	133	102	235	100%

**Table 4: Complications in patients with Herpes Zoster.**

Complication	No of patients (%)
Post herpetic neuralgia	27 (29.50%)
Secondary infection	12 (5.10%)
Hypopigmentation	8 (3.40%)
Hyperpigmentation	5 (2.12%)
Corneal scarring	1 (0.42%)
Keloid	1 (0.42%)

Among the spinal dermatome, thoracic segments were affected in 108 (46%) cases while sacral dermatome was least affected in 10 (4.3 %) cases. Among the cranial nerves, ophthalmic division of trigeminal nerve was involved in 20 cases while maxillary nerve was involved in 1 case. Auditory nerve was involved in 1 case. Disseminated lesions were seen in 2 cases.

Out of 235 patients of Herpes zoster, in 150 patients, herpes zoster can be better correlated with past history of chicken pox. 75 patients were not able to recollect past history of chicken pox while 10 patients did not give past history of chicken pox in which herpes zoster yet remains to be explained.

Out of 235 cases of herpes zoster 44 (18.7%) cases had associated diseases. Out of which 3 were HIV positive, 6 had lymphomas, 4 had internal malignancy and 3 patients were diabetic.

### **Chicken Pox**

Out of seven hundred patients seen during 2 years, 15 patients were of chicken pox leading to incidence 2.2% in age ranged from 3-24 years. Most common age group was 0-10 years. Out of 15 patients, 7 were male and 8 were female.

Most common complication was post inflammatory hyper pigmentation (5 patients), followed by scarring (2 Patients) and viral encephalitis (1 Patients). Out of 15 patients, 14 were treated with oral Acyclovir; in 1 patient Intravenous acyclovir was given.

### **Herpes Simplex**

Out of seven hundred patients, 150 patients were of Herpes Simplex (100 patients were of Herpes labialis & 50 patients were of Herpes progenitalis) leading to incidence of 21.4% in the present study. For herpes labialis, age group ranged from one and half years to sixty four years. Maximum number of patients, 32 (32%) were noted between the age of 21-30 years while male and female cases were 55 and 45 respectively.

Out of 100 patients, 30 (30%) patients had recurrence. Complications observed included Erythema multiforme (19 cases), Post inflammatory hypopigmentation (10 cases) and eczema herpeticum in 1 case.

### **Herpes progenitalis**

Age group ranged from 17-65 years in the present study. Maximum number of patients, 35 (70%) cases were noted between the age group of 21-30 years which suggest that genital herpes is more common during the period of maximum sexual activity. 34 cases were male and 16 were female. One patient was HIV positive.

Out of 50 patients, 35 patients gave history of exposure (23 cases had exposure with Commercial sex workers and 12 cases with their married partner) while 15 did not give any such history. All patients were given oral Acyclovir.

### **Warts**

Incidence of warts in the present study was 28.6% (200 patients). Age group ranged from 1-55 years. Most common age group being 21-30 years (100 patients). 131 cases were male and 69 cases were female. Various types of warts encountered were verruca vulgaris (39%), verruca plana (20%), filiform warts (11%), plantar warts (7.5%), condylomaacuminata (22%), Epidermodysplasiaverruciformis (0.5%).

Cryotherapy with Liquid nitrogen gas was very useful in all cases. Radiofrequency cauterization was done in some cases.

Condylomaacuminata accounted for 21.5% of total patients of warts (28.6%). Most common age group was 21-30 years. 28 (65.11%) were male and 15 (34.8%) were females. Out of 43 cases, 35 had only condylomaacuminata while 5 patients were HIV positive, 2 had associated syphilis and 1 patient had trichomonas infection.

The site maximally affected in males was glans penis (53.57%) and in females, it was labia minora (80.02%). Out of 43 patients, 34 (79%) gave positive history of exposure of which 6 had homosexual relationship.

Molluscum contagiosum

Total incidence of molluscum contagiosum in our study was 14.3% (100 patients). Most common age group was 11-20 years (46 cases). Family history was present in two cases and HIV positivity was found in two cases with widespread, persistent lesions.

### Discussion

Out of total seven hundred patients enrolled for the study, 235 (33.5%) patients were identified with herpes zoster. Herpes zoster is uncommon in childhood and the incidence rises with increasing age. Present study showed maximum number of cases in the age group of 21-30 years. The study of these 235 patients revealed that majority of the patients affected were adults below 40 years of age- 143 patients (60.85%) and 92 patients (39.15%) above 40 years age. This was in contrast to the study done by Pavithran K A<sup>[1]</sup> while was comparable to the study done by Abdul et al.<sup>[5]</sup> Males outnumbered females in the ratio of 1.5:1 in this study which is again similar to the study from Abdul et al<sup>[5]</sup> but in contrast to western studies<sup>[6]</sup> where both males and females were equally affected.

The pattern of segmental involvement was similar to earlier Indian studies<sup>[1], [2]</sup> Thoracic segment was common like previous studies<sup>[7]</sup> and was followed by cervical & lumbar segments. Thus affection of dermatomes in present study is almost identical with those of Burgoon et al & Hope Simpson.<sup>[8],[9]</sup> The greater number of thoracic dermatomes can be explained by centripetal distribution of skin lesions in cases of chicken pox. Past history of chicken pox was present in 150 cases (63.83%) while it was found in 63.4% cases in a study done by Abdul et al.<sup>[5]</sup> Epstein<sup>[10]</sup> records five (1.25%) patients with second attack of herpes zoster among 400 cases. The second attack of herpes zoster in the present study is 2 (0.85%) cases suggesting that recurrence is a rare entity. These figures also indicate that episode of herpes zoster confers only

temporary protection against a second attack.<sup>[9],[10]</sup>

Post herpetic neuralgia occurred in 30% patients in present study and was more common with involvement of trigeminal nerve. Burgoon et al<sup>[8]</sup> and Abdul et al<sup>[5]</sup> noted post herpetic neuralgia in 20 (9.7%) cases and 21 (10.24%) cases respectively. In another study, Herpes zoster has been associated with several complications, of which post-herpetic neuralgia (PHN) was the most common and debilitating. Varicella-zoster virus vaccine and early treatment with either famciclovir or valacyclovir are the only measures proven to prevent PHN.<sup>[11]</sup>

Diabetes has been recognized as a risk factor for herpes zoster & persistent post zoster pain in US adult population.<sup>[12]</sup> Forbes et al<sup>[13]</sup> and Rajashekhar TS et al<sup>[14]</sup>; in their respective study stated that patients with severely immunosuppressive conditions like lymphomas, myeloma, HIV who are not eligible for zoster vaccine are at greater risk of zoster. In our study, 44 cases had associated diseases. Out of which 3 were HIV positive, 6 had lymphomas, 4 had internal malignancy and 3 patients were diabetic.

Out of 700 patients seen during 2 years, 150 patients were of herpes simplex (100 patients were of herpes labialis & 50 were of herpes progenitalis) leading to the incidence of herpes simplex in present study to 21.4%. Out of 100 patients of herpes labialis, 19 (19%) cases presented with erythema multiforme which is consistent with a study done by Cretu A et al<sup>[15]</sup> where they found HSV infection in 17.5% of erythema multiforme. 30 (30%) patients of herpes labialis had recurrence in the present study. Recurrences are more frequent with genital herpes than with oral and, within genital area, with type 2 (95%) compared with type 1 (50%) infection.<sup>[16]</sup> Up to 70% of genital HSV infections are unrecognised,<sup>[17]</sup> so seroepidemiological studies are critical to

understanding the pattern and distribution of infection within populations.

Incidence of warts in present study is 28.6%. It has been observed by Hallier F.F.<sup>[18]</sup> that warts of all kind account for 10-25% of new attendees at some dermatological clinics in Britain. Incidence in present study was comparable with study done by Hallier F.F.. Age group in our study ranged from 1 year to 55 years. Highest incidence was in the age group 21-30 years. Ronchese F.<sup>[19]</sup> found that warts were unusual in infancy and early childhood but steadily increased during the school years to reach a peak between the ages of 12 to 16 years & then declining rapidly thereafter. *Verruca vulgaris* was the commonest variety of warts encountered in the present study and multiple site involvement was more common than single site involvement.

Genital HPV infections have an estimated prevalence of 10-20% in US & clinical manifestation in 1% of sexually active adult population.<sup>[20]</sup> *Condyloma acuminata* accounted for 21.5% of total patients of warts (28.6%) in present study. Sex ratio in the present series was found to be 1.86:1 whereas in a study carried out by M.K. Indira Reddy et al.<sup>[21]</sup> it was 7:1 on an average. Genital warts were found to be more common in the age group of 12-25 years and uncommon above the age of 45 years in the study carried out by M.K. Indira Reddy et al. In the present study it was found that the majority of patients belonged to the age group 21-30 years. This indicates that the condition is more common during the sexually more active period of individuals.

In the present study 34 (79%) out of 43 patients gave a positive history of exposure out of which 6 had homosexual relationship. As compared to the figures of M.K. Indira Reddy et al the patients in present study can be deemed less promiscuous or else giving wrong history. In the same study, majority of patients had only genital warts, 2 had associated syphilis, 4 had gonococcal

infections & 9 had other venereal diseases. In the present study 2 had syphilis & 1 had trichomoniasis along with *Condyloma acuminata*. Although treatment can remove warts, they do not remove the HPV, so warts can recur after treatment (50-73%)<sup>[20]</sup>.

*Molluscum contagiosum* was encountered in 14.3% (100 cases) in our study, of which four cases were found to be seropositive for HIV infection. In immunocompromised individuals, *molluscum contagiosum* may be very extensive and difficult to treat. The goal may be to treat the most troublesome lesions only. In severe cases, these patients may warrant more aggressive therapy with lasers, imiquimod, antiviral therapy, or a combination of these.<sup>[4]</sup> Most common age group was 11-20 years (46 cases) in present study. The peak among the pediatric age group correlates with casual contact, where as the peak in young adults correlates with sexual contact.<sup>[22]</sup> The *Molluscum contagiosum* virus occurs throughout the world, its incidence in most areas is not reliably known. It is more prevalent in tropical areas. It is generally self limited. Curettage was done in most of the cases.

**Strength:** Multiple viral dermatoses with their epidemiology and complications are included in one study.

**Limitation:** Advanced investigations [Polymerase chain reaction (PCR) assay and specific antibodies tests] could not be done due to unavailability of the same.

### Conclusion

Viral dermatosis form a major part of routine outdoor practice. So knowledge and understanding of their prevalence, associations and complications becomes necessary and helpful for evaluating their prognosis and treatment.

**References**

1. Pavithran k. A clinical study of five hundred cases of herpes zoster. *Antiseptic*. 1986; 83: 682-5.
2. Peeneys N. Diseases caused by viruses. In :Elder D. editor. *Lever's histopathology of the skin*. 8<sup>th</sup> ed. Philadelphia:Lippincott- Raven; 1997.PP.569-89.
3. Gubser C, Hue S, Kellam Petal. Poxvirus genomes: a phylogenetic analysis. *J Gen viral* 2004; 85: 105-17.
4. Nguyen HP, Franz E, Stiegel KR, Hsu S, Tyring SK. Treatment of molluscumcontagiosum in adult, pediatric, and immunodeficient populations. *J Cutan Med Surg*. Sep-Oct 2014;18(5):299-306.
5. E NAbdulLatheef and K Pavithran. Herpes zoster: a clinical study in 205 patients. *Indian J Dermatol*. 2011; 56(5): 529–532.
6. Kim YJ, Lee CN, Lim CY, Jeon WS, Park YM. Population-based study of the epidemiology of herpes zoster in Korea. *J Korean Med Sci*. 2014; 29(12):1706-10.
7. Mandal BK. Herpes Zoster in the immunocompromised populations. *Indian J DermatolVenereolLeprol*. 2006;5:235–43.
8. Burgoon et al: The natural history of herpes zoster. *JAMA* (1957) 164, 265-269
9. Hope- Simpson RE: The nature of herpes zoster, a long term study and a new hypothesis. *Proc. Roy. Soc. Med*(1965) 58: 9-20.
10. Epstein E. recurrence in herpes zoster. *Cutis* 1980; 26/4: 376-79.
11. Bader MS. Herpes zoster: Diagnostic, therapeutic and preventive approaches. *Post grad Med*. 2013;125(5):78-91.
12. Suaya JA, Chen SY, Li Q, Burstin SJ, Levin MJ. Incidence of herpes zoster & persistent post zoster pain in adults with or without diabetes in the United States. *Open Forum Infect Dis*. 2014;1(2):ofu049.
13. Forbes HJ, Bhaskaran K, Thomas SL, Smeeth L, Clayton T, Langan SM. Quantification of risk factors for herpes zoster: population based case-control study. *BMJ* 2014;348:g2911.
14. Rajashekar TS, Singh G, Shivakumar V, Okade R. Recurrent herpes zoster duplex symmetricus in HIV infection. *Indian J Dermatol*. 2008;53:33–4.
15. Cretu A, Dimitriu A, Branisteanu D, Brinisteanu DE. Erythema multiforme-etio-pathogenic, clinical and therapeutic aspects. *Rev Med ChirSoc Med Nat lasi*. 2015;119(1):55-61.
16. Lafferty W E, Coombs R W, Benedetti J et al. Recurrences after oral and genital herpes simplex virus infection. *New Engl J Med* 1987; 316:1444-9.
17. Corey L, Handsfield HH. Genital herpes and public health—addressing a global problem. *JAMA*2000;283:791–4.
18. Hallier F F. Treatment of warts with X-rays- is their action physical or psychological? *Br J Dermat* 1951; 63, 193.
19. Ronchese F. Warts. Capricious response to treatment an indication of frequent seriousness of problem. *R I Med J*. 1966; 49(10):592-4.
20. Scheinfeld N, LehmanDS. An evidence based review at medical and surgical treatments of genital warts. *Dermatol online J*. 2006; 12(3):5. PMID 16638419.
21. Reddy MK, Indira, Vimalabai K. *Condyylomaaccuminata-* a clinical study. *Indian J DermVenerology* 1977; (3):160-163.
22. Dohil MA, LIN P, LEE J , Lucky AW et al .the epidemiology of molluscumcontagiosum in children. *J AM AcadDermatol* .2006 Jan .54(1):47-54.