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A Clinico-Epidemiological Study of Herpes Zoster in a Tertiary Care Center in Srikakulam District, Andhra Pradesh, India

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ABSTRACT

INTRODUCTION : HERPES ZOSTER, POPULARLY KNOWN AS SHINGLES, IS CAUSED BY THE "VARICELLA ZOSTER VIRUS," A LATENT NEUROTROPHIC VIRUS, REACTIVATING IN THE DORSAL ROOT GANGLION. THE TERMS "ZOSTER" OR "GIRDLE" DEPICT THE DISEASE'S SEGMENTAL SPREAD. IT RESULTS IN SEGMENTAL CUTANEOUS ERUPTION IN PEOPLE WHO HAVE EXPERIENCED CLINICALLY OR SUBCLINICALLY ACTIVE VARICELLA INFECTION IN THE PAST.

AIMS AND OBJECTIVE: TO STUDY THE VARIOUS CLINICO-MORPHOLOGICAL PRESENTATIONS OF HERPES ZOSTER AND TO KNOW THE EPIDEMIOLOGICAL FACTOR DETERMINING HERPES ZOSTER.

MATERIALS AND METHODS: IT'S A CROSS SECTIONAL, OBSERVATIONAL STUDY. PATIENTS WITH CLINICAL DIAGNOSIS OF HERPES ZOSTER PRESENTING TO THE OUTPATIENT DEPARTMENT OF DERMATOLOGY, VENEREOLOGY AND LEPROSY, DURING THE PERIOD OF DECEMBER 2021 TO NOVEMBER 2022 AT GEMS & HOSPITAL, RAGOLU, SRIKAKULAM WERE TAKEN. AFTER TAKING CONSENT, PATIENTS OF ALL AGES AND GENDERS WITH A CLINICAL DIAGNOSIS OF HERPES ZOSTER WERE INCLUDED. PATIENTS WITH COMPLICATED HERPES ZOSTER I. E WITH VISCERAL INVOLVEMENT,PREGNANT AND LACTATING FEMALES WERE EXCLUDED. A THOROUGH EPIDEMIOLOGICAL AND CLINICAL HISTORY WAS TAKEN. THE CHARACTERISTIC PRESENTATION OF VESICLES IN A DERMATOMAL OR DISSEMINATED PATTERN CONFIRMED THE CLINICAL DIAGNOSIS OF HERPES ZOSTER. WHENEVER NECESSARY, TZANCK SMEARS WERE PERFORMED.

RESULTS: A TOTAL OF 100 PATIENTS WERE TAKEN IN THE STUDY. THE NUMBER OF MALES WERE 52 AND FEMALES WERE 48 WITH A MALE : FEMALE RATIO OF 1. 08 : 1. MOST COMMONLY AFFECTED AGE GROUP WAS 31-40 YEARS I. E 33 PATIENTS. 38% PATIENTS PRESENTED WITHIN 72 HOURS OF APPEARANCE OF CUTANEOUS LESIONS. 82% PATIENTS HAD PRODROMAL SYMPTOMS BEFORE ONSET OF CUTANEOUS LESIONS. THE MOST COMMON PRODROMAL SYMPTOM WAS PAIN 2 DAYS BEFORE THE ONSET OF LESIONS AT THAT SITE OF ONSET OF LESIONS IN 45% PATIENTS FOLLOWED BY FEVER IN 13% PATIENTS. 76% OF PATIENTS HAVE OTHER ASSOCIATED CONDITIONS, IN WHICH DIABETES WAS THE MOST COMMON COMORBIDITY OBSERVED IN 38%. PAST HISTORY OF VARICELLA WAS NOTED IN 79% OF PATIENTS. GROUPED VESICLES WITH ERYTHEMATOUS BACKGROUND IN DERMATOMAL DISTRIBUTION WERE PRESENT IN 97% OF PATIENTS. THORACIC DERMATOME WAS THE MOST COMMON DERMATOME INVOLVED IN 62% PATIENTS FOLLOWED BY LUMBAR 9%. MULTIDERMATOMAL INVOLVEMENT WAS PREDOMINANTLY SEEN IN IMMUNOCOMPROMISED PATIENTS AND OLDER AGE GROUPS. IN HEMOGRAM, 6 PATIENTS HAD EOSINOPHILIA, 11 PATIENTS HAD ELEVATED SERUM GLUCOSE LEVELS, URINALYSIS SHOWS REDUCED SUGARS IN 4 PATIENTS.

CONCLUSION : ACCORDING TO THIS STUDY, THE THIRD OR FOURTH DECADE OF LIFE IS WHEN HERPES ZOSTER TYPICALLY MANIFESTS. THE MOST FREQUENT SITE OF INVOLVEMENT IS THE THORACIC DERMATOME. EARLY DIAGNOSIS AND ANTIVIRAL MEDICATION CAN LESSEN THE SEVERITY, COMPLICATIONS, AND POSTHERPETIC NEURALGIA, ESPECIALLY IN OLDER AND IMMUNOCOMPROMISED PATIENTS.

KEYWORDS: HERPES ZOSTER, VARICELLA, DERMATOME, PRODROMAL SYMPTOMS, DERMATOLOGY.

I. INTRODUCTION

Herpes zoster, popularly known as shingles, is caused by the "Varicella zoster virus," a latent neurotrophic virus, reactivating in the dorsal root ganglion. [1] The terms "zoster" or "girdle" depict the disease's segmental spread. [2]It results in segmental cutaneous eruption in people who have experienced clinically or subclinically active varicella infection in the past. The virus that causes varicella zoster is host-specific. Naturally, it only happens to people. [3] An important risk factor for herpes zoster is an older age group. [4,5] It is caused by the immunosenescence that comes with ageing, although it can affect people of any age, particularly those who have their cell-mediated immunity inhibited as a result of a disease or medication. [6,7] Early diagnosis and antiviral treatment within 72 hours of the appearance of the rash has demonstrated a decrease.[8]

Aims and Objective:

To study the various clinico-morphological presentations of herpes zoster and to know the epidemiological factor determining herpes zoster.

II. MATERIALS AND METHODS

It's a cross sectional, observational study.

Patients with clinical diagnosis of herpes zoster presenting to the OPD of DVL during the period of December 2021 to November 2022 at GEMS & Hospital, Ragolu, Srikakulam were taken.

Inclusion Criteria:

Patients all ages and genders with a clinical diagnosis of herpes zoster

Patients who gave consent

Exclusion criteria:

Patients with complicated herpes zoster I.e with visceral involvement

Pregnant and lactating females

Patients who didn't give consent

A thorough epidemiological and clinical history was taken, which included information about the patient's age, sex, profession, address, chief complaint, skin lesions, type of pain, duration of the illness at the time of presentation, provocative factors, prodromal symptoms, associated cutaneous disease, systemic disease, and HIV infection, as well as other immunocompromised conditions, history of chickenpox in the past, and prior zoster attack.

Comprehensive systemic and general physical exams were performed. A thorough dermatological examination was performed, taking into account the location of the lesion (segment involvement), the morphology of the lesions—including whether they were grouped or scattered ,erythema, papules, erosions, and crusting, dermatomal distribution & the side of involvement, and cutaneous dissemination.

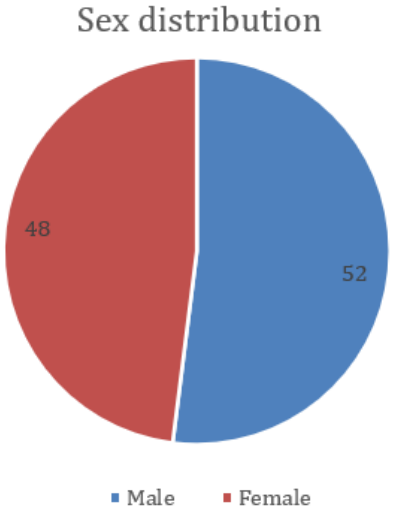
The characteristic presentation of vesicles in a dermatomal or disseminated pattern confirmed the clinical diagnosis of herpes zoster. Whenever necessary, Tzanck smears were performed in order to confirm the diagnosis whenever in doubt.

All patients had a laboratory investigations that included a full hemogram, blood sugar measurement, renal function test, liver function test, urine analysis, and testing for HIV, HBsAg, and HCV. The opinions of other specialists were taken, including ophthalmologists, neurologists, and diabetologists depending upon the requirement. Oral acyclovir was used to treat all patient. Secondary bacterial infections were treated with systemic antibiotics, while erosions were treated with topical antibiotics. Carbamazepine or amitriptyline were given to patients with intractable zoster pain along with analgesics. Symptomatic treatment was given.

III. Results

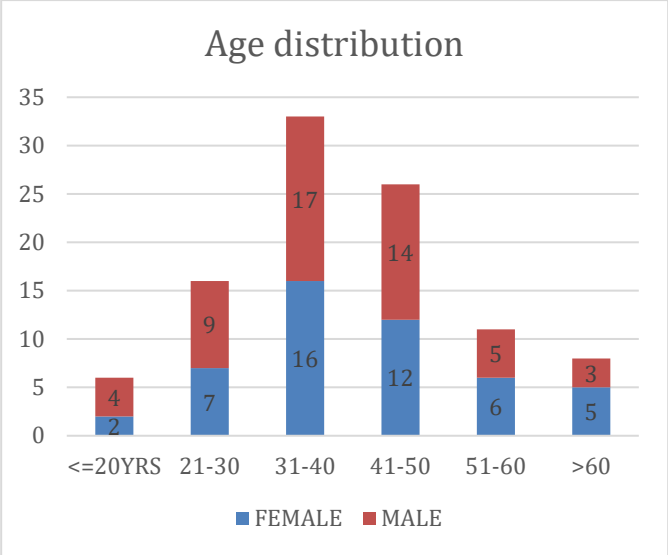
A total of 100 patients were taken in the study. The number of males were 52 and females were 48 with a male : female ratio of 1.08 : 1

Chart :1 showing sex distribution



In this study, the most commonly affected age group was 31-40 years in.e 33 patients followed by 41-50 years I.e 26 patients. In both males and females the commonly affected age group was 31-40 years. The youngest was an 11 year old boy and the oldest was a 68 year old female.

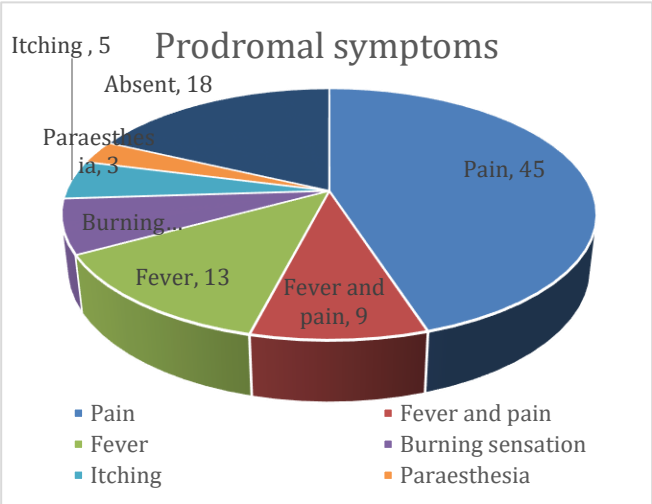
Chart : 2 showing age distribution



In this study 38% patients presented within 72 hours of presentation of cutaneous lesions I.e within 3 days.

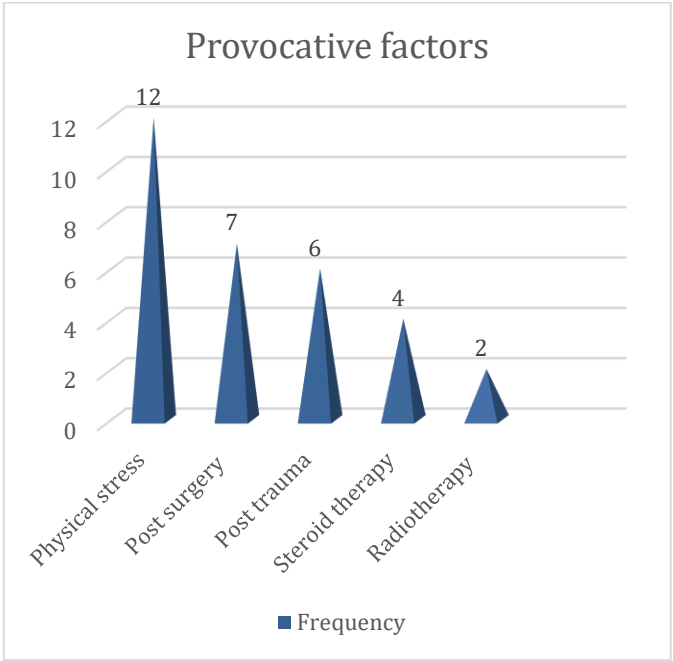
In this study , 82% patients had prodromal symptoms before onset of cutaneous lesions. The most common prodromal symptom was pain 2 days before at the site of onset of lesions in 45% patients followed by fever in 13% patients, followed by fever and pain in 9% of patients. In 18% of patients no prodromal symptoms were observed.

Chart :3 showing Prodromal symptoms



Provocative factors before onset of cutaneous lesions were seen in 31% of patients, of which physical stress was the most common observed in 12%. Others were post surgery, post trauma (physical trauma), Steroid therapy, radiotherapy each seen in 7%,6%,4%,2%.

Chart : 3 showing Provocative factors



In this study, 76% of patients have other associated conditions , in which diabetes was the most common comorbidity observed in 38%, followed by hypertension in 29 patients, HIV in 4 patients and Hepatitis B in 3 patients.

In 38% diabetic patients, 6% were denovo and 32% patients were previously known cases of diabetes and on medication, in which 21% patients have normal blood sugar levels and 11% patients have uncontrolled diabetes. Out of 4 HIV patients 2 patients were on antiretroviral therapy and 2 patients were denovo.

Past history of varicella was noted in 79% of patients and 21% of patients could not recollect the history of varicella in the past.

Grouped vesicles with erythematous background in dermatomal distribution were present in 97% of patients. The remaining 3% of patients had crusting and erosion alone.

In this study thoracic dermatome was the most common dermatome involved in 62% patients followed by lumbar 9%, cervical in 8% of patients, sacral in 2% ophthalmic zoster in 7% of patients.

Chart : 4 showing Associated conditions

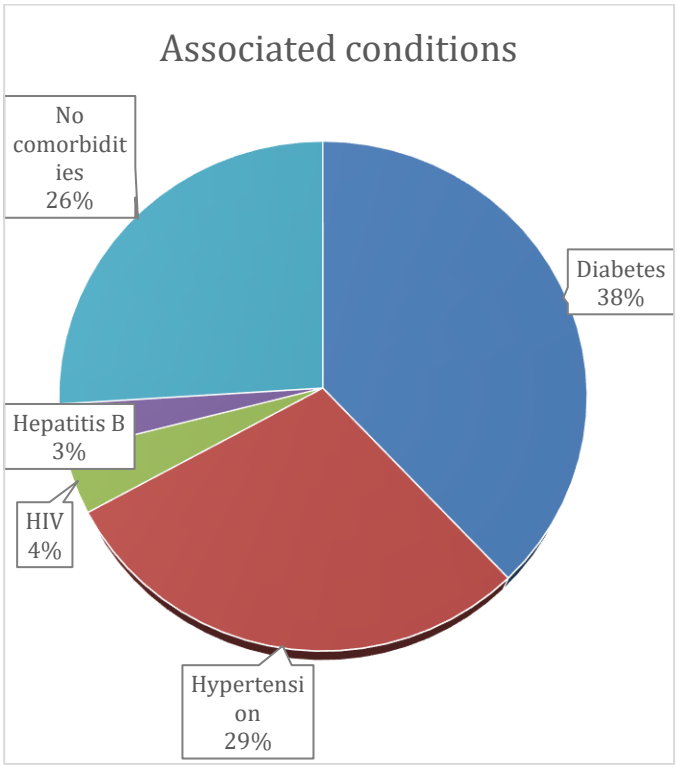


Table : 1 showing dermatomal involvement

Dermatome	Frequency	Percentage
Cervical	8	8%
Thoracic	62	62%
Lumbar	9	9%
Sacral	2	2%
Cervico thoracic	3	3%
Thoraco lumbar	4	4%
Herpes zoster oticus	2	2%
Ophthalmic	7	7%
Maxillary	1	1%
Mandibular	2	2%

In this study, multidermatomal involvement was predominantly seen in immunocompromised patients and older age groups.

In hemogram, 6 patients had eosinophilia, 11 patients had elevated serum sugar levels, urinalysis shows reduced sugars 4 patients

Tzanck smear was done whenever in doubt, and showed multinucleated giant cells shown in figure 1.

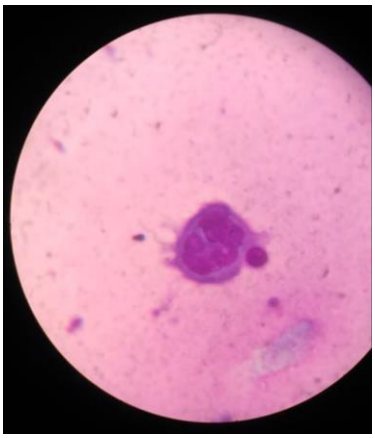
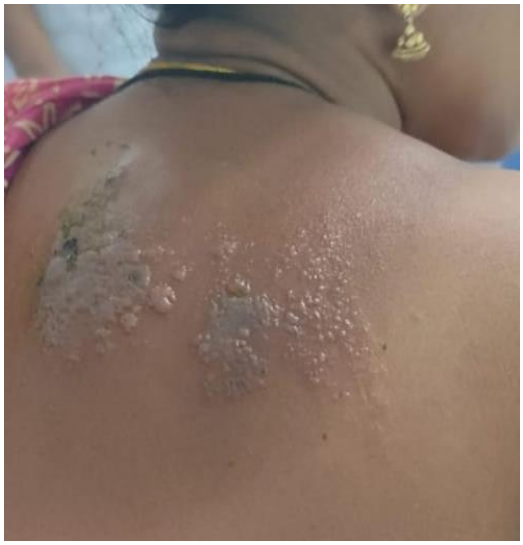


Figure 1 showing multinucleated giant cells in Tzanck smear (Giemsa stain)



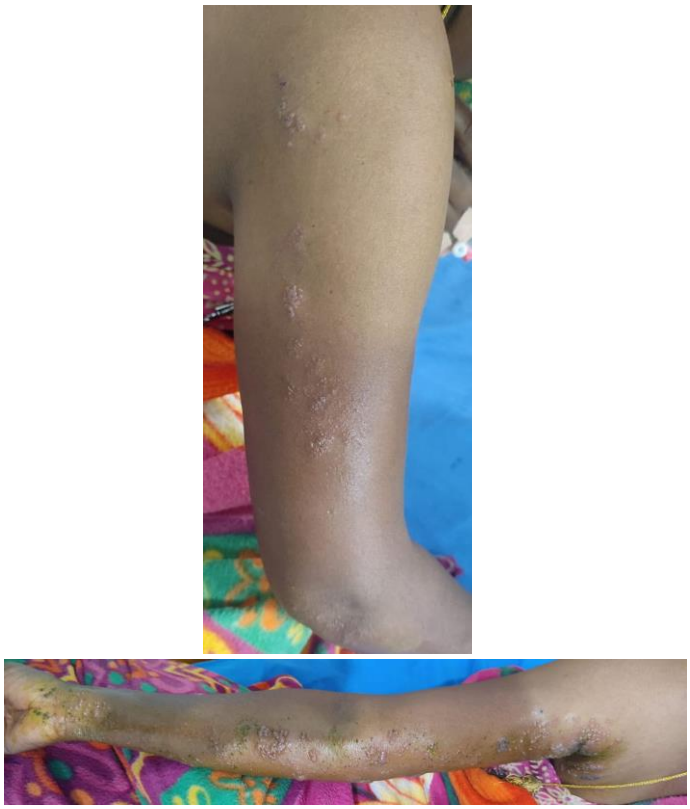
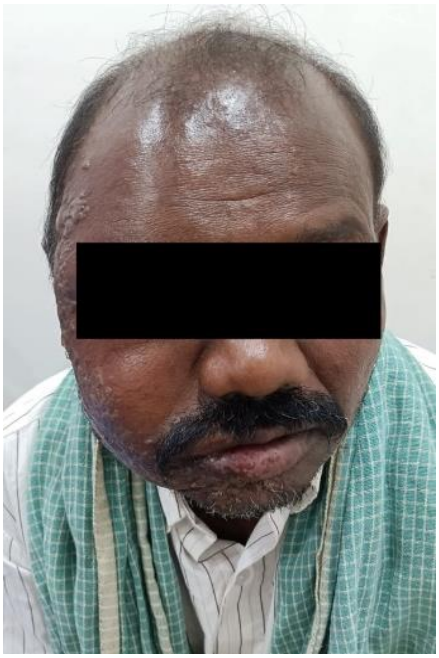


Figure 2 shows herpes zoster in a HIV patient (Denovo), multidermatomal involvement



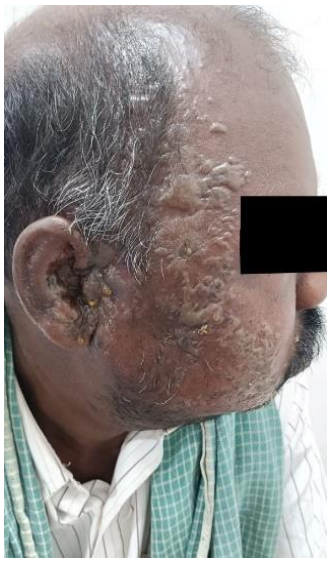


Figure 3 shows herpes zoster involving mandibular branch of trigeminal nerve with swelling of right eyelids

IV. Discussion

The varicella zoster virus (VZV) is what causes both herpes zoster and varicella. The prevalence of this virus is global, and 98% of adults are seropositive. [9]

The male to female ratio in the study was 1.08:1, with a slight male preponderance. This research supports the findings of Ramesh A et al. [10] who found that, of the 100 patients they examined, 64 were men and 36 were women, with a male to female ratio of 1.7:1. This is inconsistent with a research by Aggarwal SK et al. [4] that found a male to female ratio of 6.6:1.

In this study the age group of 31–40 years had the most patients, followed by that of 41–50 years. The most frequently affected age group in the Ramesh A et al. [10] study was 41-50 years (27%) and 51-60 years (21%) and this does not match the Aggarwal SK et al [4] study where the mean age of presentation was 58 18 years. The major portion of the patients in the Aggarwal SK et al [4] study were between the ages of 51 and 70 (54%) and 31 to 50 (25%), respectively.

In this study, 38% of the patients came to see us within 72 hours of the cutaneous lesions appearing. This study is consistent with the Ramesh A et al. [10] study, which found that 30% of patients visited the outpatient department within 72 hours after the rash's onset. In

the study by Rachana R et al. [11], 44% of patients showed up within 48 hours of the herpes zoster rash developing, whereas the remaining patients showed up after 72 hours.

The most frequent complaint in this study was pain, which is consistent with the findings of a study by Rachana R et al [11] where almost all patients reported pain.

In this study, 76% of the participants had other comorbid disorders. This is not consistent with the Ramesh A et al. [10] study, which found that 34% of patients had linked comorbid diseases, and the Rachana R et al. [11] study, which found that 21% of patients had a comorbid condition.

The thoracic dermatome was most frequently affected in this study's subjects (62%), followed by the lumbar dermatome (9%). This is consistent with a research by Ramesh A et al. [10] that found that 48% of patients had thoracic dermatome involvement, with lumbar dermatome involvement occurring in 19% of cases. This is inconsistent with the Rachana R et al report [11], where thoracic involvement was identified in 30.6% of cases, followed by lumbar involvement (22%).

V. CONCLUSION

According to this study, the third or fourth decade of life is when herpes zoster typically manifests. The most frequent site of involvement is the thoracic dermatome. Herpes zoster is often diagnosed through a clinical process based on the rash's distinctive appearance. Early diagnosis and antiviral medication can lessen the severity, complications, and postherpetic neuralgia, especially in older and immunocompromised patients. Also, until the lesions have fully crusted over, patients should be encouraged to refrain from contact with those who do not have varicella or who have not received the varicella vaccine.

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