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Original Article

Clinical and morphological characteristics of herpes zoster - A study from tertiary care centre

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Abstract

Objective To determine incidence, pattern of occurrence and evolution of herpes zoster.

Methods This was an analytical study conducted between June 2013 and June 2015. All cases of herpes zoster visiting Dermatology outpatient department of district government hospital Gulbarga were taken into study. Detail clinical history and examination were carried out in all patients. Tzanck smear and skin biopsy were done wherever required. Specific blood investigations were done to establish provocative factors if any.

Results Total 240 patients were included in the study. Incidence of herpes zoster was highest 58 (24.2%) in the age group of 30-40 years. Majority of herpes zoster 170 (70.8%) occurred spontaneously. Provocative factors were noted in 70 (29.1%) cases, which included immunosuppression due to long-term steroids, chemotherapy, malignancy, diabetes mellitus, human immunodeficiency virus (HIV) infection, and chronic renal failure. Thoracic dermatome was most commonly involved 106 (44.2%) followed by cranial 59 (24.6%), cervical 30 (12.5%), lumbar 22 (9.2%) and sacral 15 (6.2%). More than one dermatome was involved in 8 (3.3%) cases. Complications such as secondary bacterial infection, postherpetic neuralgia and motor weakness were noted in 81 (33.8%) patients. Majority of patients resolved in 7-14 days except in patients with immunocompromised status.

*Co**nclusion*** Steroid intake was most common provocative factor and pain was most common presenting symptom. Thoracic dermatome was most commonly involved followed by cranial.

Key words
Herpes zoster, dermatome, immunosuppression.

Introduction

Herpes zoster is a benign localized viral disease caused by the neurodermotropic virus called varicella-zoster virus (VZV). It has been recognized as a distinct entity since ancient times.[1,2] Varicella-zoster virus remains latent in sensory dorsal root ganglion following primary infection or vaccination.[3] Reactivation of VZV results in herpes zoster. It is more commonly seen in people with diminished cell-mediated immunity. Diverse clinical manifestations are noted in immunocompromised patients, such as multidermatomal involvement, crusted, nodular or vesiculopustular, ulcerative, and ecthymatous lesions.[4,5,6] This study has been conducted to know various clinical and morphological characteristics of herpes zoster and its associated conditions.

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Methods

This was an analytical study conducted between June 2013 and June 2015 at the department of dermatology, district government hospital, Gulbarga. All cases of herpes zoster attending the skin outpatient department were studied. Two hundred and forty cases of herpes zoster were included in the study. Based on history and clinical examination diagnosis of herpes zoster was made. Tzanck smear and skin biopsy were done wherever required. Detailed clinical evaluation regarding constitutional symptoms, provocative factors, previous history of chicken pox, segment of involvement, morphology and pattern of skin lesions, and associated complications were noted. Specific blood investigations were done to establish underlying provocative factors. The data obtained was tabulated and analyzed.

Results

Out of 240 cases, 145 (60.4%) were males and 95 (29.6%) females. Male to female sex ratio was 1.52:1. One hundred and twenty six patients (52.5%) were below 40 years and 114 (47.5%) were above 40 years. The age and sex distribution of herpes zoster is given in **Table 1**. The incidence of herpes zoster was high in the age group 31-40 years (24.2%), followed by 21-30 years (18.3%), and 41-50 years (15.8%). Minimum incidence was observed in the age group 1-10 (1.2%) and above 70 years (4.6%). Definite history of chicken pox in childhood was noted in 155 (64.5%) patients.

One or more suspected provoking factors were noted in 70 patients (29.1%). Twenty-eight (11.7%) were on steroids for various ailments such as bronchial asthma, contact dermatitis, exfoliative dermatitis, pemphigus vulgaris, lepra reactions, systemic lupus erythematosus and idiopathic thrombocytopenic purpura. Sixteen patients (6.7%) had various types of malignancies and were on chemotherapy, 14 (5.8%) had uncontrolled diabetes, 10 (4.1%) had HIV infection, and 2 (0.8%) had chronic renal failure.

Constitutional symptoms such as fever, headache and arthralgia were seen in 24 (10%) cases and segmental neuralgia in 220 (91.6%)

Table 1 Age and sex distribution of patients with herpes zoster (n=240).

Age group (years)	*Male*	*Female*	*Number*	*(%)*
1-10	02	01	03	1.2
11-20	13	08	21	8.8
21-30	26	18	44	18.3
31-40	34	24	58	24.2
41-50	22	16	38	15.8
51-60	24	12	36	15
61-70	16	13	29	12.1
71 and above	08	03	11	4.6
Total	145	95	240	100

Table 2 Segment-wise distribution of herpes zoster .

Segment	*Sex*		*Side*		*N (%)*
	Male	*Female*	*Right*	*Left*	
Cranial	43	16	38	21	59 (24.5)
Cervical	17	13	18	12	30 (12.5)
Thoracic	59	47	44	62	106 (44.1)
Lumbar	12	10	12	10	22 (9.1)
Sacral	10	5	7	8	15 (6.2)
Cervico-thoracic	3	4	5	2	7 (2.9)
Thoraco-lumbar	1	-	1	-	1 (0.4)

Table 3 Comparison of provocative factors in the present study and other studies.

Provocative factors	*Present study*	*Latheef and Pavithran [1]*	*Uddin et al. [12]*

	(n=240)	*(n=205)*	*(n=41)*
Steroid intake	28 (11.67%)	20 (9.7%)	2 (4.87%)
Malignancy/ chemotherapy	16 (6.7%)	19 (9.2%)	3 (6.38%)
Diabetes mellitus	14 (5.8%)	11 (5.3%)	9 (19.14%)
HIV infection	10 (4.1%)	10 (4.8%)	
Chronic renal failure	2 (0.8%)	-	1 (2.12%)
Pulmonary tuberculosis	-	2 (0.9%)	1 (2.12%)

Figure 1 Multiple grouped vesicles on an erythematous base along T7 and T8 segments.

cases. Pain preceded the vesicles in 145 (60.4%) patients whereas 85 (35.4%) cases it started concurrently with vesicles and in 10 (4.2%) cases it started 2-3 days after development of vesicles. Classical grouped vesicles were seen in 232 (96.6%) cases (**Figure 1**), necrotic and ulcerative lesions in 5 (2%) cases and hemorrhagic lesions in 3 (1.3%) cases. The period of resolution ranged from 7-18 days with an average of 9-12 days.

The segment wise distribution of herpes zoster is given in **Table 2**. Most common dermatomes involved were thoracic 106 (44.2%), followed by cranial 59 (24.6%), cervical 30 (12.5%), lumbar 22 (9.2%) and sacral 15 (6.2%). Out of 59 patients of cranial, 57 had trigeminal nerve involvement of which ophthalmic branch 35 (14.6%), maxillary 15 (6.3%), and mandibular 7 (2.9%). Two cases (0.8%) of facial nerve involvement with Ramsay-Hunt syndrome were seen.

Complications were noted in 81 (33.7%) patients which includes secondary bacterial infection 30 (12.5%), severe ulceration 4 (1.6%), scarring 10 (4.1%), post herpetic neuralgia 25 (10.4%), motor weakness 2 (0.8%), depigmentation 5 (2.1%) and post herpetic itching 5 (2.1%). Higher incidence of PHN was observed in elderly patients 50% (20/40). Continuous burning pain was noted in 10 and intermittent radicular pain in 15 cases. Postherpetic neuralgia was most commonly observed in patients with thoracic segment16 (64%), followed by cranial 6 (24%), lumbar 2 (8%) and cervical 1 (4%).

Discussion

In this study majority of patients affected were adults, of which 126 (52.5%) patients were below 40 and 114 (47.5%) above 40 years. Our findings are similar to study done by Pavithran *et al.*[7] and Sehgal *et al.*[8] but in contrast to other reports[9,10] in the literature. In this study males outnumbered females in the ratio of 1.52:1, which is similar to study done in south India[3] but in contrast to western studies[10,11] where both males and females were equally affected.

In our study commonest provocative factor noted was steroid intake for various clinical conditions in 28 (11.7%) cases followed by chemotherapy 16 (6.7 %), diabetes 14 (5.8%), HIV infection 10 (4.1%) and chronic renal failure 2 (0.8%). No provocative factors could be elicited in 168 (70%) cases. Depressed cell-mediated immunity associated with these conditions may be the possible factor responsible for development of herpes zoster. Abdul Latheef and Pavithran[1] studied 205 cases of herpes zoster, provocative factors in their study were steroid intake in 20 (9.7%), chemotherapy 19 (9.2%), diabetes 11 (5.3%),

HIV infection 10 (4.8%), and pulmonary tuberculosis 2 (0.9%) patients. Provocative factors could not be elicited in 143 (69.7%) cases. Probable provocative factors of herpes zoster in the present study, in those by Latheef and Pavithran[1] and Uddin *et al*.[12] have been depicted in **Table 3**.

In our study, classical grouped vesicles were seen in 232 (96.6%) cases, necrotic and ulcerative lesions in 5 (2%) and hemorrhagic lesions in 3 (1.25%) cases. Most common presenting symptom was pain 220 (91.6%) which is similar to study by Dubey *et al*.[3] Thoracic dermatome was most common segment involved in 106 (44.1%) patients followed by cranial in 59 (24.5%). This finding is similar to studies by Latheef and Pavithran[1] and Laxmisha *et al*.[13] but in contrast to previous studies[3,7,14,15] where thoracic segment was followed by cervical segment. Higher incidence of postherpetic neuralgia was observed more in older patients and patients with thoracic segment, which is in contrast to earlier report where cranial was most commonly involved.[16]

Conclusion

Majority of our patients were below 40 years and male patients outnumbered females. Steroid intake was most common provocative factor and pain was most common presenting symptom. Thoracic dermatome was most commonly involved followed by cranial. Higher incidence of postherpetic neuralgia was observed more in elderly patients.

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