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A CLINICAL STUDY OF 100 CASES OF HERPES ZOSTER IN TRIBAL AREA

Dermatology

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ABSTRACT

We studied(CLINICAL) one Hundred cases of Harpes Zoster. In this study herpes zoster mainly occurred in second, third and fourth decades of life. More than two third (73%) of cases occurred in individuals below the age of 50 years. Male preponderance in incidence was found with the sex ratio of 2.5:1.Prodromal symptoms were present in 85% of patients and dermatomal pain was the commonest prodromal symptom. Most common presenting symptom was pain in 99% of cases, followed by vesiculation in 98% of cases. Constitutional symptoms were noted in 75% of cases and majority of cases were in younger age group.Thoracic dermatome was the most common dermatome involved and sacral segment was the least common dermatome affected.HIV infection was present in 16% of total cases. Out of this, 10% of cases were already diagnosed as HIV positive and developed herpes zoster during the course of HIV disease and herpes zoster was the presenting disease of HIV infection in 6% of cases. This indicates the importance of HIV testing in all patients presenting with herpes zoster, especially in patients below the age of 50 years. No significant association of herpes zoster was found with any other skin disorder in this study. The most common systemic diseases noted were diabetes mellitus, hypertension and are considered coincidental. Other systemic diseases associated with herpes zoster were SLE bronchial asthma, tuberculosis, chronic renal failure and hepatitis B infection. Steroid therapy given for certain systemic disorders and decreased CMI acted as provocative factor for herpes zoster. Duration of time taken for resolution or healing of the lesions, ranged from 2 to 4 weeks.Post herpetic neuralgia was the commonest complication (47.5%) and the incidence of PHN increased with increasing age.

KEYWORDS

Herpes Zoster.Tribal Area,

INTRODUCTION

Varicella (Chicken pox) and Zoster (Shingles) results when the latent virus reactivates and returns from the ganglion to infect the skin. Most often VZV reactivates in the settings of relative immunologic compromise, as occurs with aging, or following disease or various therapies, such as steroids, cancer chemotherapy transplantation and irradiation. The diagnosis is clinical: very few other diseases mimic herpes zoster, especially in the localization of the rash, which is otherwise quite similar in appearance and initial effect of that of poison oak or poison ivy. In case of doubt, diagnostic tests can be performed. Such lab tests may be necessary because, depending on the affected sensory nerve, the pain that is experienced before the onset of rash may be misdiagnosed as pleurisy, myocardial infarction, appendicitis or migraine headache.

Skin Lesions: I.

Early stage:

The earliest changes involve the epidermal cell nuclei which develop peripheral clumping of chromatin and a homogenous ground glass appearance, combined with ballooning of nucleus.Vacuolization is the earliest cytoplasmic alteration. These changes begin focally along the basal layer, but soon involve the entire epidermis.

Vesicular Stage:

Intra epidermal vesicle results from two types of degenerative changes. 1). Ballooning degeneration & 2). Reticular degeneration. Ballooning degeneration is peculiar to viral vesicles. The affected cells swell and loose their attachment to adjacent cells, thus separating from them (secondary acantholysis) The cytoplasm of these cells becomes homogenous and intensively eosinophilic and some are multinucleate (Tzanck cells) At times the basal layer of the epidermis is also destroyed in this way, leading to the formation of a sub-epidermal vesicle. Reticular degeneration is characterized by progressive hydropic swelling of epidermal cells, which become large and clear with only fine cytoplasmic strands remaining at the edge of the cells. These eventually rupture contributing further to the formation of a vesicle. Whereas ballooning degeneration is found mainly at the base of the vesicle, reticular degeneration is seen on its superficial aspect and margin. Multinucleated giant cells containing upto 15 nuclei which are formed by fusion of epithelial cells containing eosinophilic intranuclear inclusion bodies (Lipschutz bodies, formerly Cowdry type A bodies) of 3 to 8 mm in diameter. **Late stage:** Eosinophilic intra nuclear inclusion bodies are found, particularly in ballooned cells. Neutrophils are present within established vesicles. Neutrophilic and lymphocytic infiltration is also present in the underlying dermis. Marked inflammation and vasculitis have been noted in some lesions. If the vasculitis is severe, necrotizing lesions will be present. Eccrine duct involvement has been reported. The chronic verrucous lesions show hyperkeratosis, verruciform acanthosis and virus-induced cytopathic changes.

Both humoral and cell mediated immune responses to VZV develop within a few days after the onset of varicella.Peak antibody levels are attained after 4 to 8 weeks; remain high for about 6 months and then decline. IgG Ab to VZV can be detected in healthy adults for decades after varicella.

Clinical Manifestations-pre - Eruptive Stage:

The first manifestation of zoster is usually pain, which may be severe and may be accompanied by fever, headache, malaise and tenderness localized to areas of one or more dorsal roots.The time between the start of the pain and the onset of eruption averages 1.4 days in trigeminal zoster and 3.2 days in thoracic disease. The skin in the affected area becomes red and papules soon develop. Occasionally the pain is not followed by the eruption (zoster sine eruptione, zoster signe herpete).In the pre eruptive stage the pain simulates headache, eye pain, dental pain, pleurisy, brachial neuritis, cardiac pain, intra abdominal disease (especially gall bladder colic, appendicitis, renal colic, etc.) or sciatic syndrome. Prodromal symptoms may be absent, particularly in children.

Eruptive Stage:

Closely grouped red papules, rapidly becoming vesicular and then pustular develop in a continuous or interrupted band in the area of one, occasionally two and rarely more contiguous dermatomes.

Mucous membranes within the affected dermatomes are also involved. The lymph nodes draining the affected area are enlargedand tender. Occasionally a few vesicles appear across the midline. Rarely eruption may be bilateral. Possibly because chicken pox is centripetal (located on the trunk), the thoracic region is affected in two thirds of herpes zoster cases.

Resolution Stage:

The pain and constitutional symptoms subside gradually as the eruption subsides, vesicles either umblicate or rupture before forming

a crust, which falls off in 2 to 3 weeks.In uncomplicated cases the recovery is complete in 2 to 3 weeks in children and young adults and 3 to 4 weeks in older patients.

Cephalic Zoster:
This includes involvement of cranial nerves, such as trigeminal nerve branches, facial nerve, auditory nerve, glossopharyngeal and vagal nerves.

Trigeminal Nerve Zoster-
It is due to involvement of Gasserian ganglion of the trigeminal nerve. Three branches of the trigeminal nerve such as ophthalmic, maxillary and mandibular divisions are affected by Herpes Zoster.

Herpes Zoster Ophthalmicus:
Herpes zoster ophthalmicus occurs when the recrudescence is in the ophthalmic branch of the trigeminal nerve. The ophthalmic involvement makes up to 10 to 15% of all cases of herpes zoster.

COMPLICATION=1. Acute complications of herpes zoster,
I. Cutaneous Complications-
The common cutaneous complications are secondary bacterial infections, cutaneous necrosis, scarring, dissemination and gangrene formation.

II. Ocular complications-
Ocular complications include uveitis, keratitis, conjunctivitis, conjunctival edema, ocular muscle palsies, proptosis, scleretis, retinal vascular occlusion and ulceration, scarring and even necrosis of the lid. Involvement of ciliary ganglion may give rise to Argyl-Robertson pupil. Acute retinal necrosis caused by Varicella-zoster virus occasionally occurs in immuno-competent patients, although more recent studies have focused on ocular disease in HIV infected patients.

III. Neurological Complications:
This includes cranial neuritis, motor neuropathy autonomic neuropathy, aseptic meningitis, meningo-encephalitis, transverse myelitis[60], necrotizing myelopathy, Guillain-Barre Syndrome, hemiplegia and granulomatous angiitis.2

Post Herpetic Neuralgia.3.Inflammatory skin lesions following a zoster infection (Isotopic Response).
The diagnosis is largely clinical. Grouped vesicles of varying sizes on an oedematous and erythematous base with skipped areas of normal skin in a dermatomal distribution makes the diagnosis of herpes zoster, quiet obvious most of the times.

Treatment-
The aim of treatment is the suppression of inflammation, pain and infection.**PREVENTION OF HERPES ZOSTER-(Zoster vaccine live (oka /merck)-**A subcutaneously administered live high titre (18,700 to 60,000 plaque -forming units per dose) varicella-zoster virus vaccine (zoster vaccine) of the oka/ Merck strain has been evaluated for the prevention of hesper zoster and the reduction of zoster associated pain in adults aged 60 years or above.

AIMS OF THE STUDY
The study of herpes zoster was undertaken to findout:1.Age incidence. 2.Sex Incidence, 3.Prevalence of prodromal symptoms. 4. Predominant complaints given by patients. 5.Prevalence of constitutional symptoms. 6.Pattern of dermatomal involvement. 7. Prevalence of association with HIV.8.Association with cutaneous disease, if any. 9.Association with systemic disease, if any.10.Duration of time taken for resolution of lesions.11.Prevalence of complications.

MATERIAL AND METHODS
The study was conducted at the department of Dermatology, on hundred cases of herpes zoster. All cases of herpes zoster attending skin out patient department and referred cases of zoster from other departments were studied. Patient's age, sex, occupation, and address were noted. A detailed history regarding the prodromal symptoms, skin lesions, nature of pain, duration of illness at the time of presentation, provocative factors were recorded. Associated cutaneous disease, systemic disease and HIV infection were recorded. History of chicken pox and previous attack of zoster were elicited and time taken for complete resolution of lesions were noted. Complications of herpes zoster and association with HIV were also recorded. Each patient underwent detailed general physical and systemic examinations. A thorough dermatological examination was done in all cases and the following details were noted.

1. Site of lesion (segment involvement)
2. Morphology of lesions like grouped vesicles, scattered vesicles, erythema, papules, erosions and crusting.
3. Dermatomal distribution & the side of involvement.
4. Cutaneous dissemination.
5. Lymph node enlargement.
6. Mucosal lesions.
7. Motor zoster
8. Other cutaneous diseases.

The diagnosis of herpes zoster was made clinically on the basis of characteristic presentation of vesicles in dermatomal or disseminated pattern. Diagnosis was confirmed with Tzanck smear and skin biopsy whenever required. A set of laboratory investigation consisting of complete hemogram, blood sugar, renal function test, urine analysis, ELISA for HIV antibody were done in all cases. Whenever necessary, other specialist's opinions like ophthalmologist, physician, neurologist and diabetologist were sought. All patients were treated with oral aciclovir. Systemic antibiotics were given for cases with secondary bacterial infection and erosions. Patients with intractable zoster pain were given carbamazepine or amitriptyline and analgesics. In addition to systemic therapy, topical soothening agent like zinc oxide - calamine lotion, or topical antibiotic creams were given. These patients were assessed with regards to the course of the disease, resolution time, pain relief and complications. All the patients were reviewed every 4 days, until the time of complete healing. After that patients were followed once weekly or more frequently depending upon the cases and complications encountered till the resolution of problems.

During the follow up period the following complications were noted.
1. Secondary bacterial infection.
2. Dissemination
3. Ulceration
4. Delayed healing
5. Post inflammatory hypo or hyperpigmentation.
6. Scarring
7. Post herpetic neuralgia.
8. Other complications, if any.

RESULTS
Out of 100 cases 72 were males and 28 were females.Maximum number of cases were seen between the age group of 21 to 30 years (25%) and 41 to 50 years (24%) which was followed by 31 to 40 years (14%) and 61 to 70 years (14%). Minimum number of cases were observed in the age group of 1 to 10 years (1%), 71 to 80 years (1%) and 81 to 90 years (1%).The youngest was 9 years and oldest was 81 years of age. Out of 100 cases, 72 were males and 28 were females and the sex ratio is 2.5: 1 (male: female) approximately.

2. Prevalence Of Prodromal Symptoms
The following prodromal symptoms were recorded
1. Fever and pain
2. Dermatomal pain
3. Burning sensation
4. Itching
5. Tingling, numbness, paraesthesia
6. Ear pain
7. Tooth ache
8. Erythema

Prodromal symptoms were present in 85 cases and absent in 15 cases. Dermatomal pain prior to the onset of lesions was the commonest prodromal symptom (57%). The next common prodromal symptom seen was burning sensation (10%). Fever and pain was present in 6% of cases. Itching was present in 4% of cases. Ear pain and tooth ache were present in one case of herpes zoster oticus and one case of mandibular nerve zoster respectively.

3. Duration Of Illness At The Time Of Presentation To The Hospital:
Out of 100 cases, 74% of cases presented with vesicular lesions within 5 days of onset of lesions. The remaining 26% of cases were presented after 6 days and above to the hospital. The complications like

secondary infection and PHN were maximum in those cases came for treatment late in the course of the disease.

4. Prevalence Of Presenting Complaints And Constitutional Symptoms

Most common presenting complaint was pain in 99% of cases. In 57% of cases pain was present prior to the onset of lesions and the remaining 42% of cases developed pain during evolution of vesicles. Vesicular lesion was the next common presenting complaint in 98% of cases and it was present in association with pain in almost all cases.Other presenting complaints were erosions, crusting, itching and burning sensation in very few cases (1 to 2 %). Headache and watering in the eye were present in 6 % of cases of ophthalmic zoster. Facial palsy was the presenting complaint in 1% of case. Fever was the most common constitutional symptoms present in 45% of cases other constitutional symptoms present with fever were myalgia (18%), headache (12%) and joint pain (2%).

5. Morphology Of Lesion And Pattern Dermatome Involvement:

Grouped vesicles with erythematous background in dermatomal distribution were present in 97% of cases. The remaining 3% of cases had crusting and erosion alone. Other lesions presented with grouped vesicles were pustules, erosions and crusting. Oral erosions were seen in 2% of cases of maxillary and mandibular nerve zoster. Redness of eyes and eyelid edema were present in 6% of cases of ophthalmic zoster. Thoracic dermatome was the most common dermatome involved (60%) followed by cervical in 9% of cases, ophthalmic zoster in 8% of cases and lumber segment in 7% of cases.The prevalence of maxillary, mandibular and herpes zoster oticus was 2% each. Thoracolumbar and cervicothroracic involvement was 6% and 3% respectively. The least common dermatome involved was sacral dermatome (1%)The pattern of dermatome involvement was almost similar in both sexes.Dermatome involvement was predominantly on the left side (52%) when compared to right side (48%). But in lumbar, cervical and opthalmic zoster right side was commonly involved.

6. Multidermatomal Involvement And Dissemination

Multidermatomal involvement was noted in a case of herpes zoster oticus. The affected patient was an elderly man (70 years) with carcinoma prostate. He had involvement of C2, C3 and C4 segment in addition to herpes zoster oticus with facial palsy on the left side.Cutaneous dissemination was noted in 2 cases in addition to the classical dermatomal distribution of grouped vesicles. One patient was a 36 year old male with HIV infection and another patient was a 65 year old male with no underlying immunosuppression or malignancy. No recurrence of herpes zoster was observed in any case.

7. Lymph Node Enlargement:

Regional lymph node enlargement was noted in 95% of cases. Nodes were tender in 80% of cases and non tender in 15% of cases and are firm in consistency.

8. Provocative Factors:

Out of 100 cases, 36 cases were having one or more suspected provocative factors. Among the 36 cases, 16 cases (44.4%) were having HIV, 7 cases (19.4%) were having diabetes and 5 cases (13.8%) were on steroid therapy for SLE (3 cases) and bronchial asthma (2 cases).

9. Past History Of Chicken Pox:

Out of 100 cases, 90% gave definite history of occurrence of chicken pox out of 90 cases. 27% of patient did not give the exact age of occurrence of chicken pox. 32% of cases gave history of chicken pox between 11 to 20 years of age and 31% of cases gave history of vericella between 1 to 10 years. The remaining 10% of cases were either not aware of or not had chicken pox at all.

10. Associated Cutaneous And Systemic Diseases:

Cutaneous diseases seen in association with herpes zoster were acne 1 case, seborrhoeic dermatitis two cases, tinea versicolor 2 cases, SLE 3 cases, Hansen's disease 1 case, insect bite allergy 2 cases, wart 1 case, cellulitis 1 case, oral candidiasis 1 case, tinea cruris 1 case and intertrigo 1 case. Most of these cases were seen inassociation with immunosuppression. Diabetes (7 cases) was the most common systemic disease seen in association with herpes zoster. The next common systemic disease seen with zoster was hpertension (6 cases). Other systemic diseases seen with herpes zoster were SLE (3 cases), bronchial asthma (2 cases), tuberculosis (1 case), Hepatitis B (1 case) and chronic renal failure (1 case).

11. Time Taken For Resolution Of Lesions:

Most cases (50%) showed complete resolution of lesions between 15 to 21 days (3rd week). All patients were given T. aciclovir 800mg 5 times a day for 8 days except for immunocompromised patients and they were given aciclovir for 10 days. The response to aciclovir was good and resolution was rapid unless there was secondary bacterial infection or underlying immunosuppression.

12. Investigations:

Complete hemogram was within normal limits except for increasecd eosinophil count in 6 patients, increased ESR in 20 patients, increased neutrophil count in 6 patients, decreased haemoglobin value in 4 patients.Blood sugar was elevated above the normal valve in7 patients. Urine routine examination was normal in almost all patients (98%). Urine examination showed reducing sugar in 2 patients with elevated blood glucose value. ELISA test for HIV antibody was done in all patients. Positive ELISA test result was obtained in 6 cases. 10 patients were already diagnosed as HIV Positive and presented with zoster during the course of HIV disease ECG was taken for patients with zoster involving left thoracic segment and it was found to be normal. One patient with SLE had elevated blood urea and serum creatinine values and nephrologist opinion obtained for her and she was diagnosed as a case of SLE nephropathy. Diabetologist opinion for 3 patients, neurologist opinion for 13 patients, ophthalmologist opinion for 8 patients and ENT surgeon opinion for one case of herpes zoster oticus were obtained. Tzanck smear was positive in 95% of cases and negative in 5% of cases who presented late and those with ulcerations, erosions and crusting. Skin biopsy was done in 2 patients with erythematous plaques studded with very few grouped papules in a dermatomal pattern, in the pre eruptive stage, which under light microscope in haematoxylin and eosin staining showed intraepidermal uniloculated to multiloculated bullae with ballooned epithelial cells and multinucleated giant cells.

13. Complications: Secondary Bacterial Infection, Scarring, Motor Zoster, was Common.

DISCUSSION

Whitley et al reported that zoster affects 20% of general population during their life time, especially in elderly. This study of hundred patients with herpes zoster revealed that the majority of the patients affected were adults in the second (25%), third (14%) and fourth (24%) decades. More than two thirds (73%) of the reported cases occurred in individuals below the age of 50 and the remaining 27% of affected cases were above 50 years of age. This is in contrast to the observation made earlier in other studies where in more than two third of cases where in the age group above 50 years with highest incidence among individuals in the sixth to eighth decades of life. Total number of cases in childhood and adolescence age group were ten (10) in number. In this study male: female ratio was 2.5:1 which is in contrast with the Western Studieswhere both male and female were equally affected. Prodromal symptoms were in a higher rate (85%) in this study. In majority of cases dermatomal pain was the commonest prodromal symptom. This is in contrast to the lower incidence of prodromal symptoms (5%) observed in younger age groups, in various other studies.In this study majority of the cases (74%) presented between 2 to 5 days and the remaining 26% of cases presented between 6 to 8 days and above, which is similar to the study report given in western literature.Most common presenting symptom in this study was pain in 99% of cases and vesiculation was the next common presenting complaint in 98% of cases which is similar to various study reports .Constitutional symptoms were noted in 75% of cases in this study and majority of cases were in younger age group. This is in contrast to the lower incidence of prodromal symptoms (5%) observed, especially in younger age groups, in various other studies.In this study 97% of cases had classical herpes zoster in dermatomal pattern and 3% of cases had crusting and erosions. Thoracic dermatome was the most common dermatome involved (60%) in this study followed by cervical dermatome in 9% of cases, ophthalmic zoster in 8% of cases and lumbar dermatome in 7% of cases, in accordance with the literature reports. The least common dermatome involved was sacral segment. Out of 100 cases 97% of cases had localised involvement with grouped vesicles and 1% of case had multidermatomal involvement, and the remaining 2% of cases had cutaneous dissemination in addition to the classical dermatomal distribution. Multidermatomal and disseminated zoster was more frequent in males than females Multidermational

zoster case with Ramsay Hunt syndrome was reported with malignancy. Post herpetic neuralgia is the commonest complication reported in the literature.

CONCLUSION

In this study herpes zoster mainly occurred in second, third and fourth decades of life. More than two third (73%) of cases occurred in individuals below the age of 50 years. Male preponderance in incidence was found with the sex ratio of 2.5:1.Prodromal symptoms were present in 85% of patients and dermatomal pain was the commonest prodromal symptom. Most common presenting symptom was pain in 99% of cases, followed by vesiculation in 98% of cases. Constitutional symptoms were noted in 75% of cases and majority of cases were in younger age group. Thoracic dermatome was the most common dermatome involved and sacral segment was the least common dermatome affected. HIV infection was present in 16% of total cases. Out of this, 10% of cases were already diagnosed as HIV positive and developed herpes zoster during the course of HIV disease and herpes zoster was the presenting disease of HIV infection in 6% of cases. This indicates the importance of HIV testing in all patients presenting with herpes zoster, especially in patients below the age of 50 years.No significant association of herpes zoster was found with any other skin disorder in this study. The most common systemic diseases noted were diabetes mellitus, hypertension and are considered coincidental. Other systemic diseases associated with herpes zoster were SLE bronchial asthma, tuberculosis, chronic renal failure and hepatitis B infection. Steroid therapy given for certain systemic disorders and decreased CMI acted as provocative factor for herpes zoster. Duration of time taken for resolution or healing of the lesions, ranged from 2 to 4 weeks. Post herpetic neuralgia was the commonest complication (47.5%) and the incidence of PHN increased with increasing age. The other complications noted were secondary bacterial infection, scarring and motor zoster (facial palsy).

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