Herpes zoster in Al-Kuwait University Hospital in Sana'a city Yemen: clinical presentation and complications.

Dr. Mohammad A. Al-Shami (MD)

Department of Dermatology - Faculty of Medicine and Health Sciences, Sana'a University, Yemen

P.O box: 1950, Mobile: +967-777202646

E-mail: moh.shami@y.net.ye


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***Abstract* :**

Herpes zoster (or simply zoster), commonly known as shingles and also known as zona, is a viral disease characterized by a painful skin rash with blisters in a limited area on one side of the body, often in a stripe. The initial infection with varicella zoster virus (VZV) causes the acute (short-lived) illness chickenpox which generally occurs in children and young adults. Once an episode of chickenpox has resolved, the virus is not eliminated from the body but can go on to cause shingles — an illness with very different symptoms — often many years after the initial infection.We undertook this study to know the clinical and morphological characteristics of herpes zoster and it's complication in Yemen.

All cases of herpes zoster (HZ) seen in the dermatology clinic at Al-Kuwait University Hospital over a 10 years period (2001-2011) were included in the study. Their diagnoses were based on the clinical presentation. The following parameters were collected and analyzed: age, sex, symptoms, dermatome distribution, complications, and coexisting diseases.

Of 32 749 new cases seen in the dermatology clinic over 10 years, 154 were HZ, with an occurrence of 0.47%. Male to female ratio was 3.1:2 and the age ranged from 12 months to 90 years. The thoracic dermatomes were the most commonly involved in 86 cases (54%) followed by trigeminal in 27 cases (17.5%) and cervical in 24 cases (15.6%); and both body sides involved roughly in equal rates. Bi-dermatomal involvement was seen in 97 (63%) cases, followed by mono-dermatomal in 54 (35%) cases and disseminated in 3 (1.9%) cases. The most common complication of HZ were post herpetic neurologia (12.3%),followed by 3 cases of disseminated HZ, 2 cases of HZ ophthalmic us developed eye complications end with blindness and 2 cases of scars.

Finally, the occurrence of HZ is 0.47% in patients reporting to the dermatology clinic of the hospital. Males are little more affected than females. The thoracic dermatomes are the most frequently involved and post herpetic neuralgia is the most common complication of HZ among Yemeni patients.

Key words: Herpes zoster; Dermatomes, complications, Yemen.

Introduction

Herpes zoster (or simply zoster), commonly known as shingles and also known as zona, is a viral disease characterized by a painful skin rash with blisters in a limited area on one side of the body, often in a band (1,2). The initial infection with varicella zoster virus (VZV) causes the acute (short-lived) illness chickenpox which generally occurs in children and young adults (3). Once an episode of chickenpox has resolved, the virus is not eliminated from the body but can go on to cause shingles — an illness with very different symptoms — often many years after the initial infection. Herpes zoster is not the same disease as herpes simplex, despite the name similarity; both the varicella zoster virus and herpes simplex virus belong to the same viral subfamily Alphaherpesvirinae (2-4).

The earliest symptoms of herpes zoster, which include headache, fever, and malaise, are nonspecific, and may result in an incorrect diagnosis (2,5). These symptoms are commonly followed by sensations of burning pain, itching, hyperesthesia (oversensitivity), or paresthesia ("pins and needles": tingling, pricking, or numbness) (6). The pain may be mild too extreme in the affected dermatome, with sensations that are often described as stinging, tingling, aching, numbing or throbbing, and can be interspersed with quick stabs of agonizing pain(1,7).Herpes

zoster in children is often painless, but older people are more likely to get zoster as they age, and the disease tends to be more severe (8,9).

During varicella infection, VZV passes from skin lesions into cutaneous sensory nerve endings and ascends up the sensory fibers to the sensory ganglia where it remains in latent stage (2,3,10) On reactivation, it travels back along the sensory afferents to the skin associated with hematogenous dissemination. Depending upon the rapidity of immune response, the presentation may vary from no clinical lesions, to typical zoster, scattered vesicles, zoster sine herpetic or disseminated zoster (6,11,12). Reactivation may be triggered by trauma, sunburn, exhaustion, injection, immunosuppression or irradiation (13).

There have been no studies in the Yemen population addressing the frequency, natural history, the clinical and complications of HZ infections in Yemen. Therefore in this paper retrospective study was used to determine the frequency, natural history, the clinical and serious complications of Herpes Zoster infections among Yemeni patients in Sana'a city, Yemen.

Patients and Methods

Patients

The study was conducted from the early 2007 to the end of 2011 at the department of dermatology at Al-Kuwait University Hospital, Sana'a University, Sana'a, Yemen. All cases of herpes zoster attending skin OPD and referred cases from other departments were studied. One hundred and fifty four sequential cases of herpes zoster were enrolled. Patient's demographic data, symptoms, location of lesions, risk factors, associated systemic disease and complications were noted in a registers. Diagnosis was established by history and clinical examination, Tzanck smears and skin biopsy wherever required.

Data analysis

Data were stored and assessed using Epi-info version 5 CDC. Chi-square and Fisher's exact tests were used to test association between the occurrence of symptoms, complications etc. and type of sexes (male/female) and P values <0.05 were considered as significant.

Results

Of 32 749 new cases seen in the dermatology clinic over 5 years, 154 were HZ, with an occurrence of 0.47%. Male to female ratio was 3.1:2 and the age ranged from 12 months to 90 years (table1).

The mean±SD age at presentation was 40.2 ± 20.8 years with the range from 1 year to 90 years. Male to female sex ratio was 3.1:2.Seventeen children (11%) were in the age group of 1 - 15 years. In adults, 32 (20.8%) cases were in age group of 16-25 years, 23 (14.9%) cases in age group of 26 - 35 years, 18 (11.7%) cases in age group of 36 - 45 years, 24 (15.6%) cases in age group of 46 - 55 years, 25 (16.2%) cases in age group of 56 - 65 years and 15 (9.7%) cases were above 65 years of age (table1).

Acute HZwas recorded in 23 (14.9%) cases. Most HZ patients were suffered from moderate infection (81cases – 52.6%) followed by mild infection in 50 (32.5%) cases (table 2).

The duration of diseases among these patients was between two days and 30 days with average (Mean±SD) equal to 7.3±5.9 days. Majority of the cases (83 cases, 54%) presented between 2-5 days, followed by 49 cases (31.8%) between 6- 10 days, 10 cases (6.5%) between 11- 15 days and 12 cases (7.8%) between >15days(table7).

Most common dermatomes involvement was bi-dermatomes HZ in 97 (63%), followed by mono-dermatomes in 54(35%) cases and multi-dermatomes HZ in three (1.9%) cases. Multi-dermatomal and disseminated herpes zoster was more frequent in females (3.3%) than males (1.1%) (table 3).

Dermatomes involved in herpes zoster: Thoracic dermatome was most commonly involved occurred in 86 (55.8%) cases with roughly equal rate in both sexes. Fifth cranial nerve was more frequently involved in females than males and this finding was statistically significant ($P<0.05$). Cervical and lumbar dermatomes were equally frequently involved in females and males (table 4).As well both side of the body were involved roughly in equal rates (table 5).

Most common complication seen was post herpetic neuralgia (PHN) in 19 (12.3%) cases, scarring in 2 (1.3%) cases, blindness in 2 (1.3%) and disseminated HZ in 3 cases (table 6, 8).

Systemic diseases seen in association with herpes zoster were diabetes mellitus in 3 cases, systemic lupus erythematous in 3 cases and pemphigus vulgar in 1 case. Most of these cases had multi-dermatomal herpes zoster in which was recorded in one case DM, 1 case of lupus erythematous (table 9).

Discussion

This study was done to assess the pattern of HZ infections in a sample of 154 Yemeni patients over 5years period and to compare it with previous results from nearby countries and worldwide.

In this study, 32 749 new cases seen in the dermatology clinic over 5 years, 154 were HZ, with an occurrence of 0.47% ; this result is similar to most of other reports from Australia, Asian countries, Canada, UK and the USA (1,7,14). Scott et al. (14) in England and Wales found that 0.5% of the patients attending dermatological clinics were herpes zoster.

Herpes Zoster mainly affects a single dermatome of the skin. It may occur at any age but the vast majority of patients are more than 50 years of age. Herpes zoster is common among immunocompromised persons, so the elderly are at particular risk, because immunocompetence declines with age. Whitley, et al (3) reported that zoster afflicts 20% of general population, during their life time, especially in elderly. In a similar study on herpes zoster the rate of occurrence is in the range at 1.3 to 5 per thousand persons per year, although it may be seen in any age group (3,15), but our study was different from previous studies in which one thirds of the reported cases only occurred in

individuals over fifty years of age and more than 30 percent occur in those under the age of twenty five years (table 1).

The average age at presentation in our study was 40.2 years (table 1) which is a decade less than the findings of Insinga et al. (16) in which the average age at presentation among their HZ patients was 55.7 years (16). In addition74.7% of our cases were less than 55 years that is much higher than seen in previous studies(1,7,14,15,17).

The latent virus reactivates in a sensory ganglion and tracks down the sensory nerve to the appropriate segment. The lower cervical, thoracic and lumbar posterior root ganglia are most commonly involved. In our study, thoracic dermatome was involved in 86 (55.8%) cases followed by fifth cranial nerve in 26 (16.9%), cervical in 24 (15.6%) cases, lumbar in 14 (9.1%) cases, and sacral in 4 (2.6%) (table 4). This is in contrast to the studies by Insinga et al. (16), Edmunds et al. (14) and de Melker et al. (17) where dermatomes most commonly involved were thoracic in 35 to 45% and cervical in 20 to 25% while lumbar, fifth cranial nerve and sacral were rarely involved.

Localized dermatomal zoster was seen in 54 (35%) cases, multi-dermatomal zoster in 3 (1.9) cases and disseminated zoster in 3 (1.9) case. Our result is similar to that reported by Edmunds et al. in England and Wales and de Melker et al. in the

Netherlands (14,17). Multi-dermatomal and disseminated zoster was more frequent in females than males and this finding was statistically significant ($p < 0.05$). Gatti et al. (18) had reported that multi-dermatomal and disseminated zoster was more frequent in females than males and this might be female patients are likely to have lower levels of VZV antibodies than male patients. Steiner et al. (19) in their study herpes zoster patients, found that multi-dermatomal and disseminated zoster was more frequent in females than males (ratio 4:1).

The average duration of herpes zoster infection among our Yemeni patients was 7.3 days for all, and it was slightly longer for female patients (8.3 days) than male (6.8days) (table 7). Thomas et al. (20) in their study found that the duration of zoster was longer than in our study (average=14 days) and patients were more likely to have more complications, severe cases (21%), ophthalmologic HZ (3%), bacterial super infection (15%) and more than one dermatome (38%) affected.

Post herpetic neuralgia was the most common and important complication of herpes zoster infection in our study in which 12.3% of total patients developed post herpetic neuralgia with significant increase of occurrence in females 16.7% comparing with 9.6% in male ($P < 0.05$) (table 6,8). Our result is similar to that reported worldwide in which post herpetic neuralgia is the

most common and important complication of herpes zoster infection and most patients experience severe constant pain at the site of the lesion but it usually remits within 2 to 3 weeks. However, in some patients, a chronic disabling neuralgia occurs. Most of these patients (80%) improve and recover over one year. In others, the pain is so severe and unremitting that it may lead to suicidal tendencies (12,18,21-24). In additiondisseminated herpes zoster occurred in three cases in our study as we know disseminated zoster is much more likely to occur in immunocompromised individuals. The patient is likely to be extremely ill, often with visceral involvement but the outcome is rarely fatal (9,13). The presentation of ophthalmic zoster is complex because many structures of the eye can be involved i.e. the eyelid, conjunctiva, sclera, cornea and iris (25). Unfortunately, blindness following herpes zoster in our study occurred in 2 cases while blindness following herpes zoster is rare elsewhere (6,15, 16,25). Interior uveitis and keratitis are the most common intraocular complications. Sight threatening complications include neuropathic keratitis, perforation, secondary glaucoma, posterior scleritis, optic neuritis and acute retinal necrosis (25).

Conclusions

To conclude, herpes zoster commonly occurs in young adults in Yemen with moderate and mild symptoms. Most common dermatomes involvements were bi-dermatomes HZ and mono-dermatomes HZ while multi-dermatomes was rare. The occurrence of crusted and ulcerated lesions (scarring) is possible in herpes zoster. Thoracic dermatome was most frequently involved dermatome. Amongst our patients, multi-dermatomal, recurrent and disseminated zoster may occur.

References

1) Araújo LQ, Macintyre CR, Vujacich C. Epidemiology and burden of herpes zoster and post-herpetic neuralgia in Australia, Asia and South America. Herpes 2007;14:40A–44A.

2) 2-Weinberg JM. Herpes zoster: epidemiology, natural history, and common complications. J Am Acad Dermatol 2007; 57(6 Suppl):S130–S135.

3) 3-Whitley RJ.Varicella zoster. In Mandell GL, Bennett JF, Dolen R eds, Mandel, Douglas, and Bennett's principles and practice of infectious diseases 6th ed. Philadelphia: Elsevier Churchill Livingstone, 2004.

4) 4-Gilden DH, Cohrs RJ, Mahalingam R. Clinical and molecular pathogenesis of varicella virus infection. Viral Immunol 2003;16(3):243–258.

5) 5-Scott FT, Johnson RW, Leedham-Green M, Davies E, Edmunds WJ, Breuer J. The burden of herpes zoster: a prospective population based study. Vaccine 2006;24:1308-1314.

6) 6-Katz J, Cooper EM, Walther RR, Sweeney EW, Dworkin RH. Acute pain in herpes zoster and its impact on health-related quality of life. Clin. Infect. Dis 2004;39(3):342–348.

7) 7-Brisson M, Edmunds WJ, Law B, et al. Epidemiology of varicella zoster virus infection in Canada and the United Kingdom. Epidemiol Infect 2001;127 (2):305–314.

8) 8-Gagliardi AM, Gomes Silva BN, Torloni MR, Soares BG. Vaccines for preventing herpes zoster in older adults". In Gagliardi, Anna MZ. Cochrane Database Syst Rev 2012;10: CD008858.

9) 9-Johnson, RW, Dworkin, RH. Clinical review: Treatment of herpes zoster and postherpetic neuralgia. BMJ 2003;326(7392):748–750.

10) 10-Cunningham AL, Breuer J, Dwyer DE, Gronow DW, Helme RD, Litt JC, Levin MJ, Macintyre CR. The prevention and management of herpes zoster. Med J Aust 2008;188 (3): 171–176.

11) 11-Patel MS, Gebremariam A, Davis MM. Herpes zoster-related hospitalizations and expenditures before and after introduction of the varicella vaccine in the United States. Control Hosp Epidemiol 2008;29(12):1157–1163.

12) 12-Scott FT, Leedham-Green ME, Barrett-Muir WY, Hawrami K, Gallagher WJ, Johnson R, et al. A study of shingles and the development of post herpetic neuralgia in East London.J Med Virol 2003;70:S24-30.

13) 13-Jung BF, Johnson RW, Griffin DR, Dworkin RH. Risk factors for post herpetic neuralgia in patients with herpes zoster. Neurology 2004;62:1545-1451.

14) 14-Edmunds WJ, Brisson M, Rose JD.The epidemiology of herpes zoster and potential cost-effectiveness of vaccination in England and Wales. Vaccine 2001;19:3076-3090.

15) 15-Donahue JG, Choo PW, Manson JE, Platt R. The incidence of herpes zoster. Arch. Intern. Med 1995;155(15):1605–1609.

16) 16-Insinga RP, Itzler RF, Pellissier JM, Saddier P, Nikas AA. The incidence of herpes zoster in a United States administrative database. J Gen Intern Med 2005;20(8): 748–753.

17) 17-de Melker H, Berbers G, Hahné S, et al. The epidemiology of varicella and herpes zoster in The Netherlands: implications for varicella zoster virus vaccination. Vaccine 2006; 24(18):3946–3952.

18) 18-Gatti A, Pica F, Boccia MT, De Antoni F, Sabato AF, Volpi A. No evidence of family history as a risk factor for herpes zoster in patients with post-herpetic neuralgia. J Med Virol 2012;82(6):1007–1011.

19) 19-Steiner I, Kennedy PG, Pachner AR. The neurotropic herpes viruses: herpes simplex and varicella-zoster. Lancet Neurol 2007; 6(11): 1015–1028.

20) 20-Thomas SL, Wheeler JG, Hall AJ. Micronutrient intake and the risk of herpes zoster: a case-control study. Int J Epidemiol 2006;35(2):307–314.

21) 21-Livengood JM. The role of stress in the development of herpes zoster and postherpetic neuralgia. Curr Rev Pain 2000;4(1): 7–11.

22) 22-Pellissier JM, Brisson M, Levin MJ . Evaluation of the cost-effectiveness in the United States of a vaccine to prevent herpes zoster and post herpetic neuralgia in older adults. Vaccine 2007;25(49): 8326–8337.

23) 23-Schmader K. "Herpes zoster and post herpetic neuralgia in older adults".Clin.Geriatr 2007; Med 23(3): 615–632.

24) 24-Tyring SK. "Management of herpes zoster and postherpetic neuralgia". J Am Acad Dermatol 2007;57(6 Suppl): S136–S142.

25) 25-Shaikh S, Ta CN. Evaluation and management of herpes zoster ophthalmicus. Am Fam Physician 2002; 66 (9): 1723–1730.

Table 1: The age groups and sex distribution of herpes zoster patients in Al-Kuwait University hospitals, Sana'a, Yemen

Age groups	Male n=94		Female n=60		Total n=154		p-value
	No	%	No	%	No	%	
1-15 yrs	6	6.4	11	18.3	17	11	NS
16-25 yrs	24	25.5	8	13.3	32	20.8	NS
26-35 yrs	16	17	7	11.7	23	14.9	NS
36-45 yrs	9	9.6	9	15	18	11.7	NS
46-55 yrs	14	14.9	10	16.7	24	15.6	NS
56-65 yrs	14	14.9	11	18.3	25	16.2	NS
>65 yrs	11	11.7	4	6.7	15	9.7	NS
Mean age	40.5 years		39.8 years		40.2 years		
SD	20.8 years		21 years		20.8 years		
Mode	20 years		65 years		50 years		
Median	36.5 years		45 years		40 years		
Min	6 years		1 years		1 years		
Max	90 years		80 years		90 years		

Table 2: The degree of severity of herpes zoster infection in different sexes

Degrees	Male n=94		Female n=60		Total n=154		p-value
	No	%	No	%	No	%	
Mild	30	31.9	20	33.3	50	32.5	NS
Moderate	51	54.3	30	50	81	52.6	NS
Sever	13	13.8	10	16.7	23	14.9	NS
Total	94	61	60	39	154	100	<0.05

Table 3: The dermatomes involvement in herpes zoster infections among our patients

Characters	Male n=94		Female n=60		Total n=154		p-value
	No	%	No	%	No	%	
Mono-dermatomes HZ	35	37.2	19	31.7	54	35	NS
Bi- dermatomes HZ	58	61.7	39	65	97	63	NS
Multi-dermatomes HZ	1	1.1	2	3.3	3	1.9	NS
Total	94	61	60	39	154	100	<0.05

Table 4: The sites of dermatomes involved herpes zoster infection among Yemeni patients

Sites	Male n=94		Female n=60		Total n=154		p-value
	No	%	No	%	No	%	
Thoracic	54	57.4	32	53.3	86	55.8	NS
Cervical	15	16	9	15	24	15.6	NS
Fifth cranial nerve	14	15	12	20	26	16.9	<0.05
Lumber	8	8.5	6	10	14	9.1	<0.05
Sacral	3	3.2	1	1.7	4	2.6	NS

Table 5: The body side involved herpes zoster infection among Yemeni patients

Sides involved	Male n=94		Female n=60		Total n=154		p-value
	No	%	No	%	No	%	
Right side	54	57.4	26	43.3	80	51.9	NS
Left side	40	42.6	34	56.7	74	48.1	NS
Total	94	61	60	39	154	100	NS

Table 6: The prognosis of herpes zoster infection to post herpetic neuralgia among Yemeni patients

Sites	Male n=94		Female n=60		Total n=154		p-value
	No	%	No	%	No	%	
Post herpetic <50	2	2.1	5	8.3	7	4.5	< 0.05
Post herpetic >50	7	7.8	5	8.3	12	7.8	NS
Total	9	9.6	10	16.7	19	12.3	< 0.05

Table 7: The duration of herpes zoster infection among Yemeni patients

Duration	Male n=94		Female n=60		Total n=154		p-value
	No	%	No	%	No	%	
2-5 days	53	56.4	30	50	83	54	NS
6-10 days	30	32	19	31.7	49	31.8	NS
11-15 days	5	5.3	5	8.3	10	6.5	NS
> 15 days	6	6.4	6	10	12	7.8	NS
Mean	6.8 days		8.3 days		7.3 days		
SD	5.2 days		6.8 days		5.9 days		
Min-Max	2 – 30 days		2 -30 days		2 -30 days		

Table 8: The most common complication involved herpes zoster infection among Yemeni patients

Complications	Male n=94		Female n=60		Total n=154		p-value
	No	%	No	%	No	%	
Disseminated HZ	1	1.1	2	3.3	3	2	NS
Blindness	0	0	2	3.3	2	1.3	<0.05
Scarring	0	0	2	3.3	2	1.3	<0.05
Post herpetic neuralgia	9	9.6	10	16.7	19	12.3	<0.05

Table 9: Systemic diseases associated with herpes zoster infection among Yemeni patients

Diseases	Male n=94		Female n=60		Total n=154		p-value
	No	%	No	%	No	%	
Diabetes mellitus	2	2.1	1	1.7	3	2	NS
SLE	2	2.1	1	1.7	3	2	NS
Pemphigus vulgars	1	1.1	0	0	1	0.6	NS