



Case Report

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Significance of Adult Chicken Pox Infections in Saudi Arabia: A Case Report



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Abstract

Objective: To explore the trend of re-emergence of adult chicken pox infections in Saudi Arabia (KSA) and to bring to the attention of practicing clinicians such cases to avoid missed or delayed diagnoses and its associated morbidity.

Case Description: This case is unique because it involves an immune-competent, otherwise healthy, young adult male with history of proper varicella vaccination during childhood. Yet, he developed chickenpox infection from some unknown source in his adult life. Considering the known tendency of markedly increased morbidity and mortality among adult pox cases; au 'contraire to childhood varicella; such un-conventional presentations merit reporting to avoid misdiagnoses and /or delayed treatment in routine dermatology clinics.

Result: He was prescribed Famciclovir 500mg three times daily along with supportive antihistamines and antipyretics. Within a week on therapy, the blisters changed in color and were not painful or itchy. Upon 2 weeks follow up appointment, there were only a few hyper-pigmented spots in old blister areas.

Conclusion: Risk of hospitalization and death significantly increase in adult-pox cases. Recently, adult-pox is rising in KSA. Infection from family adults often spreads to children; increasing disease burden. From a public health perspective, the uprising varicella in KSA is significant enough to prompt designing a disease-outbreak-notification-system; which at present suffers from under-reporting and under-representation of the disease. The epidemiology of chickenpox needs to be re-evaluated in Saudi Arabia, with serious re-consideration into promoting universal-varicella-vaccination and awareness programs to avoid misdiagnoses and /or delayed management in routine-outpatient-clinics.

Keywords: Helicobacter Pylori; Physiopathology; Atrophic gastritis; Intestinal Metaplasia, Gastric Cancer

Abbreviations: LPS: Lipopolysaccharides; VaC A: Vacuolization Cytotoxin A; CagA: Cytotoxin Associated Gene A; MAP: Microtubules Associated Protein

Introduction

Chickenpox is a well-recognized viral infection worldwide, caused by varicella zoster virus. It is primarily considered a benign childhood disease and adult infections are not often seen. However, in some cases, it can involve adult population; targeting previously non-vaccinated adults and immune-compromised patients. In adult pox cases, risk of hospitalization and death is significantly increased [1]. Varicella is a highly contagious pathogen that can transfer from one person to another by direct contact, inhalation of aerosols from vesicular fluid of skin lesions and through infected respiratory secretions. An infected individual with varicella can spread the disease starting 1-2 days before rash onset until the varicella vesicles have crusted. The incubation period typically lasts 10 to 21 days from exposure to the virus until developing the disease. This case is unique because it involves an immune-competent, otherwise healthy,

young adult male with history of proper varicella vaccination during childhood. Yet, he developed chickenpox infection from some unknown source in his adult life. Considering the known tendency of markedly increased morbidity and mortality among adult pox cases; on the contrary to childhood varicella; such un-conventional presentations merit reporting to avoid misdiagnoses and /or delayed treatment in routine dermatology clinics.

Case Report

A 37 years old male presented at the dermatology clinic of Primary health center of Riyadh, Saudi Arabia in March 2017; complaining of multiple itchy painful blisters covering his torso, abdomen, head and face (Figures 1-3). He also complained of on/off fever since 2 days reaching up to 39°C. There no apparent ophthalmologic involvement except for a small blister at the

outer canthus of left eye. The patient stated that he had no chronic diseases. After a routine medical examination; (based on the telltale rash and further confirmation with laboratory tests, including blood tests and culture of lesion samples); he was diagnosed as suffering from typical adult chickenpox. He was prescribed Famciclovir 500mg three times daily along with supportive antihistamines and antipyretics. One day after the start of therapy, fever disappeared but blisters remained itchy and painful. Four days later, almost all blisters were scaling and dropping off. Within a week on therapy, the blisters changed in color and were not painful or itchy. Upon 2 weeks follow up appointment, there were only a few hyper-pigmented spots in old blister areas.



Figure 1



Figure 2



Figure 3

Discussion

Chickenpox is a highly contagious airborne illness spreading through sneeze, cough or contact with an infected person's blisters. The chickenpox virus can stay dormant in the body for years and reawaken decades later to cause shingles [1]. Early symptoms include malaise, fever, irritability, followed by rash and itchy blisters over the entire body lasting for five to seven days. The illness is usually not severe among children, but risk of hospitalization and death is increased among adults and adolescents (Table 1). A retrospective review of the existing anonymous surveillance records and registries of chicken pox cases at the preventive medicine department of Armed Forces Hospital of the Southern Region of Saudi Arabia from 2007 to 2012 demonstrated a seasonal pattern, with peak in March and April. A decreasing trend was observed from 2007 to 2012 and most cases occurred in the 4–15 years age group with male preponderance. However, adult pox cases were not recorded [2].

Table 1: Comparison of the adult vs. child outcomes of chickenpox cases [3].

	Mortality		Mortality		p Value
	%	N	%	N	
Patients with complications	36	1.2	1.2	1.7	0.26
Skin infection/cellulitis	16	0.5	0.5	0.5	0.87
Pneumonia	9	0.3	0.3	0.9	0.03
Bacteremia	5	0.2	0.2	0.1	0.77
Encephalitis	2	0.07	0.07	0.2	0.17
Necrotizing fasciitis	4	0.1	0.1	0	–
Neonatal varicella	2	0.07	0.07	0	–
Others	3	0.1	0.1	0.4	0.09
Hospitalization	51	1.7	1.7	3.3	0.004
Mortality	1	0.03	0.03	0.1	0.32

According to the NHS department of UK, chicken pox has no cure and treatments are usually aimed at relieving symptoms and maintaining adequate hydration. NHS recommends antipyretics like Paracetamol to manage fever and pain relief and antihistaminics like chlorpheniramine to soothe itching skin. Antiviral medicine- Aciclovir (started within 24 hrs of rash and taken five times a day for a week) should be used in severe cases and vulnerable groups like elderly, pregnant women, children and immunocompromised individuals. It doesn't cure chickenpox, but makes the symptoms less severe. Immunoglobulin is a treatment given by injection to help prevent severe chickenpox among those recently exposed to someone with the infection but who have not developed any symptoms yet. It is sometimes given to pregnant women, people with weakened immune system and newborn babies who have been exposed to the chickenpox virus and haven't had the infection before.

Vaccination is the best known protection against chickenpox. Immunity from vaccine is long-lasting and possibly permanent in most people. But during recent years, new cases of adults

developing the disease have been reported [2,3]. Such adults are more likely than children to die or have serious complications if they get chickenpox during later life [4]. In Saudi Arabia, the epidemiology of chickenpox is distinctive in several ways. Firstly, the number of reported adult cases have increased during the past three years as per the Ministry of Health (MOH) Reportable Diseases Report with an overall prevalence of 322 cases/1,00,000 population showing an overall 33% increase. Secondly, updated reports within Saudi Arabia demonstrate a 16–25% adult chickenpox cases out of which, 15–20% are sero-negative [5]. This represents a high susceptibility for recurrent infection among adults, and subsequently higher morbidity and mortality. Even though the risk increases manifold in immunocompromised states; the prospect of potentially fatal complications developing among a staggering number of immune-competent adults is too big to ignore [6,7].

Skin and soft tissue lesions most commonly lead to Pox related complications; accounting for half of the cases of secondary bacteremia, necrotizing fasciitis and streptococcal toxic shock syndrome. Pneumonia was the second most common complication reported among chickenpox infected adults, than in children [7]. A recent study in National Guard hospital of Riyadh, KSA showed male predominance among adult pox cases; specially aged 45 years or above. There were seasonal peaks observed during the months of March to June [5]. Interestingly, all adult patients with pox who developed complications were healthy with no major underlying disease. The case reported herein developed typical but uneventful stages of the disease process and finally recovered after being prescribed timely anti-viral management with famciclovir.

Statistics indicate that complication (130/10,000) and hospitalization (205/10,000) rates of chickenpox in Saudi population are higher than those reported in other countries; even though the nature of complications are quite similar [8,9]. Evidently, reasons for high complication and hospitalization rates in Saudi can be ascribed to the high number of affected adults living in non-temperate, arid zones which seems to favor the spread of virus as compared to other developed countries with temperate climates. The pox reporting system in Saudi Arabia is prone to loopholes; it is majorly dependent on physician compliance and only cases voluntarily seeking active medical attention are reported; and that too, not always. This evidently translates into an incomplete reflection and under reporting of mild to moderate cases, which do not come to medical attention. Further-more, Saudi mortality rate of 1 in 1900 is considerably higher than rates of developed countries like England, Wales, Canada and USA where it is 1 in 29,000 [3,8]. Underlying reasons could be attributed to late detections, lack of proper management and follow-up and under-reporting of infected cases. Overall, there is little information from developing countries on the disease burden and the actual impact of its complications. Economically and socially, the disease burden could very well

be similar or even higher in Saudi Arabia because the rate of complications and hospitalizations are substantially higher here as per the recent MOH report [5].

General Physicians, who form the first level primary health care givers of Saudi Arabia should be alerted to the rising frequency of late onset chickenpox among adults; its complications and the recognition of Group A beta hemolytic streptococcal infections in patients with chickenpox. Systemic antiviral therapy is particularly indicated in patients beyond the age of 50 years and in patients with herpes zoster or other complications. Systemic antiviral therapy can effectively accelerate the healing process of acute herpes zoster, alleviate pain and reduce risk of acute/ chronic complications. The therapeutic advantage is particularly great when medication is started within 48h to 72h of rash onset. Hence the benefits of prompt diagnoses of the condition are too significant to be ignored. In Saudi Arabia, live attenuated vaccine for varicella is not routinely incorporated into the recommended childhood immunization program. Chickenpox among adults often spreads to children of the family of those adults (as happened in our case too, where the father reported here transmitted secondary infection to his infant daughter).

Conclusion

The epidemiology of chickenpox complications needs to be reevaluated, with serious re-consideration into promoting universal varicella vaccination program in Saudi Arabia. Thus, from a public health perspective, varicella and varicella complications in Saudi Arabia are significant enough to prompt designing a disease outbreak notification system. Widespread use of varicella vaccination is highly recommended. In conclusion; the routine Varicella vaccine could prove essentially more impactful in Saudi Arabia than was previously assumed. We recommend a future studies on the severity of chicken pox infection among adults (hospitalization, complications, and death) and a national survey recording the sero-prevalence of markers of infection with varicella zoster.

Conflict of Interest

None declared

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