

Pearl Skin Disease Comprehension among University of Baghdad Students

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Abstract: Background: Pearl skin disease is a self-limited infectious dermatosis, frequent in pediatric population, It is caused by molluscum contagiosum virus is transmitted mainly by direct contact with infected skin. Clinically, the disease presents as firm rounded papules, pink or skin-colored, with a shiny and umbilicated surface. **Objective:** The aim of this study is to determine the awareness regarding pearl skin disease among a sample of educated Iraqi subjects. **Methods:** The study carried out an educated population-based survey using a specific questionnaire at 2018. The sample included 120 educated adults (25 males and 95 females) in University of Baghdad. **Results:** The results of this study highlights that the public awareness of Molluscum contagiosum disease among educated Iraqi students was high about general information of disease, significant association was found between gender (females) knowledge and the clinical signs of the disease as well as significant association was found between the education level (under graduated students) and clinical signs. **Conclusion:** This study concluded that the awareness of pearl skin disease among the educated category of Iraqi citizens is acceptable, nevertheless; a large scale study among another sample of the society such as housewives, barbers and primary health workers are required and recommended.

Keywords: Pearl Skin Disease, Molluscum contagiosum, Health Comprehension

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I. Introduction

Pearl skin disease or mollusca is a common and contagious viral skin disease caused by *Molluscum contagiosum* which is a childhood viral cutaneous infection, spontaneous healing is usually occur among individuals with intact immune system, although it can be last for few months [1-2]. It was described first by Bateman in 1817 and its infectious nature demonstrated by Paterson in 1841 [3]. *Molluscum contagiosum* is caused by poxvirus of the *molluscipox* genus in the Poxviridae family [4]. *Molluscum contagiosum* virus (MCV) is double stranded deoxyribonucleic acid (DNA) virus with a large brick-shaped, 200 to 3000 nm in length [5]. MCV has 4 major subtypes, the most common subtype is MCV-1 with (75 to 96% of cases), followed by MCV-2, MCV-4, and MCV-3 [6]. Pediatric infection is caused by MCV-1; meanwhile the MCV-2 affects teenagers and adults mainly by sexually transmission route and its accounts for approximately 60% of MCV infections in patients with human immunodeficiency virus (HIV) [7, 8].

Epidemiologically, *Molluscum contagiosum* occurs worldwide, commonly in areas with tropical and humid climates, which affects only humans [1, 9-10]. It accounts for approximately 1% of all estimated diagnosed dermatological conditions [7, 11]. The average annual rate of *Molluscum contagiosum*-associated outpatient visits was 20.15 per 10,000 American Indian and Alaska Native persons [12]. *Molluscum contagiosum* is rare in children under one year of age and most commonly occurred in preschool and elementary school aged children, the gender ratio is approximately equal [12-13, 1-2]. *Molluscum contagiosum* is associated with poverty, poor hygiene, and over-crowded conditions, it is transmitted by close physical contact, autoinoculation (via rubbing or scratching), occasionally with contaminated fomites (e.g., clothing, bath sponges, towels), especially if the skin is wet [14, 1, 9]. In adults, the disease is spread mainly by sexual contact, by tattoos [15], and swimming in community swimming pools has been implicated as a source of infection [16, 12]. Vertical transmission from mother to infant has also been reported, although it is not common [17] and accounts for the majority of *Molluscum contagiosum* cases seen in the first 6 weeks of life [6, 13]. MCV infection may occur during delivery via an infected birth canal or via an ascending infection after premature rupture of membranes [7, 13, and 17].

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Molluscum bumps usually appear 2 to 6 weeks after viral exposure (incubation period), typically presents as discrete, smooth, firm, waxy papules with characteristic central dell or umbilication from which a plug of cheesy material which contains dead epithelial cells and virus particles can be expressed [18, 1-2]. The color can be pearly white, yellow, flesh-colored, translucent, pink or red (especially when irritated). In children, lesions most commonly affect the extremities (particularly the intertriginous areas), trunk, and less commonly, face [19]. In adults, lesions are more common on the lower abdomen, upper thighs, pubic area, anus, and genital area [8, 20]. They often appear in clusters or in a linear pattern (e.g. autoinoculated) [21]. The lesions are usually asymptomatic but may sometimes itch or become irritated [12]. In congenital cases, the lesions appear in a halo-like ring around the scalp [22]. At point of regression, the lesion may appear inflamed characterized by erythema and swelling, a finding which signifies pending resolution of the lesion [6, 23]. In individuals with immunodeficiency, the lesions can be extensive and of a large size [24, 25].

II. Materials and Methods

One hundred twenty questionnaires were distributed to collect the data about the knowledge of pearl skin disease among the students of the University of Baghdad. Data of this study were collected from September to December 2018. Likert scale procedure was used to determine the knowledge of pearl skin disease in this study.

Demographic and Socio Characteristics

The survey includes many socio-demographic questions, of which the following are used in the present work: gender (male, female); age group (<25, 26-35, and >35 years); educational level (secondary=high school students under graduated=students at Bachelor level and post graduated=students at MSc and PhD level).

Pearl Skin Disease Comprehension

The questions included nine short questions determined by answer “Strong Agree”; “Agree”; “Natural”; “Disagree” and “Strong Disagree.” This nine short item form was constructed to survey pearl skin disease status among students in University of Baghdad. The questions were designed for record the personal information of study sample includes four axes about pearl skin disease: (1) General information about the disease; (2) Modes of transmission; (3) Disease clinical signs and symptoms and (4) Disease Control.

Statistical Analysis

Statistical significance was analyzed by using of SPSS v25 software program. Normality test, Descriptive statistics and significance level were calculated for gender, age, educational level and occupation.

III. Results and Discussion

One hundred twenty of educated Iraqi subjects were participated in this survey. Twenty-five subjects’ represents (21%) of them were male, while 95 females constituted 79%. Regarding age group; the highest level was among the age group (<25 represent 81%). The 67% of the subject were under graduated student (Table 1).

Table 1: Demographic data of study sample (n=120 subject)		
Demographic data	No	%
Gender		
Male	25	21%
Female	95	79%
Age group		
<25	97	81%
26-35	20	17%
>35	3	2%
Educational level		
Secondary	4	3%
Under graduated	80	67%
Post graduate	36	30%

Regarding the general information about the disease; the highest percentage of the participant in the survey aware that the virus is the causative agent of the disease (53%), and it is contagious (47%). Highest level were familiar that the disease if infect skin (51%) and it appear mainly on face, neck and extremities (45%). Twenty-one percent strongly agree that transmission mode by direct contact with patients. For the disease control (42%) of participant agrees to not use the patient’s tools or kiss him (Table 2).

Table 2: Percentage response to statements about awareness of Pearl Skin Disease (N=120)

Statement	Strong Agree	Agree	Natural	Disagree	Strong Disagree	Total
General Knowledge of Pearl Skin Disease						
1. Do you hear about pearl skin disease	15 (13%)	37 (31%)	40 (33%)	17 (14%)	11 (9%)	120 (100%)
2. Is the disease caused by a virus	19 (16%)	64 (53%)	22 (18%)	10 (8%)	5 (4%)	120 (100%)
3. Is the disease contagious	25 (21%)	56 (47%)	25 (21%)	9 (7%)	5 (4%)	120 (100%)
The disease clinical signs and symptoms						
4. The disease is a harmless skin infection but causing skin deformation	22 (18%)	61 (51%)	18 (15%)	15 (13%)	4 (3%)	120 (100%)
5. Presents as discrete, smooth, firm, waxy papules on skin	42 (35%)	53 (44%)	16 (14%)	6 (5%)	3 (2%)	120 (100%)
6. The Papules appear on face, neck, extremities and genital organs	22 (18%)	54 (45%)	33 (28%)	8 (7%)	3 (2%)	120 (100%)
Transmission Mode of the Disease						
7. Transmission mode by direct contact with patients	25 (21%)	57 (47%)	15 (13%)	18 (15%)	5 (4%)	120 (100%)
Disease Control						
8. Do not use the patient's tools OR kiss him	43 (36%)	50 (42%)	20 (17%)	5 (4%)	2 (1%)	120 (100%)
9. Health awareness should spread among Barbers	66 (55%)	39 (33%)	10 (9%)	3 (2%)	2 (1%)	120 (100%)

Table (3 and 4) revealed that, there was no significant association between gender and age group and general knowledge of the disease; the highest level were females represents (29%) with age group (<25 years; represents 27.9%); (P=0.262; P=0.235 respectively). These results may be due to the small size of the collected data throughout this survey. Kyriakiset *al.* (2010); carried out an 8-year comparative study on 50,237 consecutive, self-referred, Greek patients aged 35 days to 96 years diagnosed in a general state hospital dermatology teaching clinic and found that approximately 60% of cases occurred in individuals less than 20 years of age [11]. In a study by Olsen *et al.* (2014), a systematic review of eight articles (n = 12,627) that reported the prevalence of *Molluscum contagiosum* found that an overall reported prevalence in the pediatric age group between 5.1% and 11.5% [12].

Table 3: Association of Gender with answers for the statements about pearl skin disease regarding general knowledge of the disease (n=110).

		Strong agree	Agree	Natural	Disagree	Strong disagree	Total	
Gender	Male	Count	5	4	7	2	1	19
		% of Total	4.5%	3.6%	6.4%	1.8%	0.9%	17.3%
	Female	Count	8	31	32	12	8	91
		% of Total	7.3%	28.2%	29.1%	10.9%	7.3%	82.7%
Total	Count	13	35	39	14	9	110	
	% of Total	11.8%	31.8%	35.5%	12.7%	8.2%	100.0%	
Chi-Square	0.262	Significant level P≤0.05						

Table 4: Association of age group with answers for the statements about pearl skin disease regarding general knowledge of the disease (n=111).

		Strong agree	Agree	Natural	Disagree	Strong disagree	Total	
Age	<25	Count	9	30	31	13	9	92
		% of Total	8.1%	27.0%	27.9%	11.7%	8.1%	82.9%
	26-35	Count	4	5	8	0	0	17
		% of Total	3.6%	4.5%	7.2%	0.0%	0.0%	15.3%
	>35	Count	0	0	1	1	0	2
		% of Total	0.0%	0.0%	0.9%	0.9%	0.0%	1.8%
Total	Count	13	35	40	14	9	111	
	% of Total	11.7%	31.5%	36.0%	12.6%	8.1%	100.0%	
Chi-Square	0.235	Significant level P≤0.05						

Meanwhile (Table 5); revealed strong significant association between gender and the disease clinical signs and symptoms ($P=0.002$). About (46%) of participants agrees that the clinical signs were clear and not be confused with other skin diseases. The most characteristic sign presents as discrete, smooth, firm, waxy papules with characteristic central dell with a plug of cheesy material. The result agrees with Maet *et al.*, (2015), that statethat; the diagnosis is predominantly clinical as discrete, smooth, flesh-colored, dome-shaped papules with central umbilication are pathognomonic. A magnifying lens or dermoscopy aids visualization of the central umbilication which may not be obvious to the naked eye which affects the face, neck and extremities, they often appear in clusters or in a linear pattern [26]. On the other hand; Zawaret *et al.*, (2016) describe a novel manifestation of the lesion as rarely, a pale, hypopigmented halo ring (Woronoff ring) around *molluscum contagiosum* lesions called (halo phenomenon) [27].

Table 5: Association of gender with answers for the statements about pearl skin disease regarding disease clinical signs and symptoms (n=112).

		Strong agree	Agree	Natural	Disagree	Strong disagree	Total	
Gender	Male	Count	6	6	4	1	3	20
		% of Total	5.4%	5.4%	3.6%	0.9%	2.7%	17.9%
	Female	Count	34	45	10	3	0	92
		% of Total	30.4%	40.2%	8.9%	2.7%	0.0%	82.1%
Total	Count	40	51	14	4	3	112	
	% of Total	35.7%	45.5%	12.5%	3.6%	2.7%	100.0%	
Chi-Square	0.002		Significant level $P \leq 0.05$					

In regards to the association between the education level and the awareness about pearl skin disease, there was a strong significant association ($P= 0.027$) especially among the under graduate students (41.2%) followed by (13.2%) among the post graduate students as showed in (Table 6), which may indicated there is an acceptable awareness among the educated students and a rise of awareness among other society citizen is required; follow up study are needed to investigate the pearl skin disease comprehension among barbers as example is recommended.

Table 6: Association of educational level with answers for the statements about pearl skin disease (n=114).

		Strong agree	Agree	Natural	Disagree	Strong disagree	Total	
Education	Secondary	Count	0	1	1	0	1	3
		% of Total	0.0%	0.9%	0.9%	0.0%	0.9%	2.6%
	Under graduate	Count	9	47	15	5	2	78
		% of Total	7.9%	41.2%	13.2%	4.4%	1.8%	68.4%
	Post graduate	Count	8	15	6	4	0	33
		% of Total	7.0%	13.2%	5.3%	3.5%	0.0%	28.9%
Total	Count	17	63	22	9	3	114	
	% of Total	14.9%	55.3%	19.3%	7.9%	2.6%	100.0%	
Chi-Square	0.027		Significant level $P \leq 0.05$					

IV. Conclusion

Molluscum contagiosum is a common cutaneous viral infection that is most common in preschool and elementary school-aged children. A good comprehension regarding the disease general information was noticed and public health awareness of clinical signs of the disease among educated under graduated students of University of Baghdad was registered. A large scale study among another sample of the society such as housewives, barbers and primary health workers are required and recommended.

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