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A study on the correlation between molluscum contagiosum and atopic dermatitis in children

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Abstract
Background: Although no scientific evidence has yet been published, it is widely understood that molluscum contagiosum tends to be more common and more severe in patients with atopic dermatitis. This lack of evidence encourage us to conduct the present study.
Objective: To assess the frequency of atopic dermatitis among children with molluscum contagiosum and age and sex matched control group. Also to compare different clinical aspects of molluscum contagiosum between those with and without atopic dermatitis.
Patient and Methods: This was acase control study conducted in Alyarmouk teaching hospital department of dermatology and veneriology during the period from January 2014 to June 2014. Total of 100 patients with molluscum contagiosum were enrolled in the study their ages range from 6 months – 12 years. The frequency of atopic dermatitis among them was measured and compared with 200 healthy control age and sex matched group. Different clinical aspects of molluscum contagiosum were studied and compared between those with and without atopic dermatitis.
Results: There was no statistically significant difference in frequency of atopic between patients with molluscum contagiosum and control 8 (8%) of those with M.C has A.D and 92(92%) were not while 7 (3.5%) of control had A.D (p value=0.096).comparing different aspects of molluscum contagiosum between those with or without atopic dermatitis reveals that there was no statistically significant difference regarding secondary infection, recurrence of molluscum contagiosum and number of lesions (p value 0. 409,0.238,0.133). However there was a significant difference regarding surrounding, pruritis which were more in those with atopic dermatitis (p value 0.002 and 0.001 respectively).
Conclusion: Atopic dermatitis neither tends to increase the risk of development of molluscum contagiosum nor its severity.

Keywords: dermatitis, risk, pruritis

Introduction: Molluscum contagiosum (M.C)

Molluscum contagiosum is a viral tumor limited to humans and caused by DNA containing pox virus, the largest virus known, four subtypes exist with a high level of relatedness (M.C.V I – IV).

M.C has no close viral relatives, unlike variola, the infection is usually indolent, mild, asymptomatic and almost always confined to skin [1]. The virus can be cultured on both human epidermis and amnion epithelium and has been transmitted experimentally to human volunteers by injections of viral filterate into the skin [2]. MCV is a brick shaped particle, approximately 100-300nm,which replicates in aggregates within the cytoplasm of infected cells it may be seen in all layers of infected epidermis, but replication propabaly occurs in more differentiated cell layers. The disease is contracted from other people by direct contact or through fomites such as bath sponges and towels and by auto inoculation. Swimming pool out breaks have been reported. Estimate of incubation period ranges from 2 weeks to 2months. MC lesions were formerly found in children primarily on face and trunk, but they are also being seen very commonly in the pubic area and genitalia of sexully active young adults [2]

Clinical features

Lesions are discrete, non tender, flesh-colored, dome-shaped papules that show a central umbilication (which is more apparent when the lesion is frosted with liquid nitrogen). Lesions are usually 2-5 mm (rarely up to 1.5 cm in the case of giant molluscus) in diameter and may be present in groups or widely disseminated. Immunocompetent children and adults usually have fewer than 20 lesions. Larger lesions may have several distinct clumps of molluscum bodies. Beneath the umbilicated center is a white, curdlike core that contains molluscum bodies.

Some lesions become confluent to form a plaque (agminateform), Lesions may be located anywhere; however, a predilection for the face, trunk, and extremities is observed in children and a predilection for the groin and genitalia is observed in adults. Lesions are seldom found on the palms and are rarely documented on the soles, oral mucosa, or conjunctiva.

Distribution is influenced by the mode of infection, type of clothing worn, and climate. In sexually active individuals, the lesions may be confined to the penis, pubis, and inner thighs. Widespread and persistent molluscum.contagiosum may occur in patients with AIDS and may be the presenting complaint. Pseudocystic molluscum contagiosum, giant molluscum contagiosum, and M.C associated with other lesions are responsible for frequent clinical misdiagnosis [3].

Other characteristics of M.C to consider include the following

- Intertriginous areas - Hundreds of lesions may develop in intertriginous areas such as the axillae and intercrural region.
- Atopic dermatitis - Patients with atopic dermatitis occasionally develop large numbers of lesions, which are confined to areas of lichenified skin

- Eczema - Approximately 10% of patients develop eczema around the lesions, with this being attributed to toxic substances produced by the virus or to a hypersensitivity reaction to the virus; eczema that is associated with molluscum lesions subsides spontaneously following removal.

Inflammatory changes - These result in suppuration, crusting, and eventual resolution of the lesion; this inflammatory stage does not usually represent secondary infection and seldom requires antibiotic therapy. Disfiguring lesions may occur in immunocompromised patients, Spontaneous resolution generally occurs by 18 months in immunocompetent individuals [3]; however, lesions have been reported to persist for as long as 5 years. In healthy patients, treatments are usually effective, although lesions can be disfiguring and may produce anxiety in the patient, family, and daycare facility or school. Recurrences occur in as many as 35% of patients after initial clearing. The significance of these recurrences is unknown. They may represent reinfection, exacerbation of ongoing disease, or new lesions arising after a prolonged latent period [3].

Atopic dermatitis

Atopic dermatitis is a difficult condition to define because it lacks diagnostic test and shows variable clinical features. The following definition seems to be in accord with most consensus groups. Atopic dermatitis (which is synonymous with atopic eczema) is an itchy, chronic, or chronically relapsing, infammatory skin condition. The rash is characterized by itchy papules (occasionally vesicles in infants) which become excoriated and lichenified, and typically have a flexural distribution. The eruption is frequently associated with other atopic conditions in the individual or other family members [4, 5].

Patients & Methods

A case control study was conducted at Alyarmouk teaching hospital at the dermatology outpatient clinic during the period from January 2014 and June 2014.Atotal of 100 patients with mollusum contagiosum were enrolled in the study their ages range from 6 months to 12 years, the diagnosis of molluscum contagiosum was on clinical bases. The frequency of atopic dermatitis was compared between patients with and those without MC. The following criteria were compared between patients with M.C plus A.D and those with M.C only. Nummber of M.C lesions, number of sites affected, previous treatment, presence of pruritis, history of contact and recurrence. Patients with lesions that resembeled but not typical of mollusum contagiosum or atopic dermatitis and patients with primary or secondary immunedeficiency were excluded from the study. The diagnosis of atopic dermatitis was according to Hanifin and Rajka criteria by collecting 3 major and 3 minor criteria. Asample of 200 age and sex matched group was enrolled as acontrol group, the frequency of atopic dermatitis was assessed in this group. Descriptive statistics was done for all groups, comparative statistic was done between patients with M.C. only and those with M.C plus atopic dermatitis. Different clinical aspects of M.C were included in this comparison. Statistics was done using Chi sqaure -test and ANOVA test.

Results

A total of 100 children with molluscum contagiosum (MC) and 200 controls without MC were included in this study. Both groups were matched regarding gender and age group (p value= 0. 369 and 0.217 respectively). Eight (8%) patients of those with MC had atopic dermatitis and 92 (92%) were not, while 7 (3.5%) of controls had atopic dermatitis. The difference between the disease and control groups was not significant.

Descriptive statistics

Forty six (46%) children of those infected by MC were males and 54 (54%) females. Most affected age group was those between 5-8 years. Fifty six (56%) children their ages between 5-8 years, 27 (27%) between 9 to 12 years and 17 (17%) less than 4 years. Twenty three (23%) children had pruritus at site of lesions. Eighty nine (89%) children had no treatment, 2 (2%) treated by cautery, 6 (6%) by curettage and 3 (3%) by topical medication. Seventy (70%) children had only one site affected (was the face), 15 (15%) two sites, 14 (14%) three sites and one (1%) had four sites affected. Fifty four (54%) children had 1- 5 lesions, 30 (30%) had 6-10 lesions and 16 (16%) had more than 10 lesions. History of recurrent infection with molluscum contagiosum was reported in 12 (12%) children and 78 (78%) had history of contact.

Comparative statistics

Comparing differenent variables between patients with M.C only and those with M.C plus atopic dermatitis show the following.

Gender had no effect on increasing infection rate with MC in patients with atopic dermatitis in comparison with patients without atopic dermatitis, 41 male (44.6%) and 51(55.4%) female patients with molluscum only and 5 male
(62.5%), 3 female patients (37.5%) with M.C plus atopic dermatitis (p value
0.329). Also, age of the patient had no effects, 14 patients (15.2%) less than 4 years, 53 patients (57.6%) 5-8 years age 25 patients (27.2%) 9-12 years patients with M.C only while 3 patients (37.5%) less than 4 years, 3 patients (37.5) 5-8\ years and 2 patients (25.0%) 9-12 years for patients with M.C plus atopic dermatitis (p values were 0.260). Recurrence of MC, history of contact, secondary infection, and number of MC lesions were not significantly associated with an increased incidence in patients with MC plus atopic dermatitis in comparison with patients without atopic dermatitis. Recurrence was positive in 10 (10.9%) patients with MC only while it was positive in 2 (25%) patients with MC plus atopic dermatitis (p value 0.238).

History of household contact was positive in 72 (78.3%) patients with MC only while it was positive in 6 (75%) patients with MC plus atopic dermatitis (p value 0.831). Secondary infection was positive in 13 (14.1%) patients with MC only while it was positive in 2 (25%) patients with MC plus atopic dermatitis (p value 0.409). Of those infected with MC only, 52 (56.5%) patients had 1-5 lesions, 27 (29.3%) had 6-10 lesions and 13 (14.1%) had more than 10 lesions of MC. While of those patients with MC and atopic dermatitis, 2 (25%) patients had 1-5 lesions, 3(37.5%) had 6-10 lesions and 3 (37.5%) had more than 10 lesions of MC (p value 0.133).

Surrounding eczema, pruritus and previous treatment were significantly associated with an increased incidence of MC in patients with atopic dermatitis in comparison with patients without atopic dermatitis. Surrounding eczema was present

in 4 (50.5%) patients with MC plus atopic dermatitis in comparison with 10 (10.9%) patients in apposite group (p value 0.002). Pruritus was present in 6 (75%) patients with MC plus atopic dermatitis in comparison with 17 (18.5%) patients with MC only (p value 0.001). Four (50%) patients with atopic dermatitis had previous treatment in comparison with 7 (7.6%) patients with MC only (p value 0.001).

Discussion

The concept that the occurrence of molluscum contagiosum is more common inchildren with atopic dermatitis has been widely been divulged, however in daily practice clinical observation suggest that the frequency of molluscum contagiosum is no higher in patients with atopic dermatitis than in those without the disease [6]. There have been some reports on association between M.C. viral infection and atopic dermatitis in which the authors have stated with no scientific bases for doing so, that the frequency and intensity of viral infection is greater in patients with atopic dermatitis [7, 8]. Few studies have presented concrete statistical evidence either confirming or refusing these reports [8]. The scarcity of the studies that have assessed the association between the atopic dermatitis in patients with molluscum contagiosum viral infection lead to the design of present study. In the present study the prevalence of atopic dermatitis in patient with M.C was 8%, and the prevalence of atopic dermatitis in normal control of the same age group was 3.5% p value 0.0 96. The present prevalence is lower than that found by Agromayer *et al*, who reported that 49%of children under 10 years age infected with M.C. had atopic dermatitis [8], nevertheless the characteristic of sample population and or methodology used in our study cannot be compared with other studies in which the frequency of atopic dermatitis was 33.6%,14%,18.2% and 24.2% in patients with M.C (80,4), this higher percentage of atopic dermatitis mentioned in these studies is probably related to higher prevalence of atopic dermatitis in their community. In a previous study the concomitant presence of the two diseases was found only in13.4% of patients included in the study [10]. In addition to that the prevelance of M.C. found in patients with atopic dermatitis in previous studies done was less than 1% and 2.9% [11, 12]. This low prevalence of M.C viral infection among atopic dermatitis and the fact that 92% of M.C. patients in the present study have no atopic dermatitis. Indicate that atopic dermatitis was not more prevelant in patients with M.C. To evaluate the effects of atopic dermatitis in M.C infection certain clinical characteristics of the viral infection were evaluated and cases of infection alone were compared with cases of infection with associated atopic dermatitis. There was no statistically significant difference was found with respect to number of molluscum contagiosum lesions between the group affected soley by M.C. and the group affected by molluscum contagiosum and atopic dermatitis (p=0.133). In daily clinical practice we expect to find more M.C. lesions in patients with atopic dermatitis, this may have failed to occure because the patients with atopic dermatitis had more outpatient's visits, permitting early diagnosis of M.C. Some puplication state that in patients with atopic dermatitis, molluscum contagiosum infection tend to be more extensive and disseminated, however the majority of these studies fail to show statistical data confirming this statement [13]. Regarding number of areas affected, 1 (12.5 %) patient out of eight patients with M.C plus atopic dermatitis had four sites affected while no patient out of 92 patients with M.C. only, had four areas affected also 1(12.5 %) patient out of eight patients with M.C. plus atopic dermatitis had three areas affected while 13(14.1%) patients out of 92 patient with M.C. alone had three areas affected p value 0.269. a previous study which was conducted by Dohil *et al* who reported that 24% of patients of M.C. included in the study also had atopic dermatitis and in 50% of cases more than one area of the body was affected [3]. The cases of M.C.in this study were evaluated and compared with respect to presence of eczema around M.C. papules, associated pruritis and bacterial infections in groups of patients with and without atopic dermatitis. The prevelance of eczema around molluscum contagiousum papules in patients infected by this virus was found to be statistically higher in the groups of patients with associated atopic dermatitis in comparison with patients without atopic dermatitis. Surrounding eczema was found in 4 (50.0 %) patients with molluscum plus atopic dermatitis in comparison with 10(10.9%) patients in apposite group (p value o.oo2). This finding is in agreement with studies published on the subject whose authors report greater predisposition of patients with atopic dermatitis infected by M.C. virus to develop this perilesional reaction [13]. In previous studies the authors compare the frequency of this reaction in patients with and without atopic dermatitis this was conducted in 1996 by Opramolle and Negrao in Brazil who concluded in the study that eczema around M.C. did not appear to be more prevalent in patients with atopic dermatitis infected by the virus [14]. Pruritis in the cases of molluscum contagiosum was also more common in patients with associated atopic dermatitis this difference being statistically significance (p=o.oo1). This finding in agreement with some reports that encountered a higher frequency of pruritis associated with M.C. infection when atopic dermatitis was also present [10]. With respect to the frequency of bacterial infection associated with cases of M.C. virus infection only 13 (14.1%) out of 92 patients with M.C and in 2 out of eight (25%) of patients with associated atopic dermatitis. The prevelance of this complication in previous study was low and there was no statistically significant difference between group of patients with M.C. with atopic dermatitis and the group with M.C alone P value was=0.4O9 in the present study and in other previous studies was 18 .4%versus 8% (p=0.101) [6].

Conclusions

The prevalence of atopic dermatitis associated with molluscum contagiosum was low. There was no statistically significant difference in recurrence rates associated with molluscum contagiosum lesions with and without atopic dermatitis. The presence of surrounding eczema and pruritis were higher in patients with atopic dermatitis there was no significant difference inoccurence of secondary bacterial infection between the groups with and without atopic dermatitis. There was no statistically significant difference in quality and quantity of M.C. lesions in patients with and without atopic dermatitis.

References

1. Gubser Chues, Kellman P, *et al*, pox virus genomes phylogenetic analysis. J Gen virol. 2004; 85(pt 1):105-117.
2. Kenneth Arndt, Jeffreyt S Hsukonyaj, Thompson CH, M.C. virus antibody responces in persons with clinical lesions and sero epidemiology in are present

ativeausralian population manual of dermatological therapeutics, 2007. 7th edition.
3. Dohil MA, Lin P, Lee J, Lucky AW, Paller AS, Eichenfield LF, *et al*. The epidemiology of molluscum contagiosumin children. J Am Acad Dermatol. 2006; 54(1):47-54.
4. Darsow U, Lubbe J, Taïeb A, *et al*., for the European Task Force on Atopic Dermatitis. Position paper on the diagnosis and treatment of atopic dermatitis. J Eur Acad Dermatol Venereol. 2005; 19:286-95.
5. Brown S, Reynolds NJ. Atopic and non-atopic eczema. BMJ. 2006; 332:584-8.
6. Seize MBMP, Lanhez M, Cestari SCP. The correlation between molluuscum contagiosum and atopic dermatitis in children. An Bras dermatol. 2011; 86(4):663-8.
7. Brown J, Janniger CK, Schwartz RA, Silverberg NB. Childhood moluscum contagiosum. Int J Dermatol. 2006; 45:93-9.
8. Smith KJ, Yeager J, Skelton H. Molluscum contagiosum: it's clinical, histopathologic and immunohistochemical spectrum. Int J Dermatol. 1999; 38:664-72.
9. Kakourou T, Zachariades A, Anastasious T, Architectonidou E, GeorgalaS, Theodoridou M. Molluscum contagiosumim Greek children: a case series. Int J Dermatol. 2005; 44:221-3.
10. Agromayor M, Ortiz P, Lopez-Estebaranz JL, Gonzalez-Nicolas J, Esteban M, Martin-Gallardo A, *et al*. Molecular epidemiology of molluscum contagiosum virus andanalysis of the host-serum antibody response in spanish HIV negative patients. J Med Virol. 2002; 66:151-8.
11. Nnoruka EN. Current epidemiology of atopic dermatitis in south-eastern Nigeria. Int J Dermatol. 2004; 43:739-44.
12. Tay YK, Khoo BP, Goh CL. The profile of atopic dermatitis in a tertiary dermatology outpatient clinic in Singapore. Int J Dermatol. 1999; 38:689-92.
13. Pantin P. molluscumcontagiosum. Arch pediatric. 2007; 14:1157-9.
14. Pramolla DVA, negraomssd, derma titepormolluscocontagiosum. J Bras med. 1955; 71:122.30.