

Molluscum contagiosum in Dutch general practice

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SUMMARY

Background. While molluscum contagiosum is considered to be a frequently encountered disease, few data on its incidence are known.

Aim. The objective of this study was to describe the incidence of molluscum contagiosum in Dutch general practice and to assess the importance of venereal molluscum contagiosum.

Method. Data were taken from the national survey of morbidity and interventions in general practice, drawn from 103 practices across the Netherlands, with a study population of 332 300.

Results. The infection appeared to be common in childhood (cumulative incidence 17% in those aged under 15 years); the adult, sexually transmitted, form was rare. Incidence was higher between January and June than between July and December. Cases were unequally divided between recording practices, which is thought to have been caused by the occurrence of small epidemics.

Conclusion. The incidence of molluscum contagiosum in Dutch general practice was found to be 2.4 per 1000 person years. Molluscum contagiosum should still be considered as a mainly paediatric disease.

Keywords: pox virus infections; skin diseases; morbidity; seasonal morbidity; differential diagnosis.

Introduction

MOLLUSCUM contagiosum is a self-limiting, viral cutaneous infection that has traditionally been regarded as a paediatric disease. Treatment with curettage, cryotherapy or electrocautery is considered easy. In the last few decades, it has become recognized that there are two different forms: the commonly known benign skin tumours in children and the sexually transmitted disease seen in young adults. Cobbold and MacDonald saw more patients with venereal than paediatric type molluscum contagiosum in 1970,¹ and suggested classification of molluscum contagiosum as a sexually transmitted disease. Most literature on molluscum contagiosum published since then refers to it as such. The incidence of the venereal form was shown to have increased dramatically from 1966 to 1983 in the United

States of America,² as well as in England between 1971 and 1982.³ Recently, a third group with molluscum contagiosum has been described: patients with the acquired immune deficiency syndrome (AIDS) or other immunosuppressive disorders and patients receiving immunosuppressive therapy.⁴⁻⁷

Even though molluscum contagiosum is commonly considered to be a frequently encountered disease,^{1,5,6} few reliable data on its incidence are available.^{5,6,8} Studies in a general or paediatric population are scarce and not recent.⁹⁻¹³ They tend to describe epidemics, annual attack rates, or prevalence in a relatively small or local population. They frequently originate from warm climates, where the infection seems to be more common than in moderate climates. From general practice, only two brief reports were found.^{14,15}

The aims of this study were to assess the incidence of molluscum contagiosum in Dutch general practice, by age, sex, region, season and degree of urbanization (population size). The hypothesis was that molluscum contagiosum in the general population was still much more common in children than in adults. In the Dutch health care system, general practitioners are the health care professionals that patients, including children, consult first and from whom patients need to be referred to obtain specialist care.¹⁶ Therefore, they are good sources of information for studying morbidity in a general population.

Method

Data were analysed from the Dutch national survey of morbidity and interventions in general practice, carried out by the Netherlands Institute for Primary Health Care (NIVEL) in 1987 and 1988.¹⁷ These data had been obtained from a randomly selected, non-proportionally stratified sample of 161 general practitioners in 103 practices, drawn from all registered Dutch general practitioners. Stratification took place to include a balance of practices across all regions of the Netherlands, and of rural and urban practices. The total practice population consisted of 332 303 patients, census data for whom had been recorded in advance.

The general practitioners were divided into four groups of approximately 40 each. Each group registered every contact between patient and practice during three months consecutively. The four registration periods were April–June, July–September, and October–December in 1987 and January–March in 1988, so that one whole year was covered and possible seasonal variations could be detected. The contacts were recorded on a specially designed contact registration form, on which were noted reasons for encounter, diagnoses and associated interventions. Reasons for encounter and diagnoses were subsequently coded, in accordance with a modified version of the *International classification of primary care*.

The national survey was based on an episode-oriented registration of morbidity, which meant that different consultations concerning the same health problem were linked to one episode of care. This enabled an accurate estimate of the incidence because provisional diagnoses were crystallized out into ultimate diagnoses. In the analysis only episodes in which the last diagnosis of the episode was molluscum contagiosum (*ICPC* subcode number S76.2) were considered.

In calculating incidence rates, the number of new episodes was

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used, the first consultation of which had taken place within the registration period. This number was divided by the total number of person years, that is, the period during which the patients were within the age group at risk multiplied by the number of patients.

The probability of a child visiting the general practitioner for molluscum contagiosum at least once before the age of 15 years, was calculated by conversion of the age-specific incidence rates into the cumulative incidence at age 15 years. The underlying assumption was that incidence rates are constant over time within each age category.¹⁸

Whenever possible, a distinction was made between venereal and non-venereal infection, by interpreting the registered localization of the lesions or the differential diagnosis.

Results

There were 236 episodes of molluscum contagiosum in the study year, of which 202 were new episodes. There were 271 consultation for the condition, thus the majority of episodes consisted of just one contact. Female patients accounted for 97 of the 202 new episodes (48.0%) and male patients for 105 (52.0%).

The number of new episodes and incidence in each age group are shown in Table 1. The majority of cases were recorded between the ages of six and 10 years. The difference in incidence between males and females was not statistically significant. This equal distribution among sexes was the same in any age group. The cumulative incidence up to the age of 14 years was 168 per 1000 children. This indicates that one out of six Dutch children aged 15 years have visited their doctor for molluscum contagiosum at least once in their life.

Eleven of 202 new episodes (5.4%) were recorded in patients aged 15 years and over, of which at least two and at most six can be considered to be the venereal form. This means that sexually transmitted molluscum contagiosum accounted for 1%–3% of all cases of molluscum contagiosum.

The incidence rates of molluscum contagiosum, by season, region, and degree of urbanization, are shown in Table 2. Of these three characteristics, region was the most distinguishing factor.

Forty one practices had made no diagnoses of molluscum contagiosum while 21 practices had each diagnosed one case (incidence of 1.4 per 1000 person years). Two or three cases had been diagnosed in 24 practices (2.8 per 1000 person years) and 17

Table 1. Incidence of molluscum contagiosum, by age.

Age (years)	No. of new episodes	Incidence (per 1000 person years)
0	0	0
1	7	6.2
2	16	15.2
3	10	9.5
4	8	7.7
5	15	14.4
6	24	22.8
7	22	21.1
8	25	24.4
9	19	18.8
10	25	25.0
11	7	6.8
12	6	5.8
13	3	2.7
14	4	3.3
15–24	7	0.5
>24	4	0.1
Total	202	2.4

Table 2. Incidence of molluscum contagiosum by season, region and degree of urbanization.

	Incidence (per 1000 person years)
<i>Season</i>	
April–June	2.8
July–September	1.9
October–December	1.8
January–March	3.3
<i>Region</i>	
North ^a	1.0
South ^b	2.7
Centre ^c	3.2
<i>Urbanization (population)</i>	
<30 000	2.3
30 000–50 000	2.5
>50 000	2.6

^aGroningen, Friesland and Drenthe. ^bNoord-Brabant and Limburg. ^cAll other provinces.

practices had each diagnosed four or more cases (incidence of 5.7 per 1000 person years). Of the four practices that had recorded 58 cases altogether, three were situated in the central and one in the southern region.

Discussion

The differential diagnosis of molluscum contagiosum includes keratoacanthoma, viral warts, granuloma and basal cell carcinoma. However, the condition is considered to be easily recognizable,^{5,6,8} especially when multiple lesions are present. In the present study, diagnoses were usually made on clinical grounds, laboratory tests not being performed.

In a literature search, two brief reports on the incidence of molluscum contagiosum in general practice were found: in a large general practice in Belfast, Steele found four cases of molluscum contagiosum out of 2409 consultations,¹⁴ which represented 2% of all dermatological cases. In the Hague, the Netherlands, Relyveld and colleagues found an incidence of four per 1000 patients per year, with a peak incidence between the ages of five and nine years.¹⁵ Having been carried out in a big city, this study is not representative of rural areas; however, its result is comparable with the present findings.

No cases in children aged less than one year were observed in the study, which is in accordance with the international literature. This may reflect a passive immunity against the molluscum contagiosum virus that infants have obtained by maternal antibodies, or may indicate a long incubation period.¹⁰

The hypothesis that in general practice the paediatric type is more common than the venereal type of molluscum contagiosum, is strongly supported by the results: only between one and three per cent of the cases were of the venereal type. There are some limitations on the importance of this finding. First, the general practitioner may not recognize the genital pearly papules as molluscs. Secondly, a number of patients may be absent from these data because in the case of venereal disease, a Dutch patient can attend an outpatient department for sexually transmitted diseases directly without the need for prior referral from the general practitioner. No reliable incidence rates can be obtained from these clinics as molluscum contagiosum is not a reportable disease. The number of missing patients can be estimated to be small because the expected number of cases of venereal molluscum contagiosum occurring in the study population is 2.5 (calculated from the incidence per 100 000 of the population derived from English sexually transmitted disease clinics in 1982¹⁹)

which is not higher than the actual number of two to six seen in the present study. That some dermatologists see relatively more cases of the venereal form than general practitioners might be explained by the probability that adults with molluscum contagiosum are more likely to be referred than children, and because of patients' direct attendance at outpatient departments for sexually transmitted diseases.

Several studies have associated molluscum contagiosum with various non-sexual modes of transmission: wrestling,²⁰ swimming,^{10,13} intra-familial spread,^{9,10} and sharing of towels.²¹ Cultural differences may thus contribute to reported differences in incidence rates, peak ages, and sex distributions between countries. The finding that the incidence and prevalence in warmer climates are higher, and peak incidence is at a younger age than in cooler climates, is consistent in all studies. The peak incidence at ages six to 10 years found here is comparable with that of ages 10 to 12 years found in Scotland,¹⁰ eight years in Japan,¹³ and a mean age of six years in Alaska,⁹ all in contrast with peak incidences at ages two to four years in Fiji, New Guinea and Congo.^{10,12,22} The common explanation is that in these warmer countries transmission of the infection is facilitated by the moist conditions that are favourable to the virus,²¹ as well as by the lightweight clothes and consequent easy skin-to-skin contact.⁶ The finding that in the Netherlands the disease was encountered most in winter seems to be contradictory to this view. However, one has to consider the incubation period of the infection, which is not known precisely: estimates vary between two weeks and six months.⁶ Assuming the longer incubation period to be correct would make this seasonal trend in incidence understandable.

The equal sex ratio found in the present study is in contrast to that in studies from Japan, Alaska and Fiji, where boys were affected more often.^{9,10,13} However, neither in New Guinea, nor in the Hague,^{12,15} were sex differences found. The most probable explanation is that between different countries and years, habits that are associated with the spread of the infection, such as swimming, are different for each sex.

The threefold difference in regional incidence is particularly striking, as neither climatic nor cultural differences between the three regions in the Netherlands play a considerable role. An important demographic feature of the northern region, its relatively low population density, cannot be the cause, because the degree of urbanization is not correlated with incidence. It may be that the skew in distribution of cases among practices brought about this result. In the past, several reports have been published on the occurrence of molluscum contagiosum in epidemics.^{9,20,23} A few small epidemics of molluscum contagiosum may thus have caused the major regional differences in incidence found here.

This is the first study on the epidemiology of molluscum contagiosum in a large, national general practice population. Because molluscum contagiosum is not common, significant data on its incidence are difficult to obtain from small or local study populations. The main conclusions of this study are that the incidence of molluscum contagiosum in the Netherlands is 2.4 per 1000 person years, with a peak incidence between the ages of six and 10 years; the disease affects both sexes equally. Molluscum contagiosum is a mainly paediatric disease, the sexually transmitted form is uncommon. The incidence is higher between January and June than between July to December. Cases are unequally distributed among practices, possibly caused by small epidemics.

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