Housewife onycholysis

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ABSTRACT

Objectives: The aim of this study was to evaluate the clinical and microbiological aspects of onycholysis in Iraqi housewives.

Methods: One hundred housewives with onycholysis of the finger nails were evaluated clinically in the Department of Dermatology and Venereology, Baghdad Teaching Hospital, Baghdad, Iraq between October 2002 to March 2003. Swabs were taken from those patients for microbiological evaluation in the Department of Microbiology, College of Medicine, University of Baghdad, Baghdad, Iraq. All cases with skin disorder related systemic diseases like anemia, hypothyroidism and drug intake like minocycline, oral contraceptives were excluded from the study.

Results: One hundred housewives with onycholysis were enrolled in the study. Their ages ranged between 17-70 years with a mean of 41.96 ± 12.57 years. Married females were 89 (89%), while unmarried females were 11 (11%). The site of involvement was mainly the thumb (76%) followed by the ring finger (12%), the index (7%), little (6%) and middle (5%) fingers. The pattern of onycholysis was distal in 47 (47%), lateral in 30 (30%) and both distal and lateral in 23 (23%) of the patients.

Conclusions: Onycholysis is a major problem among Iraqi housewives, most probably caused by repetitive mechanical, chemical and physical trauma; therefore, special preventive measures should be undertaken to minimize the incidence of the disease. Housewives should be encouraged to use preventive measures like using gloves and washing machines.

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Onycholysis is a painless separation of the nail plate starting at the distal free margin and progresses proximally. The nail plate is separated from the underlying or lateral supporting structures.[1] Less often, separation of the nail plate begins at the proximal nail and extends to the free edge.[2] The affected nails grow very quickly.[3] Onycholysis is multifactorial in origin that could be induced by systemic disease like anemia, bronchiectasis and hyperthyroidism and others or localized skin disorder like lichen planus, psoriasis, and dermatitis.[4] Onycholysis could be also induced by drugs like minocycline and oral contraceptives.[1] Onycholysis is a common disease seen among housewives, probably due to heavy daily housewife duties.[5] Nails with onycholysis look normal and sometimes look unsightly due to the collection of dirt underneath the nail. When the underneath of the nail is cleaned, nail looks healthy normal in appearance.[6] One or several nails may be involved and usually only part of the nail is separated.[7]

Previous Iraqi studies showed that housework is the most common cause of onycholysis in Iraqi females.[5,8] In addition, onycholysis was also reported in English housewives.[9] This study was designed to shed light on the different clinical variants of this condition, in addition to the microbiological aspect.

Methods. One hundred patients with onycholysis were evaluated in Baghdad Teaching

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Table 1 - The frequency distribution of cases by their fingers involved.

Fingers	Right hand	Left hand	Total
Thumb	49	27	76
Thumb with other fingers	11	9	20
Index	2	5	7
Index with other fingers	14	10	24
Middle	3	2	5
Middle with other fingers	10	12	22
Ring	5	7	12
Ring with other finger	11	10	21
Little	4	2	6
Little with other fingers	8	6	14

Table 2 - Identification of different types of fungi isolated from 100 patients with onycholysis.

Fungi	Swab	Debris	Nail
Candida albicans	21	41	36
Candida guilliermondi	4	4	1
Candida parapsilosis	-	1	4
Aspergillus niger	3	-	14
Aspergillus flavus	-	1	-
Penicillium species	5	8	7
Saccharomyces cerevisiae	1	6	-
Candida albicans and *Aspergillus niger*	2	-	2
Negative samples	64	39	36
Total	**100**	**100**	**100**

Table 3 - Identification of different species of *Staphylococci* isolated from 100 patients with onycholysis.

Bacteria	Swab	Debris
Staphylococcus epidermidis	51	59
Staphylococcus aureus	6	4
Staphylococcus warneri	7	11
Staphylococcus lugdunensis	2	1
Staphylococcus hominis	9	8
Staphylococcus sciuri	1	-
Staphylococcus chromogenes	1	-
Staphylococcus xylosus	2	-
Staphylococcus cohnii	2	-
Staphylococcus epidermis and *Staphylococcus aureus*	1	-
Staphylococcus epidermidis and *Staphylococcus warneri*	2	1
Staphylococcus epidermidis and *Staphylococcus hominis*	-	1
Negative samples	16	15
Total	**100**	**100**

Table 4 - Identification of different gram negative bacteria isolated from 100 patients with onycholysis.

Bacteria	Swab	Debris
Klebsiella pneumoniae	-	4
Proteus penneri	3	1
Pseudomonas fluorescence	1	1
Photobacterium damsela	1	1
Pasteurella pneumotropica	1	1
Klebsiella pneumoniae and *Acinetobacter baumanni*	-	1
Negative samples	94	91
Total	**100**	**100**

Hospital, Baghdad, Iraq from October 2002 – March 2003. Housewives with onycholysis attending the out-patients department, housewives from the medical and nursing staff, and workers engaged in cleaning duties were included in this study. Patients with skin diseases and other medical conditions were excluded from the study. Also patient taking drugs like minocycline and oral contraceptives that are known to cause onycholysis were excluded. The patients were examined for all features of onycholysis including the texture of the nail plate, site of onycholysis whether lateral, distal or proximal, in the left hands or right hands or both hands together and the fingers affected. From the site of the onycholysis a direct swab, debris and pieces of the nail were assessed for the direct microscopical examination, culturing for bacteria and fungi and the result were confirmed by analytical profile index (API), which is a definitive identification system of many groups of organisms using standardized and miniaturized biochemical tests with specially adapted data base.[10] The following types of culture media, tests and stains were used in this study: gram's stain, lactophenol blue, potassium hydroxide, catalase test, coagulase test, germ tube test, blood agar culture media, MacConkey's agar, modified Sabouraud's dextrose agar.

Results. The age of the patients included in the study ranged between 17-70 years with a mean of 41.96 ± 12.57 years. The duration of the disease was between one month and 23 years with a mean of 33.22 ± 50.67 months. The affected married females were 89 (89%), while unmarried females were 11 (11%). Eighty-five (85%) of married females had 1-12 children with a mean of 6 children. Ninety-two (92%) patients were right-handed females while only eight (8%) married females were left-handed. The right hands were affected in 44 (44%) patients, while left hands were affected in 21 (21%) females.

Thirty-five (35%)patients have both hands affected. The right-hand was affected in 79 (79%) patients either alone or together with the left hand. Twenty-one (21%) of patients had their left hands affected. Thirteen (13%) patients, although they were right handed, still their left hands were the one affected. Thumb alone was involved in the majority of cases (76%). Twenty percent of the cases, the thumb was involved with other fingers and only in 4% with other fingers (**Table 1**).

The pattern of onycholysis was distal in 47 (47%), lateral in 30 (30%) and both distal and lateral in 23 (23%) patients. In all patients with onycholysis, the nail plates looked smooth, healthy and no abnormal discoloration was noticed apart from dirty black debris that was seen under the nail plate. Mycological study showed that *Candida albicans* was the main organism isolated from swab (21%), debris (41%) and nail (36%) (**Table 2**) and no dermatophytes were isolated in any case. The bacteriological study of onycholysis showed pathogenic bacteria only in few cases like *Staphylococcus aureus* that was isolated from 6% of swab culture and 4% of debris culture, *Klebsiella pneumoniae* in 4% of the cases (**Table 3**). While the percentage of non-pathogenic bacteria, mainly *Staphylococcus epidermidis* isolated from swab was 51% and debris culture was 59% (**Table 4**).

Discussion. Occupational housewife dermatoses are a common problem among Iraqi housewives.[5] Onycholysis is one of the occupational housewife dermatoses. Other causes of onycholysis such as psoriasis, eczema and drugs are less common.[5] However, in western countries most studies do not consider onycholysis as a common disorder among housewives.[6] Onycholysis among housewives is believed to be occupational housewife skin disorder for the following reasons. 1. The disease is common in housewives especially in married females and rare in females that does not practice housewife duties. 2. The present study showed that onycholysis is common in adult age groups who are engaged in housework and it is rare in children and senile females, which is in agreement with other studies.[6] 3. The disease occurs predominantly in the right hand of right-handed people and in the left hand of left-handed people.[5] Our results showed that dominant hand was affected more. 4. The nail texture is normal and no signs of skin disease like fungal infection, psoriasis and dermatitis could be seen. This findings was similar to others reported in the literature.[5]

The pathogenesis of onycholysis among housewives is difficult to explain but probably traumatic in origin. Mechanical trauma to nail in a form of minor trauma, in addition to the physical and chemical trauma by using water and detergents can induce separation of nail plate from bed. Other cofactors like infection might be considered as a secondary colonization. From the results of our study, it is evident that onycholysis is a common problem among Iraqi housewives due to the fact that Iraqi housewife are loaded with their houseworks. Moreover, most Iraqi families are large with a big number of children and many people eat with their hands. The use of washing machines is very rare or not desirable by many housewives.

The present work shows clearly that the disease commonly involved the thumb. From the physio-anatomical view, the size, situation and muscular power of thumb makes it the main finger to face stress and trauma during heavy manual works. From the microbiological study of onycholysis it is difficult to decide whether *Candida* is a primary pathogen or a secondary invader but probably more in favor of secondary colonization. The invasion of *Candida* is encouraged by the presence of dead space of separated nail plates. The bacteriological study of onycholysis showed mainly nonpathogenic bacteria, predominantly *Staphylococcus epidermidis*, also showing small percentage of *Staphylococcus aureus*, *Klebsiella pneumonia* and nonpathogenic gram-negative bacteria. Therefore, the results from the present work emphasize that pathogenic bacteria had no important role in etiology and pathogenesis of the disease.

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