

Tinea Faciei in Children: A Case Series at the Instituto Nacional de Salud del Niño-Breña (Lima-Peru)

Medina_Flores Juan^{*}, Gonzales_Saravia Carlos

National Institute of Child Health, Universidad Nacional Mayor de San Marcos, Lima, Perú

Email address:

jpmfha@yahoo.com (Medina_Flores J.)

^{*}Corresponding author

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Abstract: The objective of this study is to report the epidemiology, clinical and microbiological characteristics, and treatment of pediatric patients diagnosed with tinea faciei. 30 cases have been identified in which the infectious agent was isolated, the data was collected in statistical tables that were evaluated. In this series of cases, it is evidenced that tinea faciei affects more frequently the female sex in 73.3% and children under 5 years old in 66.6%. They attended with a time of disease greater than 30 days. 40% had previous treatment, 53.3% with polyvalent, topical corticoid and antibiotics. The presence of cats, dogs and rabbits was reported in 46% of cases, 76.7% had the genian region compromised. *Trichophyton tonsurans* was identified in 80% of cases and good response to topical treatment with terbinafine or sertaconazole in 100% of cases. The isolated etiological agents differ according to the geographical area where the study is carried out and new agents are reported that must be known given the wide interconnectivity between different geographical areas as well as the predisposing factors in the pediatric population that to date have not been clearly defined. These data must be proved with larger studies that allow to recognize patients that come to their medical appointment with this pathology. Tinea facie should have a CID-10 that identifies it, in order to have information from different geographical areas, since the isolation of new agents whose sensitivity to antifungals in use is necessary to know is reported. Finally, it is necessary to beware to new forms of clinical presentation due to the use of masks by COVID-19.

Keywords: Pediatric, Tinea Faciei, Dermatology

1. Introduction

Studies of the etiology of superficial skin infections in some geographic areas show fungal and tinea corporis as the most frequent in pediatric population. [6, 14]

Tinea faciei (Tf) is a superficial dermatophyte mycosis limited to glabrous skin, in pediatric patients and in females the infection can appear anywhere on the face including upper lips (Figure 1) and chin. [13]. It can also present with involvement of other areas such as the scalp. [3, 15]

Dermatophytes are keratinophilic and release various enzymes, including keratinases which allow them to invade the stratum corneum of the epidermis. Adherence to the host cell is mediated by the expression of specific carbohydrate "adhesins" located on the surface of the conidia and projections of fibrils that connect the adjacent arthroconidia to the skin. [15]

The causative agent varies according to the geographic region, being the reservoir of zoophilic dermatophytes not only pets but also other animals such as guinea pigs and foxes with the identification of new species such as *Trichophyton benhamie* as the etiological agent. [4, 16]

It is more common in tropical regions with high temperature and humidity. [9]. the use of masks by COVID-19 could also be considered a risk factor. [1]

It is reported to most frequently affect children under 12 years of age, even affecting neonates. [2, 7]

These dermatophytes can present in various forms on the faciei skin, from typical forms to atypical forms that mimic other dermatoses such as lupus erythematosus, polymorphous light eruption and allergic contact dermatitis. [8, 11].

The aim of this report is to describe the clinical, epidemiological and therapeutic characteristics of some of the cases of faciei ringworm in children at the time of first

consultation, year 2019, in the Dermatology service of the National Institute of Children's Health - Breña, Lima, Peru.

2. Series of Cases

Patients with compatible clinical symptoms or clinical suspicion were referred to the Clinical Laboratory Service, Microbiology section, where samples were obtained for direct microscopic examination with KOH and culture on Sabouraud dextrose agar.

Information on age, sex, time of disease, specific location on the face, contact with animals, relatives with mycosis, etiologic agent (Table 1) and previous treatment were collected. (Table 2).

Thirty cases with clinical suspicion of tinea faciei (Tf) had microbiological confirmation. The distribution was male in 8 cases (33.3%) and female in 22 cases (73.6%). The age range showed that children under one year of age accounted for 30%, from 1 to 5 years 36.6%, from 6 to 10 years and from 11 to 17 years 16.7%, it was determined that 66.6% of cases occurred in children under 5 years of age. The time of illness with which they visited the Institute was also divided into: less than 15 days (46.7%), 15 to 30 days (13.3%), 31 to 60 days (26.7%) and more than 60 days (13.3%). *T. tonsurans* was identified in 24 (80%) cases, while in five (16.7%) children *M. canis* and in one (3.3%) *M. gypseum* were found as the causative agent.

In 16 cases (53.3%) no contact with domestic animals was identified, while 7 (23.3%) had the cat as probable source of infection, 2 (6.7%) the dog, 4 (13.3%) both and in 1 (3.4%) the rabbit was found. In three (10%) patients, the mothers had nail mycosis on the hands.

As for the location, 23 (76.7%) patients had genian involvement (Figure 2) while 4 (13.3%) children in the maseterine region, one child on the forehead, (Figure 3) one on the nose and one on the chin.

The previous treatment that the patients had is shown in Table 2, where it is observed that 16 (53.4%) patients had a previous treatment, in 10 (33.3%) children a topical polyvalent was indicated and in the remaining 6 patients a topical corticosteroid, topical antibiotic or the combination of corticosteroid plus topical polyvalent were applied, if we group those who received corticosteroid, we would have 14 (46.75%).

All patients evolved favorably and received topical treatment 20 (66.7%) with terbinafine 1% cream and 10 (33.3%) sertaconazole 2% cream, twice daily for 3 weeks with complete remission of the disease.



Figure 1. Annular plaque in right genian and upper labial region.



Figure 2. Annular plaque in left genian region.



Figure 3. Annular plates in frontal region.

Table 1. Epidemiological and clinical characteristics of patients diagnosed with Tinea faciei.

Age	n = 30	%
< 1 year old	9	30.00
1 to 5 years old	11	36.67
6 to 10 years old	5	16.67
11 to 17 years old	5	16.67
Sex type	n = 30	%
Male	8	36.36
Female	22	73.33
Time of Illness	n = 30	%
< 15 days	14	46.67
15 to 30 days	4	13.33
31 to 60 days	8	26.67
> 60 days	4	13.33
Location	n = 30	%
Geniana	23	76.66
Maseterina	4	13.33
Frontal	1	3.33
Nasal	1	3.33
Chin	1	3.33
Presence of Animals	n = 30	%
Cat	7	23.33
Dog	2	6.67
Dog & cat	4	13.33
Rabbit	1	23.33
None	16	53.33
Contact People with Mycosis	n = 30	%
Yes	3	10.00
No	27	90.00
Etiology	n = 30	%
<i>T. Tonsurans</i>	24	80.00
<i>M. Canis</i>	5	16.67
<i>M. Gypseum</i>	1	3.33

Table 2. Previous treatment of patients with a diagnosis of Tinea faciei.

PREVIOUS TREATMENT	n=30	%
Topical corticosteroid	2	6.67
Topical antibiotic	2	6.67
Topical polyvalent	10	33.33
Polyvalent + topical corticosteroid	2	6.67
None	14	46.67

3. Discussion

In this case series, with 30 patients with a diagnosis of *Tinea faciei*, highlights the clinical, epidemiological, and therapeutic characteristics of this dermatophytosis in the first consultation at the INSN Dermatology Service.

Regarding the predominance of the female sex in our report, some studies have suggested a predominance of the male sex, due to the greater probability that they spend more free time outside the home; however, other authors have found a predominance in women [4].

The predominance in the age group under 5 years (66.6%) is also interesting to evaluate even more with 30% under one year of age affected, play and recreational activities with pets would not explain in a convincing way, so inadequate facial hygiene practices should also be considered, as they allow a longer contact time of the infectious agent with the skin, facilitating its adherence and penetration, and the role of the caregiver of the child as a source of infection should also be considered. [14].

The time of illness longer than 30 days in 40% of patients evidence self-medication practices and probable ignorance of the health professional of this entity.

The isolation of *T. tonsurans* coincides with the report as the main agent in some geographical areas, despite the presence of domestic animals in 46.7% of our patients, especially cats and dogs. [11]

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Ignorance of the clinical picture may lead to inadequate treatment and exaggerated use of some medications such as antibacterials and corticosteroids (46.7%), as reported in other studies, which may alter its presentation more difficult to recognize forms such as *tinea incognita* or fungal folliculitis requiring systemic treatment. [13]. In this series there was previous medication in (58.4%), being one of them the polyvalents in whose composition was clotrimazole whose antifungal effect is known but that being in mixture with antibacterials and corticoids does not seem to exert its effect as we can observe after analyzing the time of illness and the isolation of the infectious agent. [12].

The favorable evolution of our patients with the topical use of terbinafine or sertaconazole shows that allylamines such as azoles are effective in the treatment of facial ringworm and that isolated dermatophytes have not generated resistance. In cases where *M. canis* is isolated, the use of terbinafine would be recommended for its additional anti-inflammatory effect. [13].

4. Conclusions and Recommendations

Tinea faciei seems to be one of the most common presentations of superficial ringworm, it has been proposed that it should be considered a separate entity of superficial mycosis with a CIE - 10 that identifies it and allows a better

knowledge of its prevalence, clinical picture, and new agents. The anatomical and physiological characteristics of the facial skin merit it and the psycho-social component that its presence may imply in preschool and school children makes it necessary to have permanent and updated information. In addition, constant washing or not, sun exposure, pollution, use of inadequate creams and lately the use of facial masks in relation to COVID-19 can generate a modification of the clinical picture that can lead to an erroneous diagnosis, thus delaying the appropriate treatment. However, many authors include facial ringworm among cases of *tinea corporis*, which makes it difficult to know its prevalence, emergence of new agents, development of resistance. The information found to in this work should be corroborated with more studies that identify the largest number of children with this pathology.

Authors' Contributions

JPMF carried out the conception, article design, data collection, and writing.

CGS performed the data collection, preparation, review and approval of the article.

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