



## STUDY OF TOILET SEAT DERMATITIS IN PEDIATRIC AGE GROUPS

**Dr. Mohamed Nazeer K V**

Assistant Professor, Department of Dermatology Amala Institute of Medical Sciences, Thrissur

**Dr. Rashmi Mary Philip\***

Senior Resident, Dept. of Dermatology Amala Institute of Medical Sciences, Amala Nagar, Thrissur, 680555, Kerala \*Corresponding Author

**ABSTRACT****Background**

**Aim:** To determine the etiology of toilet seat dermatitis in pediatric age group

**Methods:** One year prospective study

**Result:** Patch test positive results of doubtful relevance.

**KEYWORDS :** Patch test, Atopic dermatitis, toilet seat dermatitis

**INTRODUCTION**

Toilet seat dermatitis is well described in medical literature. Older dermatology textbooks refer to it as an infrequent example of regional dermatitis, with allergic reactions occurring to both the varnish component of the wooden seat or the wood itself. The number of cases are dramatically reduced after replacement of wooden with preformed plastic toilet seats in 1960s and 70s<sup>1</sup>. This type of regional dermatitis are still reported in large numbers from this area of the country. This may be due to sweat retention, irritation due to disinfectants used in toilet cleaning material or a part of dermatitis venenata.

**Aim of the study**

To analyse the patch test results of patients with toilet seat dermatitis

**Objective**

To determine the etiology of toilet seat dermatitis in pediatric age group

**MATERIALS AND METHODS:**

This was a prospective study conducted on pediatric outpatients who attended the department of dermatology, Amala Institute of Medical Sciences, Thrissur. The study was conducted for a period of one year (2008 – 2009) after obtaining approval from institutional ethical committee.

**Inclusion criteria**

1. Children presenting with clinical features of toilet seat dermatitis in the posterior thigh with or without gluteal region involvement, who is willing to participate in the study

**Exclusion criteria**

1. Children who were not willing to participate in this study.
2. Children with severe illness.
3. Children with other disease in the posterior thigh

**Statistical analysis**

Chi square test, Fisher's exact test used in this study.

**RESULT**

The present study comprised of 33 patients with toilet seat dermatitis who attended the department of dermatology and venereology at Amala Institute of Medical Sciences, Thrissur. Their active dermatitis was controlled with medications and then they were subjected to patch test with general and cosmetic patch test series using ISD.

Out 33 patients 17 were males and 15 were females, male to female ratio was 0.9:1. Most patients were under the age group of 5yrs – 10yrs. (20/33 patients). The mean age group was 8.09yrs.

Patch test result positivity was noted in (13/33) 39% of patients. The toilet habits of the patient was analyzed (29/33) used European closet, (25/33) patients gave history of using the ring while seated on the closet and (22/33) gave history of using a particular named brand for cleaning of toilet. There was no statistical significant correlation

between the toilet habits and patch test positivity.

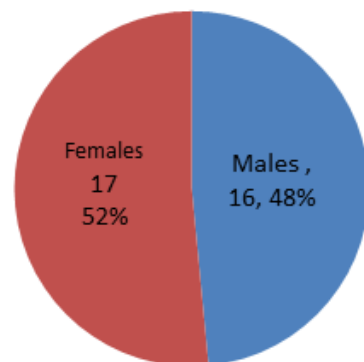
Relation between time spent on the closet, frequency of cleaning the toilet and frequency of usage of toilet in a day with patch test positivity was analysed. There was no significant association detected between these variables.

Most common allergen detected in the patch test result was thiomersal followed by cetrimide.

57% (19/33) had personal history of atopy in the study. 8 patients of 13 patients (61%) with atopy were patch test positive, but there was no statistical significance.

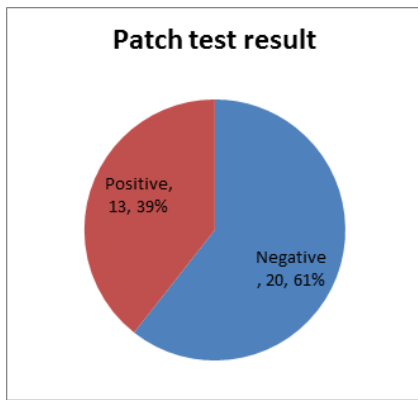
**Table 1.: Age distribution**

Age	No. of patients
<5yrs	2
5yrs – 10yrs	20
11yrs – 15yrs	8
>15yrs	2

**Diagram 1: Gender distribution****Table 2.: Most common allergens**

Allergens	No. of positive patients
Thiomersal	4
Cetrimide	3
Neomycin	2
Cobalt	2
PPD	2
Potassium dichromate	2
Epoxy resin	1
Nickel	1
Jasmine absolute	1
Chloroquinol	1
BRM	1
Triclosan	1

**Diagram 2: Patch test result**



**Table 3.: Toilet habits with toilet seat dermatitis**

**Table 3(a) : Time spent on closet**

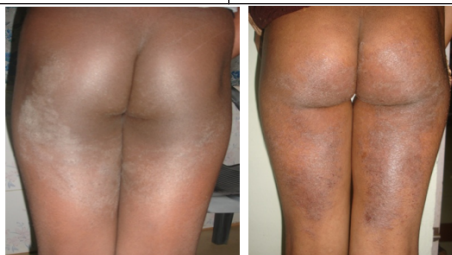
Time	No. of patients
5-10minutes	22
11-20minutes	3
>20 minutes	5

**Table 3(b) : Frequency of cleaning / week**

Frequency	No. of patients
1/wk – 2/wk	20
3/wk	7
7/wk	4

**Table 3© : Frequency of usage of toilet / day**

Frequency	No. of patients
1/day - 2/day	13
3/day – 4/day	9
>5/day	4



**Fig. 1(a & b) : Toilet seat dermatitis**



**Fig. 2 (a): Patch test (b) Patch test positivity**

**DISCUSSION**

In this study , 33 patients who presented with toilet seat dermatitis during the time period 2008-2009 were patch tested with general and cosmetic series. Age group of the patients ranged between 4-16yrs, mean age group was 8 - 9 yrs. The male to female ratio in the study was 0.9% . Patch test positivity was seen in 13/33 (39.3%) . We analysed toilet habits of the patients such as time spent on the toilet seat, type of toilet used (European/ Indian), usage of ring prior to sitting on the closet, the type of cleaners used for cleaning the toilet, frequency of cleaning and frequency of usage of toilet. It was found that there was no relation between the toilet habits and patch test results . Only one patient used Indian toilet in the study, yet patient had positive patch test result.

57% of patients in the study had a personal history of atopy (39.3%

atopic dermatitis). Patch test positivity was high in those with a personal history of atopy , yet a statistical correlation could not be established.

Most common allergen detected in the study was thiomersal , followed by cetrimide. Thiomersal is a sodium ethylmercuric thiosilylate , which is found in antiseptics, vaccines (DPT, hepatitis B, and influenza) disinfectants, tooth paste , preservative in contact lens solution and topical medications<sup>2,3</sup>. Thiomersal sensitivity in children ranges between 2%-10% . Studies by Suneja et al<sup>5</sup> and Wankte et<sup>6</sup> also reported high incidence of thiomersal positivity in patch testing which could not be clinically correlated . Sensitization to thiomersal is associated with routine vaccination and, this sensitization is lifelong. Thus a positive patch test to thiomersal may not have current relevance<sup>4</sup> . Moreover false positive reactions are high due to reactions between aluminium chamber and mercury in thiomersal, hence the relevance of thiomersal positivity remain doubtful in this study.

Cetrimide is found commonly in disinfectants, which is known to produce irritant reactions, hence the relevance of the positive result obtained in the study cannot be ascertained.

The incidence of atopy in our study was found to be high (57%). Allergic contact dermatitis occurring in the context of atopic dermatitis still remains controversial. Atopic individuals may acquire contact dermatitis which may be irritant or allergic due to a defective barrier which allows for increased penetration of allergens . Atopic skin is also readily irritated by non specific irritants giving rise to false positive results.

**CONCLUSION**

Toilet seat dermatitis was found in increased frequency in individuals with atopy . Most common allergen detected was thiomersal , the relevance of which is doubtful. Atopic skin is Prone to irritant reactions from harsh chemicals which can lead to false positive patch test results. Patch testing with standard series as well as components of toilet seat will help to yield better results on patch tests and aid in picking up allergic contact dermatitis. Usage of toilet seat covers newspaper cut outs , washing of toilet seat ring, repeated moisturizing of posterior thigh can help to avoid toilet seat dermatitis.



**Fig.3 :- Toilet seat cover**

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