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ABSTRACT:

We report 4 pediatric patients with a localized dermatitis in areas subject to repetitive friction due to their seating positions. We propose the cause of the eruption is an irritant contact dermatitis due to frequently sitting in a criss-crossed seated position, **an entity for which we have coined the term “pediatric positional sitting dermatitis (PPSD)”**. Our goal with this report is to raise the clinician’s awareness of PPSD, which to our knowledge has not been previously described, as well as to discuss management for these patients.

INTRODUCTION:

The differential diagnosis of a sharply localized dermatitis on the posterior thighs and lower buttocks in the pediatric population includes allergic or irritant contact dermatitis. Two examples of allergic contact dermatitis (ACD) are related to toilet seat exposure, often due to polypropylene within plastic toilet seats or allergens within the wood used to manufacture wooden toilet seats.¹⁻² Formaldehyde, dyes, and phenol found within varnishes and cleaning detergents applied to toilet seats represent additional allergens which commonly cause toilet seat dermatitis.¹⁻² Another notable cause of ACD includes school chair dermatitis secondary to nickel-containing fastenings or screws.³⁻⁴ Irritant contact dermatitis (ICD) should also be considered.

CASE SERIES:

Four pediatric patients presented with a recalcitrant moderately pruritic subacute dermatitis of the posterior thighs and lower buttocks (Table 1). Questioning revealed that each patient frequently sat in a criss-crossed seating position. Upon demonstration of these seating positions,

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3 each patient's shoes contacted their posterior thighs or buttocks in the exact areas of their
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5 dermatitis (Figure 1). Contact dermatitis was suspected and patch testing was negative with the
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7 North American series (65 allergens) in Patients 1 and 2; patch testing with a shoe allergen series
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9 (20 allergens) in Patient 2 was also negative, which included mercapto mix, aminobenzene, and
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11 various shoe dyes. In all 4 patients, treatment included avoidance of the criss-crossed seating
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13 position and daily topical corticosteroids which resulted in a resolution of symptoms within 2 to
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DISCUSSION:

These 4 cases of positional-induced localized dermatitis represent a previously unreported form of contact dermatitis, **an entity that we propose calling “pediatric positional sitting dermatitis (PPSD)”**. We believe their dermatitis was caused by the repetitive contact between their shoes and skin, leading to the development of a localized ICD. Negative patch testing in 2 cases, historical exclusion of other causes, and examination of the patient's seating positions support a diagnosis of ICD. Each patient showed resolution following avoidance of the inducing seating position and short-term topical corticosteroids.

Distinguishing between ACD and ICD in cases of localized dermatitis is challenging. In many cases a negative patch test directs one to consider an ICD. Although patch testing was negative in Patients 1 and 2, we acknowledge that it does not completely rule out ACD as the culprit allergen may not have been tested. The true significance of PPSD, however, rests not upon ultimately diagnosing ICD or ACD, but rather upon recognizing this pattern first and foremost as a contact dermatitis. Furthermore, since ACD and ICD can be treated with trigger avoidance and

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3 topical steroids, we recommend that practitioners first implement empiric therapy before
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6 undergoing patch testing if PPSD is suspected. If no improvement is observed, patch testing may
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8 be appropriate.
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12 In summary, we encourage practitioners to consider pediatric positional sitting dermatitis as a
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14 possible cause of pediatric posterior thigh and buttock dermatitis. By asking patients to
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16 demonstrate their seating positions, one can determine if these contact areas correspond with the
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18 presenting dermatitis. As school-aged children frequently sit in the criss-crossed position while
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20 wearing their shoes at home or at school, we believe PPSD may be more prevalent than is
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22 currently recognized and should be in the differential diagnosis of localized dermatitis in the
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24 pediatric population. Ultimately, future studies are needed to further characterize PPSD.
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FIGURE LEGENDS WITH CAPTIONS:

Figure 1. A. Criss-crossed seated position demonstrated by Patient 4. B. Corresponding contact dermatitis of right posterior thigh.

Table 1. Characteristics of pediatric patients presenting with posterior thigh dermatitis

Table 1.

Patient	Age (Years)	Gender	Duration (Months)	Distribution	Seating Position(s)	Patch Test	Initial Treatment	Outcome
1	12	F	12	Bilateral posterior thighs Left buttock	Criss-crossed Asymmetric tucking of right foot under left buttock	North American series	Avoid seating position Topical steroid	Resolution in 2 weeks
2	7	F	18	Bilateral posterior thighs	Criss-crossed Elevated on bent knees with feet tucked under contralateral buttocks	North American series Shoe grouping series	Avoid seating position Topical steroid	Resolution in 6 weeks
3	11	M	1	Bilateral posterior thighs	Criss-crossed	Deferred	Avoid seating position Topical steroid	Resolution in 4 weeks
4	12	F	3	Bilateral posterior thighs	Criss-crossed	Deferred	Avoid seating position Topical steroid	Resolution in 3 weeks

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Figure 1A. Criss-crossed seated position demonstrated by Patient 3. Figure 1B. Corresponding contact dermatitis of right posterior thigh.
73x22mm (600 x 600 DPI)

or Peer Review

Patient	Age (Years)	Gender	Duration (Months)	Distribution	Seating Position(s)	Patch Test	Initial Treatment	Outcome
1	12	F	12	Bilateral posterior thighs Left buttock	Criss-crossed Asymmetric tucking of right foot under left buttock	North American series	Avoid sitting position Topical steroid	Resolution in 2 weeks
2	7	F	18	Bilateral posterior thighs	Criss-crossed Elevated on bent knees with feet tucked under contralateral buttocks	North American series Shoe grouping series	Avoid sitting position Topical steroid	Resolution in 6 weeks
3	11	M	1	Bilateral posterior thighs	Criss-crossed	Deferred	Avoid sitting position Topical steroid	Resolution in 4 weeks
4	12	F	3	Bilateral posterior thighs	Criss-crossed	Deferred	Avoid sitting position Topical steroid	Resolution in 3 weeks

Table 1. Clinical characteristics of pediatric patients presenting with posterior thigh dermatitis.
35x22mm (300 x 300 DPI)