# Paediatric Labial Adhesions: Evaluation of Response to Topical Oestrogen Therapy

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***Objective:***
**To evaluate the differences in the response of labial adhesions to local oestrogen treatment in relation to age differences in a paediatric population.**

***Methods:***
**This prospective observational study was carried out over 36 months. Consecutive patients referred for significant labial adhesions were given treatment with daily local oestrogen cream (Premarin) following a simple protocol of at least 2 weeks. Those with recurrent adhesions on subsequent follow-up were given further courses of treatment with the same protocol. The differences in the mean duration of treatment per episode, the total number of treatment episodes, and the total duration of treatment were then compared against the age of the children.**

***Results:***
**A total of 104 patients presenting between 9 months and 6 years 4 months of age were recruited. All showed significant improvement in their adhesions after treatment. There was a trend of decreasing number of treatment episodes but increasing duration of treatment per episode as age increased from 1 year or below to 6 years or over (ANOVA, $p<0.001$). The mean total duration of treatment was 6.2 weeks at 1 year old or younger, but dropped to 4 weeks at 6 years or older (ANOVA, $p<0.001$). There were no major complications in any of the girls and manual separation was not needed in any of the cases.**

***Conclusion:***
**Labial adhesions in paediatric age-group run a very benign course. Younger patients apparently had more rapid response to treatment, but a higher incidence of recurrent adhesions.**
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## Introduction

The condition of labial adhesions is a trivial yet common problem among young prepubertal girls[1]. When noted by the mother or caretaker, labial adhesions are often mistaken for a possible congenital absence of the vagina or other anatomical abnormalities[2]. Parental anxiety is also created when such adhesions are associated with possible sexual abuse[3,4]. However, when the latter can be reasonably excluded, the condition is often regarded as an insignificant one that can easily be diagnosed with careful examination, and usually responds to the simplest treatment[1,5-7]. While the symptoms associated with labial adhesions tend to be either mild or absent, it may nevertheless predispose to infectious vaginitis or urinary infection[8]. In addition, the labial adhesions tend to recur after treatment until the patient approaches adolescence, so that repeated courses of treatment may be needed in order to prevent reformation of the adhesions.

The objective of this study was to evaluate the differences in the response of labial adhesions to topical oestrogen treatment in relation to age differences.

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**Table. Treatment responses to topical oestrogen for different ages**

| | Age (years) | | | | | | p Value (ANOVA) |
|---|---|---|---|---|---|---|---|
| | ≤1 (n=22) | 2 (n=24) | 3 (n=28) | 4 (n=17) | 5 (n= 7) | ≥6 (n=6) | |
| Mean (SD) follow-up duration (months) | 13.5 (3.7) | 11.7 (3.1) | 11.3 (5.1) | 12.3 (4.9) | 10.2 (2.9) | 12 (2.3) | 0.72 |
| Mean (SD) No. of treatment episodes | 2.8 (1.03) | 2.6 (0.71) | 1.7 (0.59) | 1.2 (0.46) | 1.2 (0.48) | 1 (0) | <0.001 |
| Mean (SD) duration of each treatment episode (weeks) | 2.1 (0.39) | 2.2 (0.46) | 2.5 (0.63) | 3.0 (1.02) | 2.5 (0.97) | 4.0 (0) | <0.001 |
| Mean (SD) total treatment duration (weeks) | 6.2 (1.9) | 6 (2) | 4.2 (1.51) | 4 (2.08) | 3.3 (1.03) | 4 (0) | <0.001 |

## Methods

Consecutive patients referred to a paediatric and adolescent gynaecological specialist clinic with the diagnosis of labial adhesions or agglutinations were prospectively recruited over a 36-month period from 2001 to 2004. All patients were assessed clinically to exclude congenital malformations in the lower genital tract. Sexual abuse was reasonably excluded in all cases from the history and examination findings. Vulval or vaginal culture swabs and urinary cultures were taken according to clinical indications. Significant labial adhesions were defined clinically as those with adhesions over half of the length of the vulva or more, or those with symptoms or infectious complications. All patients with significant labial adhesions were given treatment with daily topical oestrogen cream (Premarin, Wyeth) for a period of 2 weeks. Parents or caretakers were instructed to stop the treatment after 2 weeks if the adhesions were judged to have resolved. The topical hormonal treatment was extended to up to 4 weeks if response was considered unsatisfactory after the initial 2 weeks. All patients were regularly reassessed for evidence of recurrence of the adhesions, and repeated treatment was given in accordance with the same criteria when necessary. Treatment duration was recorded as the number of completed weeks. The differences in the duration of treatment per episode, and the total number of treatment episodes were compared between those under or above the age of 3 years. One-way analysis of variance (ANOVA) was used in the statistical analysis of these parameters, using age as the dependent variable.

## Results

A total of 104 patients aged between 9 months and 6 years 4 months were recruited during the study period. The mean follow-up duration for all the patients was 12 months (range, 6-32 months). The mean follow-up duration was between 10 and 13 completed months for all ages, with no significant difference across the different age brackets. All of the labial adhesions responded to topical oestrogen treatment satisfactorily within the course of therapy, and manual separation of the adhesions or other further treatment was not needed in any of the cases. There were no significant side-effects resulting from the use of topical oestrogen. In particular, significant labial pigmentation or breast enlargement were not found in any of the patients. The mean duration of each treatment episode was 2.1 weeks at the age of 1 year or younger, but increased gradually to 4 weeks at the age of 6 years or older (ANOVA, $p<0.001$). The number of treatment episodes, however, was 2.8 at the age of 1 year or younger, but dropped gradually to 1 at 6 years or older (ANOVA, $p<0.001$). The total duration of treatment (duration of treatment of each episode x the number of episodes) also dropped gradually from 6.2 weeks at the age of 1 year or younger to 4 weeks at 6 years or older (ANOVA, $p<0.001$) [Table].

Six (5.8%) patients had positive vulval culture, the organisms involved were *Gardnerella vaginalis* in four cases and *Streptococcus agalactiae* in two. Two (1.9%) patients had positive urine cultures with *Escherichia coli* and *Klebsiella* species respectively. All cases with positive cultures were treated with the appropriate antibiotics. Despite the presence of urinary infection, none of the patients observed in the study had significant outflow obstruction from the labial adhesions.

## Discussion

The need for treatment for uncomplicated labial

adhesions remains controversial. Referral of these patients with labial adhesions to our specialist clinic was often initiated from parental anxiety, though a small proportion was also picked up on routine examination of these young infants by medical staff at the Child Health Clinic. The results of our data showed the consistently benign course of the condition. All cases responded satisfactorily to a course of topical oestrogen cream within 4 weeks, despite subsequent recurrences in a significant proportion of them. This is in contrast to some reports quoting a very high percentage that required manual separation of the adhesions[9]. In the present series, despite the fact that bacterial vulval or vaginal infections were present in 5.8% of patients, all were largely asymptomatic. The two cases of urinary infection could also be coincidental, as a review of the case showed that the adhesions were not severe and responded satisfactorily to treatment.

Whether a small proportion of infants with labial adhesions would progress to more serious genital disorders is open to debate. It is reported that labial adhesions could be an early manifestation of lichen sclerosus[10], the latter by itself being associated with more complications[11,12] than adhesions alone. The management of lichen sclerosis also involved more sophisticated treatment, including potent steroid creams[11-13] and surgical lysis[14]. However, it would be doubtful whether primary treatment initiated for labial adhesions, namely topical hormonal applications, would be effective in arresting the progression to lichen sclerosis in such cases. The argument for treating labial adhesions to prevent its progression to more severe disorders is difficult to justify from the available evidence. On the other hand, it has been argued that hypo-oestrogenism might not by itself be a causal factor in the development of labial adhesions, as no demonstrable differences could be found in serum oestrogen levels in infants with labial adhesions and controls without such adhesions. However, it was also suggested that creams containing oestrogen might still have a beneficial effect on healing after mechanical separation of the adhesion by enhancing wound re-epithelialisation[15]. Thus, it is apparent that the true role of topical oestrogen remains controversial.

The incidence of labial adhesions has been reported to be about 1.8% of a paediatric population with a peak incidence of 13 to 23 months of age[16]. The age range that we have observed in this series, namely 9 months to 6 years, was consistent with the most commonly quoted ages for the occurrence of labial adhesions in the literature[6].

Our findings supported the experience that labial adhesions invariably responded well to topical oestrogen therapy. The longer duration of treatment in older children probably reflected that this group was more refractory to treatment, which in part could be due to more long-standing adhesions before treatment. On the other hand, the higher need for repeated treatment episodes in younger children reflected the natural course of the condition, as adhesions are more likely to occur and recur in younger children with relative oestrogen deficiency.

Given these demonstrable differences in response to treatment across different ages, management protocols may recommend a shorter treatment for younger children while allowing for a longer prescription period for older children. One may also propose a differential duration for follow-up for different ages. In particular, further follow-up after the peak age for adhesions can conveniently be waived. Such flexible management protocols should further help to relieve parental anxiety, and at the same time to enable management of this invariably benign condition more simple and cost-effective.

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