Original Study

Labial Adhesions and Outcomes of Office Management

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A B S T R A C T

Study Objective: To evaluate clinical outcomes of labial adhesions (LA) and to examine the association between LA, lichen sclerosus (LS), eczema (ECZ), or asthma.
Design: Retrospective study.
Setting: Single pediatric and adolescent gynecology clinic, Houston, Texas.
Participants: 50 girls diagnosed with LA from 2006-2011.
Interventions and Main Outcome Measures: Resolution, recurrence, single vs multiple treatments, need for surgery, and conditions such as LS, ECZ, and asthma were reviewed.
Results: Mean age was 19.6 months (range 0-84 months), and 48% were Caucasian. Most patients were symptomatic (62%) and all 50 patients chose estrogen treatment. The majority (74%) required multiple treatments, as opposed to a single treatment (26%). Patients with multiple treatments were more likely to be severely agglutinated ($P = .05$) and to need manual separation after failed topical treatment ($P = .08$). The prevalence of asthma, LS, and ECZ was 9.8%, 7.8%, and 3.9% respectively. There was no association between LS, ECZ, or asthma, and number of treatments. Both asthma (N = 3; 8%), and LS (N = 2; 5%) were present among the severe agglutinated group; however, this difference was not statistically significant (P values .59 and .99). No association with ECZ was seen in either group.
Conclusion: Severe agglutination tends to be associated with need of multiple treatments and manual separation. A concurrent diagnosis of LS, ECZ, or asthma was not associated with number of treatments but there appears to be a trend towards severity of LA in patients with asthma and LS.
Key Words: Labial adhesions/labial agglutination, Childhood, Lichen sclerosus, Eczema, Asthma

Background

Labial adhesions (LA), also known as labial agglutination, are a relatively common complaint seen in the pediatric population. Between 0.6%-5% of pre-pubertal females present with this condition, with the most common age of presentation between 13-23 months.[1–3] The exact etiology is unknown, but has been postulated to be related to the hypoestrogenic state of prepuberty.[4]

In contrast to this theory, some investigators have shown no difference in estrogen levels in children with and without LA.[5] Still other studies have reported labial fusion with isolated premature thelarche, suggesting the existence of factors other than estrogen insufficiency.[6] Factors including local irritation from infection, poor hygiene, diaper rash, or trauma resulting in denuded vulvar epithelium have also been proposed as possible mechanisms explaining the condition.[2] The irritation may lead to epithelial sloughing of the labia minora, and without estrogen to aid in the healing process and control the inflammatory response, the labia adhere and re-epithelialize, forming an avascular membrane between the labia. This process is hypothesized to be mediated by overactivated macrophages present in low estrogenic states.[7]

Fortunately, most patients with LA are asymptomatic and the adhesions typically resolve on their own. Even if a diagnosis occurs during the prepubertal years, many adhesions will resolve once endogenous estrogen production begins at puberty.[7] Without complete resolution, symptoms may occur including urinary retention, frequent urinary tract infections, and post-void dribbling.[8,9] Additionally, LA may increase the risk of vulvovaginal infection manifesting as irritation, discharge, or itching.

For instance, one study suggested that patients with LA had increased likelihood of lichen sclerosus (LS).[10] This has been postulated primarily because both conditions are seen in hypoestrogenic states and associated with inflammatory processes.[10,11] Finally, there have been case reports of dermatitis and ECZ in patients with LA, but no studies have addressed a strong association with LS specifically.[10,11]

Among symptomatic patients with a confirmed diagnosis, the first line of treatment is typically attention to vulvar hygiene and topical estrogen. Success rates of 50%-80% have been reported with the application of topical estrogen cream alone.[2,7,12] Topical estrogen is generally considered a safe treatment for labial agglutination, even over prolonged periods of time (2-3 months), with minimal if any side effects. Infrequent reports of vulvar pigmentation or erythema, breast tenderness, breast buds or fine, downy, labial hair have been found in the literature, all of which appear to resolve with cessation of treatment.[13]

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More recently, topical betamethasone cream has been introduced as an alternative to estrogen for conservative management, and some studies have suggested that betamethasone may have a lower recurrence rate (35% vs 15%), faster rate of resolution, and it appears to have relatively few side effects.[1] Surgery is reserved for cases refractory to topical estrogen, topical steroids or in situations where the condition is associated with severe symptoms such as urinary retention or recurrent urinary tract infections.[12] However, studies thus far have shown inconsistent rates of resolution, and recurrence, regardless of the type of therapy employed.

In the present study, we aimed to evaluate the clinical outcomes of girls with LA referred to a pediatric and adolescent gynecology service and to examine the possible association between severity of LA (single vs multiple treatments) and conditions exacerbated by inflammatory processes, including LS, asthma, and ECZ.

Methods and Materials

In this retrospective study, we accessed the records of all patients treated medically or surgically for LA presenting to a Pediatric and Adolescent Gynecology clinic in a tertiary care center from July 2006 to June 2011. Approval from our institutional review board was obtained prior to data collection. Inclusion criteria consisted of female patients from a Pediatric and Adolescent Gynecology clinic with a diagnosis of LA/labial agglutination at any age. Exclusion criteria included patients with an incorrect diagnosis noted after chart review or patients lost to follow-up. Demographic data were abstracted from the medical records. Outcomes of interest included type of therapy used, time to resolution, time to recurrence, need for surgical intervention, presence of symptoms, and other diagnosis including LS, ECZ, and asthma. Patients with incomplete follow-up were contacted via telephone, and after obtaining consent, the missing information was ascertained.

Agglutination was diagnosed if the labia were adhered together by filmy or dense adhesions, and the severity of the adhesion was given based on the compromise of the total length of the labia and the ability to see the urethral opening. Information on thickness and translucency of the adhesions was not recorded as it wasn't described on the medical records.

The patients reported were referred from pediatricians, and therefore the prevalence of LA in their general pediatric practice, their assessment, and previous therapy used for each case is unknown.

The severity of the adhesions was categorized in 3 groups: $<$50% agglutination, between 50%-75% agglutination, and greater than 75% agglutination; this categorization is the practice of the group in this pediatric and adolescent gynecologic clinic; however, it is unknown if the outcomes are different among these groups.

The presence of LS, ECZ, or asthma was obtained from the medical records, patients were not diagnosed with ECZ or asthma in the Gynecology clinic; however, LS was diagnosed clinically by the pediatric and adolescent gynecology providers.

In terms of the LA, the presence of symptoms, severity, time to resolution, need for surgical intervention, and presence of other diagnosis was compared between patients with single versus multiple treatments.

A course of treatment consisted in the application of the cream twice a day for 6 to 8 weeks.

The duration of treatment was defined by the study group, and it was based on previous experience on the topical treatment for LA. Multiple treatment was defined as receiving more than 1 course of either cream or both creams. Single treatment was defined as resolution of symptoms with either 1 course of betamethasone or single course of estrogen cream. Groups of interest were compared using t-test for continuous data and chi-square or Fisher exact test for grouped proportional data. A *P*-value of $<$.05 was considered statistically significant. All analysis was performed in SAS statistical software 9.3 (SAS, Cary, NC).

Results

We identified 50 patients with a diagnosis of "labial adhesions/labial agglutination" on the basis of ICD-9 codes during the 5 year study period. Of the 50 patients included for the analysis, 37 (74%) received multiple treatments and the remainder received a single treatment (Fig. 1). The mean age at presentation to the clinic was 19.6 months $\pm$ 20.3 months. The age ranges were 0-72 months for the single treatment group (with a median of 20 months), and 0-84 months for the multiple treatment group (with a median of 12 months).

The majority of patients were Caucasian (48%) (Table 1). Ethnicity was self established by the family at the front desk registration. In Table 1, "indeterminate category" means missing data on race/ethnicity.

The number of treatments was not statistically significant between ethnic groups.

Although not statistically significant, it was noted that the percentages of the less severe adhesions were similar in the single and multiple treatment groups. However, patients in the multiple treatment group were more likely to be more severely agglutinated compared to the single treatment group (65% vs 31%, P = .05, Table 2). This

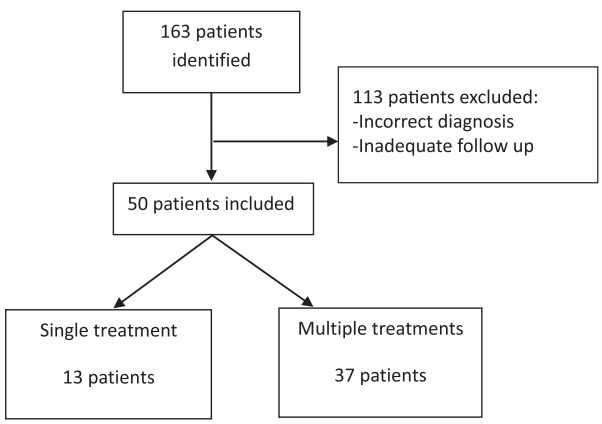

Fig. 1. Number of patients: Single vs. multiple treatment.