Pediatr Pract Res 2022; 10(3): 118-122
DOI: 10.21765/pprjournal.1182905

ORIGINAL ARTICLE
ORİJİNAL ARAŞTIRMA

Our Approach to Labial Fusion During Childhood: Eight Years of Experience in a Single Center

Çocukluk Döneminde Labial Füzyona Yaklaşımımız: Tek Merkezde Sekiz Yıllık Deneyim

Mehmet Uysal

Karamanoğlu Mehmetbey University School of Medicine Department of Pediatric Surgery, Karaman, Turkey

ABSTRACT

Aim: In this study; we aimed to determine the clinical information and treatment results of labial fusion patients who applied directly to or consulted the Pediatric Surgery Outpatient Clinic of our hospital.

Material and Method: Female patients in the prepubertal age group with labial fusion who applied to the Pediatric Surgery Outpatient Clinic of our hospital were retrospectively reviewed in terms of age, complaints, recommended treatment, recurrence rates, time to recurrence, and complications.

Results: This study involved 438 patients with labial fusion aged between 32 days and 10 years in our hospital. Labial fusion was detected in 359 (82%) of the patients, a nearly complete opening only in the labia minora, and additional problems related to labial fusion in 180 (41%) patients. The patients were treated with topical estrogen and creams containing the raw material of the Centella Asiatica plant and manual fusion separation. Recurrence of labial fusion was seen in 18(4%) of these patients. It was found that the patient's age at the time of detection and additional problems related to labial fusion were effective on the recurrence of the disease.

Conclusion: Older age and additional problems may increase the recurrence rate of labial fusion. We think that we can get results faster, with less risk of recurrence, by detecting the pathology early, applying the necessary precautions, and using the creams containing the raw material of Centella Asiatica as well as the raw material of the Centella Asiatica plant in combination, if necessary.

Keywords: Girl, labial fusion, estrogen, Centella Asiatica

ÖZ

Amaç: Bu çalışmada; hastanemiz Çocuk Cerrahisi Polikliniği'ne doğrudan başvuran ya da konsülte edilen labial füzyon hastalarının klinik bilgileri ve tedavi sonuçlarını tespit etmeyi amaçladık.

Gereç ve Yöntem: Hastanemiz Çocuk Cerrahisi Polikliniği'ne başvuran labial füzyonlu puberte öncesi yaş grubunda olan kız hastalar, yaşları, şikayetleri, önerilen tedavi şekli, tekrarlama süre ve oranları, oluşan komplikasyonlar açısından geriye dönük olarak hastanemiz veritabanı kullanılarak gözden geçirildi.

Bulgular: Bu çalışmaya, hastanemizde yaşları 32 gün ile 10 yıl arasında olan labial füzyonlu 438 olgu dahil edildi. Hastaların 359(%82)' unda labial füzyon, sadece labia minörlerde tama yakın bir açıklık ve 180(%41)' inde labial füzyona bağlı ek sorunlar tespit edildi. Hastalar topikal östrojen ve Centella Asiatica bitkisinin hammaddesini içeren kremler ve manuel füzyon ayrılmasıyla tedavi edildi. Bu hastaların 18(4%)' inde labial füzyonda tekrarlama görüldü. Tespit esnasındaki hasta yaşının büyük ve labial füzyona bağlı ek sorunların hastalığın tekrarı üzerinde etkili olduğu bulundu.

Sonuç: Labial füzyonun tekrarlama oranını, yaşın büyük olması ve ek problemler arttırabilmektedir. Patolojinin erken saptanıp, gerekli önlemler uygulanması ve tedaviye topikal östrojenli yanısıra Centella Asiatica bitkisinin hammaddesini içeren kremlerin gerekirse kombine olarak kullanılmasıyla da daha hızlı, yüzgüldüren ve tekrarlama riskinin daha az olduğu sonuçlar alabileceğimizi düşünmekteyiz.

Anahtar Sözcükler: Kız çocuk, labial füzyon, östrojen, Centella Asiatica

Corresponding Author: Mehmet UYSAL
Address: Karaman Training and Research Hospital Department of Pediatric Surgery, Karaman, Turkey
E-mail: drmyzuysal3@gmail.com

Başvuru Tarihi/Received: 01.10.2022
Kabul Tarihi/Accepted: 30.12.2022

INTRODUCTION

Labial fusion is a benign pathology that happens moderately or entirely in adhesion between the labia minora in girls. It is mostly encountered between 0-2 years of age with a rate of 1.8%-3.3% in prepubertal girls (1). The etiology of labial fusion is still unknown. Although hypoestrogenism in prepubertal girls induces labial adhesion, complaints such as diaper rash, urinary tract infection (UTI), allergic dermatitis, diaper rash, low frequency of body washing, fungal infections, poor hygiene, vaginal stream, and diaper changes can be considered in the etiology (2). Labial adhesion can bring about problems such as UTIs, challenges in urination, and even hydronephrosis (2,3).

In this research article; we aimed to retrospectively assess the features and treatment methods of the patients with labial adhesions admitted to or consulted with the Pediatric Surgery Outpatient Clinic.

MATERIAL AND METHOD

After getting approval from the Ethics Committee with the date 26/07/2022 and the decision number 2022/7-16, patients who underwent intervention for labial fusion between July. 2014-July.2022 were involved in this research. The parameters of the patients were obtained from the Kardelen computer database of our hospital. The files of patients were scanned through the hospital data processing system. The patients' age at the time of diagnosis, complaints at presentation, use of estrogen therapy, frequency and duration of recurrence of adhesion, and complications were assessed.

After the families were adequately informed about the treatment methods, the use of topical cream with estrogen was suggested first in the patients who did not have any additional problems. Labial adhesion was opened manually under topical local anesthesia in patients who did not endorse the exercise of estrogen cream, and whose labial fusion continued after topical treatment.

A two-week warm sitting bath was recommended for these patients, and they were educated about the use of topical estrogen cream, lower care suggestions, and the importance of protection from irritation. Creams containing the raw material of the Centella Asiatica plant were prescribed for these patients as restorative and concealer. After two weeks we called these patients for clinical examination. At the control clinical examination who had thick, harsh adhesions which were found in the physical examination, that were not suitable for manual separation, the adhesion was separated surgically with bipolar electrocautery under sedation after getting the approval of the family. The patients were discharged on the same day as outpatients. During the follow-up period, topical estrogen, creams containing the raw material of Centella Asiatica, and warm baths were advised for 14 days postoperatively.

SPSS 15.0 statistical package program (SPSS Inc, Chicago Ill) was used for statistical assessments. Mann-Whitney U test was used in the analysis of continuous variables. Chi-square and Fisher's exact chi-square test were used in the comparison of categorical variables. A "p" value of <0.05 was evaluated statistically considerably in all analyses.

RESULTS

In our hospital, 438 patients with labial fusion who met the study criteria were reviewed. Nine patients were not included in the study due to missing information in hospital records. The ages of the patients included in the study ranged from 32 days to 10 years, with a mean age of 3.1 and a median age of 2.02 ± 2.42.

Although 346 (79%) of the patients whose records accessed from the hospital database were asymptomatic, the number of those applied directly to the Pediatric Surgery Clinic after the parents noticed the problem was 302 (69%).

The patients were classified into three groups according to their age: under 1 year (n=196, 44.7%), 1-5 years old (n=225, 51.4%) and 5 years old (n=17, 3.9%). It was investigated in which age group the risk of recurrence was higher.

Labial fusion repetition was found to be significantly lower in the under-1 age group (n=25, 12.8%) compared to other age groups (n=68, 30.2% and n=5, 29.4%, respectively) ($p=0.012$). It was found that labial fusion could recur for up to 5 years. Our follow-up period after intervention in labial fusion ranged from 15 days to 3 years (median 2.8 months).

Twenty-six (5.9%) of the patients had an attempt to open a fusion in another center before admission and applied to our polyclinic with the complaint of recurrence of the fusion. Anal fissure to labial fusion in 35 (8%) of the patients, perineal diaper dermatitis in 30 (6.9%) patients, constipation in 35 (8%), diarrhea in 3 (0.7%) ,and parasitosis was detected in 7 (1.6%) patients. Forty-eight (11%) of the patients had UTIs at the time of admission (**Table 1**). The most common microorganism grown in urine culture in UTI was Escherichia coli (n=41, 85.4%), followed by Klebsiella pneumonia (n=5, 10.4%) and Proteus (n= 2, 4.2%).

Table 1. Additional problems related to labial fusion

Additional problems related to labial fusion	Frequency n (%)
UTI	35 (8%)
Difficulty urinating	61 (14%)
Previously opened synechia	18 (4%)
Purulent discharge from the genital area	18 (4%)
Constipation	26 (6%)
Anal fissur	22(5%)
Total	180 (41%)

In 359 (82%) of the patients, the labial fusion completely covered the vagina and urethra, leaving only a small opening close to the clitoris. Since this situation caused a

like appearance of the male genitalia in girls, it caused families to apply to the hospital with the thought that their child did not have a uterus. Estrogen-containing topical cream was used for 14 days before the intervention in 35 (8%) of the patients who applied with labial fusion, and the full opening was not achieved in any of these patients in the control.

Labial fusions were opened in all the remaining patients, and in the post-treatment controls of those who received estrogen therapy (**Figure 1, 2**). After the fusion opened, the patients used topical cream with estrogen for 2 weeks. No complication development related to the procedure was encountered. While complete recovery was achieved in 342 (78.1%) of the patients after this treatment, the remaining patients underwent repeated intervention due to recurrence of fusion 1-6 times after the recovery period.

The age of the patients with an additional problem related to labial fusion is 83 days-8.5 years (median 1.8 years), the age of the patients with isolated labial fusion is between 40 days-8.5 years (median 1 year) was changing. It was found that patients with an additional problem related to labial fusion were older ($p<0.001$). It was observed that the fusion recurred in 97 (53.9%) of the patients with an additional problem related to labial fusion, and in 23 (8.9%) of those who did not have any additional problems. Problems accompanying labial fusion were found to have a statistically significant effect on the risk of recurrence of the fusion ($p<0.001$).

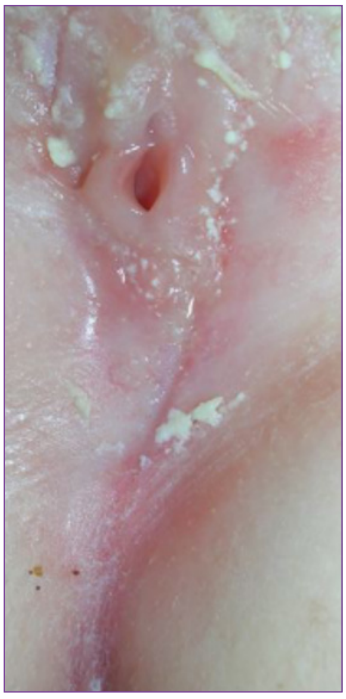

Figure 1. Labial fusion before manuel separation

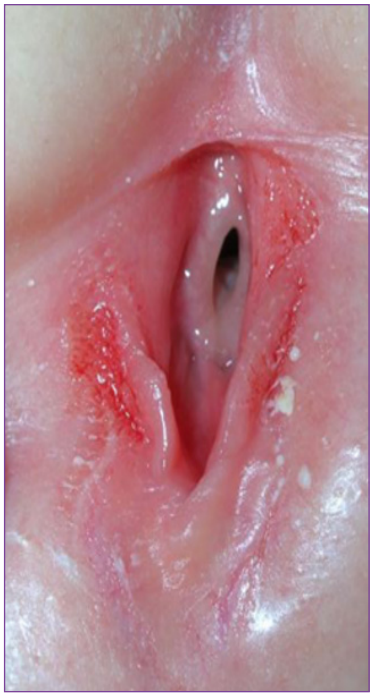

Figure 2. Labial fusion after manuel separation

DISCUSSION

The prevalence of labial adhesion is 1.8%, with the highest incidence (3.3%) in 13 to 23 months (4). Local trauma and damage, especially in the genital area, cause fibrous exudate that causes tissue deterioration. Fibrous exudate is thought to predispose to labial fusion. Labial fusion can occur when the labia minora stick together forming an inflammatory tissue membrane. The extent of labial fusion varies from nearly complete fusion to milder cases where 30-50 percent of the labia minor length is adhered. It usually causes obvious clinical complaints in girls between the ages of three months and three years. The reason why it is not seen very often before 3 months is the effect of estrogen in the mother, whose effect can still continue in the baby (5).

Labial adhesions are usually seen in infants and young girls before puberty. When girls increase their estrogen levels with puberty, labial adhesions are much less common and labia minora can sometimes open spontaneously (6).

Most girls with labial adhesions do not have any obvious symptoms. In some girls, pain, difficulty in urination, clinical signs of urinary tract infection, and labial adhesions can be seen. Even a girl with labial adhesions complains of dripping or leaking urine. This is due to the fact that the urine is trapped behind the labial fusion region and then occurs (7). Most of the patients are asymptomatic and may be noticed by the parents while they are being cared for or during the physical examination by the doctor.

Parents can bring their children to pediatric or pediatric surgery clinics with dermatitis, dysuria, UTI, and obstruction. Although 734 (82.5%) of the patients whose records accessed from the hospital database were asymptomatic, the number of those applied directly to the Pediatric Surgery Clinic after their parents noticed the problem was 643 (72.3%) (8) In this study, 346 (79%) of the patients included were asymptomatic. The number of those who applied directly to the Pediatric Surgery Clinic after the parents noticed the problem was 302 (69%). These findings were also found to be consistent with the literature.

Preliminary treatment with topical estrogens is considered safe, even in long-term treatment applications. According to previous studies on this subject, successful results have been achieved in 50-80% of treated patients.(9-10). In our study, 340 (78.6%) of the cases entirely recovered after the first course of treatment.

The success rate with local estrogen cream treatment varies between 47-100%. There are also those who use 0.05% betamethasone cream as an alternative to estrogen in topical treatment or in combination. In a study, the success rate in labial fusion after betamethasone cream application was 68%, and the recurrence rate was 23%.

In a study by Eroğlu et al., estrogen cream, betamethasone cream, and were administered to 131 patients in three groups for four weeks. In this study, only topically with estrogen 15.5%; The success rate was 15.6% with betamethasone alone, 28.5% with combined treatment, and no statistically significant difference could be found between the results(12). In a study by Soyer, patients were divided into three groups, only topical estrogen was applied to one group for two weeks, manual separation was applied to one group, and manual separation and prophylactic estrogen therapy were applied together to another group. In the estrogen-only group, the success rate was 66.6% in the third month; 55.5% in the ninth month; The success rate in the third and ninth months was 85.7% in the group that only underwent manual separation. The success rate was found to be 100% in the group where manual separation and topical estrogen were applied together. In a study by Muram, topical estrogen therapy was successful in approximately half of 289 patients treated for labial adhesions, and the rest were opened by manual separation. manual separation and prophylactic estrogen therapy were applied together in one group (13).

The mode of action of the components containing the raw material Centella Asiatica plant in the treatment of skin diseases is essentially anti-inflammation, anti-oxidation and reduction of damage to mitochondria by oxidative stress, which is also compatible with the pathogenesis of these diseases. Studies at the cell level suggested that Centella Asiatica standard extract (ECa 233) might affect filopodia formation and increase wound healing by activating FAK, Akt and MAPK signaling pathways (14). In particular, creams containing Centella Asiatica plant raw materials were thought to be beneficial to use together with estrogen due to their repairing and concealing effect in irritation after the manual opening of the labial fusion.

CONCLUSION

As the age increases in patients with labial fusion, additional problems related to this pathology are seen more frequently. The coexistence of these two conditions also increases the fusion recurrence rate. Labial fusion is a pathology that is frequently seen in prepubertal girls and can cause serious concern in families. While the labial fusion regresses with the prevention of irritations due to diaper use and hygiene recommendations in the early period, raw materials containing Centella Asiatica plant and estrogen-containing creams may be used in advanced cases and manual fusion may be required when necessary. With the early detection of labial fusion and the implementation of necessary precautions, treatment can be better. We think that it is easy, and the risk of recurrence is less.

ETHICAL DECLARATIONS

Ethics Committee Approval: This study was conducted by ethics committee approval obtained from Karamanoğlu Mehmetbey Unıversity School of Medicine (Date: 26.07.2022, Meeting Number: 07, Decision Number: 16)

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

Financial Disclosure: The authors declared that this study has received no financial support.

Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

REFERENCES

1. Şahin AH, Yılmaz Ms. Retrospective evaluation of labial fusion in girls. J Health Sci Med 2022;5(3):746-49.
2. Singh P, Han HC. Labial adhesions in postmenopausal women: presentation and management. Int Urogynecol J 2019;30(9):1429-32.
3. Bacon JL, Romano ME, Quint EH. Clinical Recommendation: Labial Adhesions. J Pediatr Adolesc Gynecol 2015;28(5):405-9.
4. Cağlar MK. Serum estradiol levels in infants with and without labial adhesions: the role of estrogen in the etiology and treatment. Pediatr Dermatol 2007;24 (4):373-5.

5. Vilano SE, Robbins CL. Common prepubertal vulvar conditions. Curr Opin Obstetr Gynecol 2016;28:359-65.
6. Saberi N, Gholipour F. Extensive labial adhesion causing voiding urinary symptoms in a postmenopausal woman: a case report. Iran J Med Sci 2020;45 (1):73-5.
7. Schober J, Dulabon L, Martin-Alguacil N, Kow LM, Pfaff D. Significance of topical estrogens to labial fusion and vaginal introital integrity. J Pediatr Adolesc Gynecol 2006;19 (5):337-9.
8. Öztorun Cİ, Erten EE, Bostancı SA, et al. Approach to labial fusion in children: 16 years of experience. Pediatr Pract Res 2022;10(1):6-10.
9. Morin JP, Tew CE, Puntney HL, Roser ML, Saltzman AF. Recurrence rates after surgical management of labial adhesions. J Pediatr Urol 2021;17(5):705.e1-705.e5.
10. Wejde E, Ekmark AN, Stenström P. Treatment with estrogen or manual separation for labial adhesions - initial outcome and long-term follow-up. BMC Pediatr 2018;18 (1):104.
11. Mahato GN, Palit PR, Hasanuzzaman MD. To compare the outcome of estrogen and betamethasone cream in the treatment of labial adhesion in pre-pubertal girls. Bangladesh J Child Health 2019;43 (3):161-4.
12. Eroğlu E, Yip M, Oktar T, Kayiran SM, Mocan H. How should we treat prepubertal labial adhesions? Retrospective comparison of topical treatments: estrogen only, betamethasone only, and combination estrogen and betamethasone. J Pediatr Adolesc Gynecol 2011;24 (6):389-91.
13. Saraç F, Büyükbeşe SS, Toptaş M, Saygılı A, Şahin K. Labial füzyonda tedavi yaklaşımlarımız. Med Bull Haseki 2016;54:67-9.
14. Singkhorn S, Tantisira MH, Tanasawet S, Hutamekalin P, Wongtawatchai T, Sukketsiri W. Induction of keratinocyte migration by ECa 233 is mediated through FAK/Akt, ERK, and p38 MAPK signaling. Phytother. Res 2018;32 (7):1397-403.