A combination of local corticosteroid and petroleum ointment in managing labial adhesions in prepubertal female children: should it be the first choice?

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Received: 03 January 2022
Revised: 17 January 2022
Accepted: 10 February 2022
Published: 04 January 2023

The Egyptian Journal of Surgery 2023, 41:469–472

Background
Labial adhesion is a partial or complete adherence of the labia minora. It occurs in 0.6–5% of prepubertal females. Vulvar irritation in combination with hypoestrogenism is considered the main cause. Labial adhesions are often asymptomatic. Urinary or vulvar symptoms can occur. Topical estrogen therapy is the treatment of choice; however, it may cause adverse effects, such as breast budding, labial engorgement, and hyperpigmentation. Surgical separation is reserved for refractory cases. In the study, we aimed to evaluate the role of local corticosteroid in combination with petroleum ointment regarding efficacy, possible adverse effects, and incidence of recurrence.

Patients and methods
The study was conducted at the Pediatric Surgery Unit of Minia University Hospital from June 2019 to March 2021. All prepubertal female children who presented to the outpatient clinic with no history of previous management were included. According to the length of labial adhesion line (raphe), the severity of the condition was classified into four grades. Parents were instructed to care about local hygiene. Betamethasone 0.05% cream was applied as thin layer twice daily directly on the adhesion line with gentle pressure followed, after 2 h, by petroleum ointment (Vaseline). Patients were followed at the outpatients clinic. The first evaluation visit was after 2 weeks. In case of partial success, the same regimen was followed for another 2 or 4 weeks. Failure after 6 weeks was considered as indication for surgical separation. Successful cases were continued on petroleum ointment only for 1 month and followed up for 6 months.

Results
The study included 26 prepubertal female children with age ranging from 10 to 24 months. The commonest severity grade was grade III (46.2%). Success (complete separation) was achieved in 23 (88.5%) cases (eight cases after 2 weeks of local therapy, 13 cases after 4 weeks, and five cases after 6 weeks), whereas there was failure of complete separation in three (11.5%) cases after 6 weeks of local treatment, and they were managed by surgical separation. During post-treatment follow-up period, three cases were lost. Recurrence was reported in two (10%) cases out of the 20 cases that completed follow-up period, and they started the same regimen again with successful separation.

Conclusion
Use of local betamethasone cream in combination with local petroleum ointment in cases of prepubertal labial adhesions is considered as a good option regarding success rate, adverse effects, and recurrence.

Keywords:
adhesions, betamethasone, labial, prepubertal

Egyptian J Surgery 2023, 41:469–472

1110-1121

Introduction

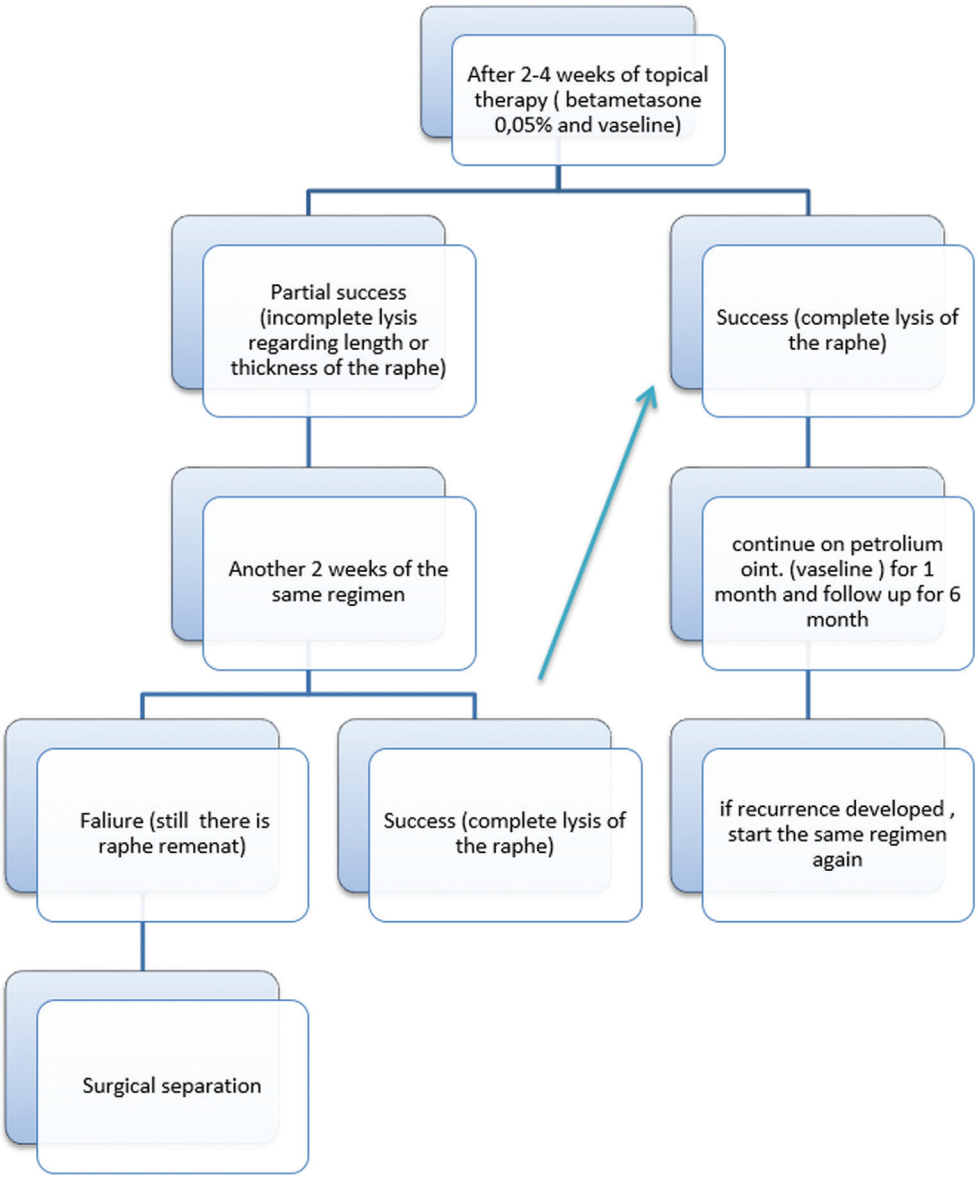
Labial adhesion (fused labia or labial agglutination) is defined as partial or complete adherence of the labia minora [1]. It occurs in 0.6–5% of prepubertal women. However, the prevalence may be higher owing to the low rate of detection between asymptomatic children [2]. The cause of labial adhesions is unclear. Vulvar irritation and inflammation in combination with poor hygiene and hypoestrogenism in prepubertal girls are considered as the main causes [3]. The inflammatory response results in sloughing of the epithelial cells and overactivation of macrophages, which result in formation of an avascular bridge between the labia minora [4]. Labial adhesions are often asymptomatic. Urinary or vulvar symptoms due to the inflammatory response and irritation of the

vulvo-vaginal area can include discharge, odor, pruritus, pain, dysuria, or post-void dribbling [4]. Topical estrogen therapy is the treatment of choice; however, it may cause adverse effects, such as breast budding, labial engorgement, and hyperpigmentation [5]. Surgical separation of labial adhesions is usually reserved for refractory cases [5]. In the study, we aimed to evaluate the role of local corticosteroid in combination with petroleum ointment regarding efficacy, possible adverse effects, and incidence of recurrence.

Patients and methods

The study was approved by the Minia University Surgery Department ethical committee, and it was conducted at the Pediatric Surgery Unit of Minia University Hospital from June 2019 to March 2021. Informed detailed consent was obtained from the parents before joining the study. All prepubertal female children who presented to outpatient pediatric surgery clinic with no history of previous management of the case (topical treatment or manual separation) were included. According to the length of labial adhesion line (raphe), the condition severity was classified into four grades: grade I, the raphe length is up to 25% of labia minora length; grade II, the raphe length is from 25–50%; grade III, the raphe length is 50–75%; and grade IV, the raphe length is more than 75%. Parents were instructed to care about local hygiene. Betamethasone 0.05% cream was applied as thin layer twice daily directly on the adhesion line with gentle pressure followed, after 2 h, by petroleum ointment (Vaseline) application. Patients were followed at pediatric surgery outpatients clinic. The first evaluation visit was after 2 weeks, and according to the results, patients followed our flowchart in Fig. 1.

Figure 1



Flowchart of management plan.

Results

The study included 26 prepubertal female children with age ranging from 10 to 24 months. Overall, 61.5% of patients were discovered accidently by parents. The commonest severity grade was grade III (46.2%). Success (complete separation) was achieved in 23 (88.5%) cases (eight cases after 2 weeks of local therapy, 13 cases after 4 weeks, and five cases after 6 weeks), whereas there was failure of complete separation in three (11.5%) cases after 6 weeks of local treatment, and they were managed by surgical separation (Figs 2 and 3). During post-treatment follow-up period, three cases were lost (did not attend our out-patient clinic according to the follow-up schedule with failure of our contact methods to communicate with the parents). Recurrence was reported in two (10%) cases out of the 20 cases that completed follow-up period, and they started the same regimen again. The results are summarized in Table 1.

Discussion

Labial adhesion is not a rare condition, but it has a low rate of detection among asymptomatic children [2]. Schroeder reported high incidence of the condition reaching up to 21.3–38.9% [6]. Prepubertal hypoestrogenism in combination with repeated inflammation and poor local hygiene is considered the main causes of labial adhesion [3], resulting in sloughing of surface epithelium and overactivation of macrophages that lead to formation of avascular band between labia minora [4]. The role of topical betamethasone in managing cases of labial adhesion arises from both pathophysiology of adhesion development and its effect in managing phimosis in boys [7].

Topical estrogen cream is widely accepted as an appropriate management but with possible adverse

Table 1 Summary of results

	Descriptive statistics
Age (months)	
Range	10–24
Mean±SD	16.4±4.6
Presenting symptoms [*n* (%)]	
Accidentally	16 (61.5)
Vaginal irritation	4 (15.4)
Repeated UTI	6 (23.1)
Severity grade [*n* (%)]	
Grade I	1 (3.8)
Grade II	6 (23.1)
Grade III	12 (46.2)
Grade IV	7 (26.9)
Topical application period (week) of betamethasone [*n* (%)]	
2	8 (30.8)
4	13 (50)
6	5 (19.2)
Outcome [*n* (%)]	
Success	23 (88.5)
Failure	3 (11.5)
Follow-up period [*n* (%)]	
Complete	20 (87)
Lost	3 (13)
Recurrence [*n* (%)]	
No	18 (90)
Yes	2 (10)

Figure 2

Grade II labial adhesion with preservation of central inter-labial region.

Figure 3

Nearly 100% labial separation after 2 weeks of local therapy. There was very thin remnant avascular translucent inter-labial band which disappeared on next visit after 4 weeks of local therapy.

effects, long duration, and relatively high incidence of recurrence. Mayoglou *et al.* [8] reported a mean length of topical estrogen cream of 2.8 months to achieve complete separation, with a success rate of 71.2%, and 27.4% needed surgical separation, whereas in our study, the mean length to achieve complete separation was 3.77 with a success rate of 88.5%, and 11.5% needed surgical separation.

Because there is no clear data about possible local or systemic adverse effects of long-term use of local betamethasone cream, we considered incomplete separation after 6 weeks as a failure. In concordance with that, Mayoglou *et al.* [8] reported mean time of topical betamethasone of 5 weeks.

However, no local or systemic adverse effects of local betamethasone were reported in the study, which is in concordance with the findings of Myers *et al.* [5]. Mayoglou and colleagues reported adverse effects of local estrogen cream in the form of breast budding in 5%, skin rash in 3%, and vaginal bleeding in 0.7% [7], and Wejde *et al.* [9] reported adverse effects of local estrogen in 6% in form of vaginal irritation and breast hypertrophy.

Although surgical separation appears to be easy maneuver to manage the condition, our environmental culture makes any manual or surgical interference in vaginal area totally unacceptable by the parents. Some studies reported high postsurgical separation recurrence rate that reaches to 26%, especially if no topical therapy was used after the procedure with possibility to form more tough adhesion after each trial of manual separation [8]. Local petroleum ointment (Vaseline) plays an important role in managing labial adhesion by protecting the labia from local irritants secondary to its high viscosity, preventing development of inflammation and epithelial shedding, and subsequently preventing adhesion formation. So, it increases the incidence of success and decreases the incidence of recurrence. In concordance with that finding, Ertürk [10], in his study, reported the importance of Vaseline use in combination with local betamethasone.

Conclusion

The use of local betamethasone cream in combination with local petroleum ointment in cases of prepubertal labial adhesions is considered as a good option regarding success rate, adverse effects, and recurrence.

Financial support and sponsorship

Nil.

Conflicts of interest

No conflict of interest.

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