

# Manual Separation of Labial Synechiae: A Cost-Effective Method in Prepubertal Girls

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## Abstract

**Background:** Labial synechiae is a fairly common gynaecological problem that occurs as a result of inflammation leading to fusion between the labia minora. Being in a developing country with limited resources and poor compliance of patients to prolonged treatments, we are faced with immense challenges in the management of these girls. **Aims:** We wanted to evaluate the efficacy and the cost-effectiveness of manual separation and topical antibiotics with perineal hygiene in the management of pre-pubertal girls with labial synechiae. **Materials and Methods:** Design: Prospective, non-randomised interventional study. Participant: Pre-pubertal girls presenting with the diagnosis of labial synechiae in the period from September 2015 to January 2018. Interventions: Manual separation followed by topical antibiotic ointment application for 1 week with local hygiene. Outcomes measure: Complete release of the synechiae and no recurrence up to 6 months. **Results:** Out of the total 55 patients, only 48 patients were included, their age ranged from 3 months to 7 years (mean 2.8 years). Almost half of our patients were asymptomatic, and other half had symptoms (urinary tract infection, dripping of urine and itching). Majority of our patients belong to low middle class status. We had 100% complete release of synechiae and no recurrence on 6 months follow-up. **Conclusion:** Manual separation followed by topical antibiotics is a cost-effective method of the treatment of labial synechiae with immediate response and low recurrence rate.

**Keywords:** Adhesions, labial synechiae, manual separation, pre-pubertal girls, topical antibiotics

## INTRODUCTION

Labial synechiae is defined as a partial or complete fusion of the labia minora.<sup>[1]</sup> Other names include labial adhesion, labial or vulval fusion and labial agglutination.<sup>[2]</sup> This condition commonly affects young pre-pubertal girls (age 3 months to 6 years) and the highest incidence at age of 1–23 months.<sup>[3]</sup> It may present as an incidental finding or may cause symptoms such as urinary tract infection, urinary retention, altered urinary stream or post-void dripping and pain with activity or itching.<sup>[4]</sup> The exact cause is still uncertain; however, conditions that lead to local inflammation or irritation of the vulva and hypoestrogenism are believed to be responsible.<sup>[5]</sup> The diagnosis of labial synechiae is made clinically by the visualisation of a thin-transparent membrane covering the vulva and this will exclude the other diagnosis such as imperforate hymen and other genital anomalies. Although the management of this condition is reserved for symptomatic girls as majority of these adhesions

will resolve with time, however cultural aspect also plays a role in decision-making in areas like Pakistan where the normal look of genitalia is necessary for the family since the early development and could make the family present to quacks for the treatment of such condition. Management can be conservative medical (topical oestrogens cream<sup>[1,2,6]</sup> and local betamethasone application),<sup>[7,8]</sup> or surgical like manual separation and lysis with or without oestrogen cream application.<sup>[6,9]</sup> For any successful treatment, compliance and cost are vital pillars, majority of patients in the developing countries have poor compliance and low income to afford prolonged treatment courses thus conservative management would not be followed and we were faced with recurrences. Keeping the patient's needs and safety as a priority, we proposed the manual separation of labial synechiae followed

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by hygiene emphasis and local antibiotics to provide effective and safe method with a short duration of treatment no cost to the patient. In our knowledge, this is the first study in Pakistan that explains manual separation with special emphasis on post-release hygiene and local antibiotics to prevent recurrence in pre-pubertal girls.

## MATERIALS AND METHODS

The study was approved from the hospital advance research and ethical committee board. It was a prospective, non-randomised and interventional study conducted in the department of paediatric surgery, affiliated with a university hospital between September 2015 and January 2018. All patients presented either in the outpatient department (OPD) or in emergency room with a diagnosis of partial or complete labial synechiae on visual inspection were included in this study. The exclusion criteria were the patients who were under previous treatments by local oestrogen or betamethasone (within 6 months), patients who were allergic to the antibiotics involved in the study and parents who refused the treatment or opted for the other types of treatments.

Patients' data such as age, address, socioeconomic status, presenting symptoms and their duration, any previous treatment by Quacks have been noted. All of our patients' families were informed about our protocols, and verbal consent was taken for the release of synechiae under local anaesthetics either in the emergency room, OPD or in theatre under sedation. Informed verbal consent was obtained from the carers, our technique involved cleaning the area with alcohol swabs, followed by local anaesthesia (lidocaine hydrochloride 2%) for 1–2 min, then fingers are used to stretch the membrane covering the vulva (this stretch was sufficient to release the flimsy adhesions) and to complete the separation a small haemostat's tip was used to facilitate the release. The procedure was followed by local cleanliness with gauze soaked in saline then application of local antibiotics Polyfax® skin ointment (1 g: Polymyxin B 10,000 IU, Bacitracin 500 IU) to the denuded labia. After the procedure is completed, parents were allowed to physically see that their girls have normal genitalia, they were also educated about local hygiene (Sitz baths, daily shower) and how to apply the antibiotics ointment three times a day to the released sides of labia for 1 week. All the parents were given two tubes of Polyfax® ointment from the hospital pharmacy to apply at home. Majority of the cases were done in the outpatient or emergency treatment room; however, if they were older than 3 years, then we release the synechiae in the minor operation theatre under sedation (Injection Ketamine IV 1 mg/kg). On follow-up, patients were asked to come for visual inspection after 7 days in the outpatient clinic then were asked to follow-up at 2 months and 6 months. Patients who were unable to come physically were contacted by the telephone and asked about response and any recurrence of the synechiae. We used descriptive statistics and excel sheets in our analysis of the results.

## RESULTS

During the period of 29 months (between September 2015 and January 2018), there was a total of 55 patients, three refused treatment and four lost follow-ups. The remaining 48 patients' data were analysed. The age of these patients ranged between 3 months and 7 years (the mean 2.8 year), and their age of distribution was described in Table 1. Almost half of our patients (47.91%) were asymptomatic, with the presentation of abnormal genital appearance that was incidentally noticed either by family ( $n = 19$ ) or by doctors ( $n = 4$ ) who referred them to us with suspicion of vaginal atresia. Although none of these girls had any symptoms except the abnormal genital appearance, it has caused severe parental anxiety. The remaining girls (52.09%) were symptomatic, the most common presentation was itching at the perineal area followed by post-void dripping of urine and pain while micturition [Table 2]. Majority of our cases (81%) were virgin cases and few cases (19%) were recurrent, post-oestrogen cream application ( $n = 7$ ) or previous manual release ( $n = 2$ ). Five of our patients presented to quacks for treatment before hospital presentation (those were previously treated with oestrogen cream). On perineal examination, almost three fourth of patients had complete adhesions (79%), and the rest had partial adhesion mostly involving the posterior half of the vulva. Three of our patients had an association of anorectal malformation [Table 3]. Almost two-third of our patients 64.5% ( $n = 31/48$ ) belong to lower class family, and the rest were from the middle class. Thirty-seven of our patients got their synechiae release in the outpatient clinic and eleven were released in the operation theatre under sedation. There was no thick adhesion in any of our patients. There was 100% complete release of the adhesions in all the cases. All parents

**Table 1: Age distribution of patients**

Age	Number of patients (%)
Infant <1 year	21 (43)
1-3 years	15 (31)
4-7 years	12 (25)

**Table 2: Various presentation of symptomatic girls**

Symptoms	Number of patients (%)
Itching at the perineal area	12 (48)
Post-void dripping	7 (28)
Pain while micturition	6 (24)

**Table 3: Examination finding**

Perineal examination	Number of patients
Complete adhesions	38
Incomplete adhesion	10
Associated ARM (vestibular fistula)	2
Associated ARM (perineal fistula)	1

ARM: Anorectal malformation

would physically see the genital area anatomy immediately after release. At the first follow-up (7<sup>th</sup> post-release day), almost all patients had good perineal hygiene with no redness or signs of any adhesions and at 6 months no patient had develop any recurrence. We have received a very high satisfaction rate from the parents and good compliance.

## DISCUSSION

Labial synechiae is a fairly common paediatric gynaecological problem. The reported incidence is 0.6%–3% in pre-pubertal girls, although its prevalence might be even higher as the majority of these cases are asymptomatic, and thus remain unreported.<sup>[3]</sup> It is an acquired disorder that occurs secondary to inflammation that promote fusions between the labia minora.<sup>[10,11]</sup> Poor hygiene, diaper rash and chronic irritation of vulva are believed to be precipitating factors in hypoerogenic pre-pubertal girls.<sup>[12]</sup> Treatment of synechiae is indicated if symptoms develop, and it includes medical or surgical treatment. However, in areas such as Pakistan where the abnormal genitalia especially for female could produce tremendous parental anxiety, unresponsive to counselling and that could drive the parents to seek any unprofessional advice if nothing would be offered in hospital or if they were asked to sit and watch till the problem resolve. This has derived majority of paediatric surgeon in Pakistan to start the treatment even in asymptomatic girls to prevent future complication. In literature, there is no consensus with regard to the best treatment option present up-to-date. Surgical intervention either by manual separation or lysis is indicated in recurrent cases, failure of medical treatment or thick adhesions that do not respond to medical therapy. Multiple authors have documented their experience in managing these cases with manual separation with or without application of oestrogen cream or emollient post-operatively to prevent recurrence.<sup>[4,13]</sup>

It is presumed that after manual separation, the skin inside the labia minora (that was previously adherent to each other) may have become denuded and vulnerable to infection. Thus, it is reasonable to suppose that hygienic care and topical antibiotic used in this study had played a vital role in the prevention of recurrence. In addition, post-release application of emollient and lubricant is required to prevent the denuded labial skin from sticking back together and forming new adhesions,<sup>[14]</sup> thus the ointment itself may have protective role as it acted as a barrier layer between the inside of labia minora and it prevented refusion. A similar study was conducted by Watanabe *et al.*<sup>[15]</sup> who reported their experience in treating eight patients of labial synechiae successfully with manual separation followed by local cleanliness, however they have used gentamicin ointment, whereas we used Polyfax<sup>®</sup> ointment. A couple of studies have emphasised that local cleanliness after manual separation is important as recurrence had been documented to occur due to the lack of hygiene,<sup>[15,16]</sup> and we have observed a very poor hygiene in many of our patients. Up-to-date, no controlled trial compared manual separation with topical application of oestrogen cream has been performed; however,

in our cohort, we noticed that manual release followed by local hygienic care and topical antibiotic ointment is more practical and convenient for the following reasons. First, it provided immediate release at the first visit, and it reduced parental anxiety markedly as it allowed us to ensure the parents that their baby girls genitalia is normal; on the other hand, topical oestrogen takes up to 7 days or even more before its obvious results and has a high recurrence rate.<sup>[9]</sup> Second, manual release with local cleanliness is devoid of side effect as compared to oestrogen cream that may cause vulval pigmentation, vaginal bleeding and breast development.<sup>[12,17]</sup> Third, application of topical antibiotic post-release did not have any side effect in our patients and was well tolerated. Forth, manual release with topical Polyfax<sup>®</sup> ointment is more cost-effective as the majority of our patients are from very far-flung areas with very low income and we were able to provide them the antibiotic ointment from the hospital free of cost, whereas oestrogen cream has to be dispensed from the outside pharmacy and could not be afforded by the majority of the patients. Fifth, literature showed that recurrence rate after manual separation is 14%<sup>[16]</sup> and 20%<sup>[18]</sup> however, in this series, no patients had any recurrence up to 6 months.

In contrast to a study conducted in Turkey<sup>[19]</sup> which documented that synechiae are more common in the families who belong to a good socioeconomic class and in whom the mothers tend to clean the perineum; all our patients belong to low middle-class families and the majority had a very bad perineal hygiene. There are reports that raised concern about the psychological trauma when this remedy is used;<sup>[13,20]</sup> however, we have observed a very high satisfaction rate from the families of these girls and almost all thanked us while leaving.

We have observed that our management had allowed us to educate the parents about the importance of local hygiene and this, in turn, benefited them in that no symptoms had developed during the follow-up period. We agree that intervention is required in symptomatic patients; however, we had opted for this treatment even in asymptomatic patients based on family request for the treatment as it was the best option to protect these girls from complication and unsafe practice from quacks. Being in a developing country where education level and IQ of the majority of these girl's family is low, we think that this treatment is effective and safe and treat the problem at a first visit which ultimately decreased parents' anxiety and also decrease the cost as the ointment was provided freely. Different centres in Pakistan have different protocols for the treatment of labial synechiae; however, this is the only cohort reported to date, and we have implemented this protocol in our hospital as it provided us with best response and high satisfaction from families.

The limitation of our study that it was single centre, non-randomised with short duration of follow-up, and it did not compare it to other treatment modalities. We are cannot affirm whether it was the ointment-based part of the local antibiotics that had the major contribution to the prevention of friction or

the antibiotics that prevented infection and inflammation and future comparative study can determine the benefits.

## CONCLUSION

Labial synechiae is fairly common in Pakistan, and intervention is required even if no symptoms based on the cultural believes. Management of these girls with manual separation, local cleanliness and topical antibiotics can provide a good alternative in patients of developing countries, with low income and less education levels because it has immediate results and is free of cost to the patients with low or no recurrence. This remedy has a good compliance and a very high parents' satisfaction rate.

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## Conflicts of interest

There are no conflicts of interest.

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