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Original Article

Conservative management of cicatrix after circumcision: Retraction and steroid

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Abstract

Aim: Our study aims to study the combined manual retracting and topical steroid application method for the treatment of post-circumcision cicatrix in neonates and infants and to establish the need for a secondary intervention.

Material and Methods: A total of 20 patients applying to our clinic with post-circumcision cicatrix between April 2018 and January 2019 were evaluated retrospectively. Multivariable analyses assessed the association between the age of the patients and the onset of complaints associated with cicatrix, the time to onset of symptoms, and the duration of recovery.

Results: The mean age at admission was 7.8 months (4-13 months), and the mean age at circumcision was 3.4 months (2 weeks-6 months). In our study, all the patients had been fully recovered after the treatment with combination of topical 0.1% betamethasone ointment and manual retraction. The mean duration of treatment was 30.6 days (14-56 days).

Conclusion: In this study, we reported our observations related to the treatment only with 0.1% Betamethasone ointment and manual retraction for the first time in the literature. We believe that before choosing secondary applications which potentially traumatize the patient, insisting on topical steroid and manual retraction will provide a satisfactory outcome.

Keywords: Circumcision; cicatrix; conservative management; manual retraction

INTRODUCTION

Circumcision has a history dating back to ancient times, and is still the most common surgery performed on male children in a very wide geographical area today (1). Various debates ongoing for many years on circumcisions' medical necessity, as the contradictory religious and socio-cultural propositions, could not affect its common application (2-4). Circumcision is now even increasingly being performed in younger ages, leading to a more frequent incidence of post-circumcision complications that used to be considered rather rare. One of these complications is poor recovery progressing to a phimosis-like state, cicatrix.

Among the treatment methods for post-circumcision cicatrix, application of topical steroids, secondary surgeries and combinations of these methods are mentioned in literature. Post-circumcision cicatrix creates emotional and physical trauma in patients and causes feelings of fear and insecurity in parents of the patients. The etiology of the clinical condition remains unclear. In the literature different approaches have been suggested although the number and content of the conducted studies are limited. This creates a difficult situation in the management of these cases for the physicians, patients and parents

Our study aims to study the combined manual retracting and topical steroid application method for the treatment of post-circumcision cicatrix in neonates and infants and to establish the need for a secondary intervention and to add knowledge to the literature about the course of this clinical condition.

MATERIAL and METHODS

A total of 20 patients applying to our clinic with post-circumcision cicatrix between April 2018 and January 2019 were evaluated retrospectively (Figure 1). All patients gave written informed consent. The local ethical board approved the study (Ref.No:143/16.10.2019). Age at admission, age at circumcision, circumcision technique, early post-circumcision complications, time of the post-circumcision cicatrix diagnosis, duration of treatment, recurrence, and post-treatment follow-up periods were reviewed.

Patients with a former diagnosis of buried penis, urinary tract disease and systemic disease affecting wound healing were excluded from the study. Patients

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with dermatologic disorders, history of hypertrophic scar or keloid development in any part of the body prior to circumcision or with post-circumcision local complications such as bleeding or wound site infection were also excluded from the study. Two patients were lost to follow up and were also excluded from the study.

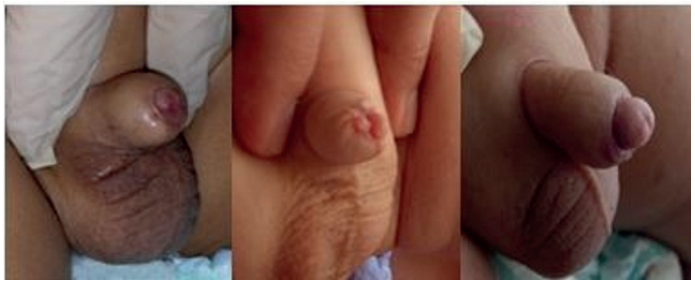

Figure 1. Cicatrices developing after circumcision

The treatment was initiated with administration of Betamethasone ointment (Betnovate™ GlaxoSmithKline, Istanbul, Turkey) twice daily at a concentration of 0.1% on the circumcision line that had contracted a covered the glans afterwards manual retraction was applied. During manual retraction, the person performing the manual retraction grasps the penis at the ventral and dorsal faces by the thumbs and index fingers of both hands, then retracts the penile skin towards the penis base gently without causing pain, repeating this procedure 10 times at each application (Figure 2). Patients were followed up in weekly controls. Betamethasone application was ceased when full recovery was observed and manual retracting was continued for another two weeks with wider periods as once every other day.

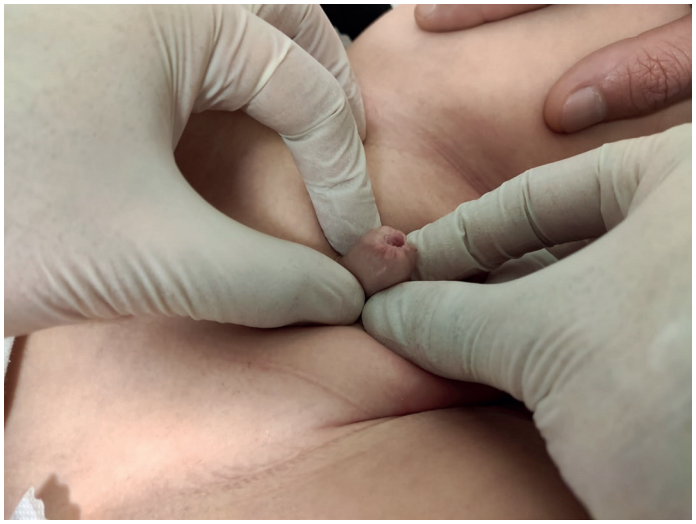

Figure 2. Application of manual stretching

Manual retracting was continued as long as there was no worsening with the contracture of the scar tissue.

Power analysis of the study was performed using PS: Power and Sample Calculation for Windows, version 3.1 (PS Software). Prior data indicated that the difference in the response of matched pairs is normally distributed with a standard deviation 0,8. If the true difference in the mean response of matched pairs is 0.79, we will need to study minimum 16 subjects in order to reject the null hypothesis that this difference would be zero with a probability of (power) 0.8. The Type I error probability associated with this test of this null hypothesis is 0,05.

Statistical analysis was performed using MedCalc for Windows, version 19.1 (MedCalc Software, Ostend, Belgium). Independent two-group comparisons for statistical analysis were performed using the Mann Whitney U test. The ratios of the categorical variables between the groups were tested by Chi-square analysis and Fisher's exact test if the number of samples is less than five. The level of statistical significance was set at $p < 0.05$.

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. Data were anonymized.

RESULTS

The mean age at admission to our clinic was 7.8 months (4-13 months), and the mean age at circumcision was 3.4 months (2 weeks-6 months). It was stated by the parents that all of the patients were circumcised by medical doctors, and suture materials were used in all of the circumcisions.

Investigation of the clinical data revealed that the only complaint due to cicatrix had been cosmetic appearance. None of the patients had any micturition problem. The first problems with post-circumcision recovery were noticed by the parents of the patients in an average of 5.3 months (3-9 months). This average timing was calculated to be the post-operative 45th day. No statistically significant correlation was found between the age at circumcision and the age of onset of complaints associated with cicatrix ($p>0.05$).

In our study, all of the patients were fully recovered after the combined treatment of topical Betamethasone application and manual retracting (Figure 3). The mean duration of treatment was 30.6 days (14-56 days). No statistically significant correlation was found between the age of the patients and the timing of symptom occurrence or the time to recovery ($p>0.05$).

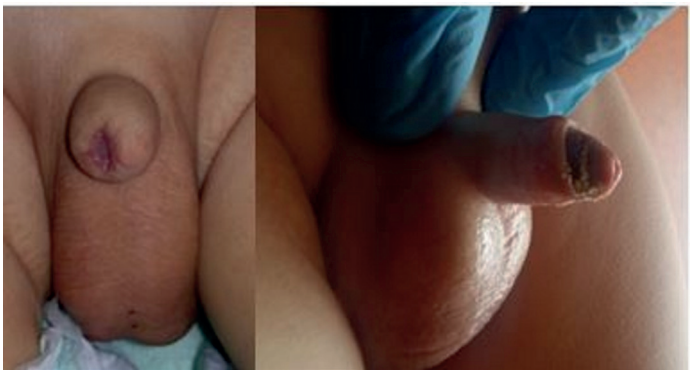

Figure 3. Before and after the treatment of steroid and manual retraction

None of the patients required invasive intervention. The cicatrix was not teared by manual handling or a surgical instrument. During the treatment process, no systemic or local complications were observed. The mean follow-up period after discontinuation of the treatment was 4.8 months (3-7 months).

DISCUSSION

When the local administration of steroids was shown to be as equally effective as the systemic administration in reducing the collagen synthesis in tissues, its' use in wound healing disorders has rapidly become popular. It has also been genetically demonstrated that disturbance of steroid synthesis pathways is one of the influencing factors in scarring disorders (5). Therefore, the use of local steroids has become one of the preferred treatment methods also in post-circumcision scarring condition. However, different treatment methods in the literature and the examples reflecting their processes fail to establish a common ground (6-10).

In one study, Casale et al. performed surgery in all such patients, did not find any recurrence, but reported poor outcomes in terms of cosmetic appearance due to skin problems in 22% of their patients (11). Blalock et al. separated preputial adhesions by dilation of the fibrotic circumcision line using a clamp under local anesthesia in 28 patients of which the majority of circumcisions were performed using a Gomco clamp (10). They reported that re-cicatrization was observed in three patients who were again treated by re-dilatation. Additionally, Kidger et al. noted that of the patients whose circumcisions were performed using the Plastibell device, 5 who had a history of presenting with bleeding during early post-operative period showed cicatrix formation. The authors reported that one of these patients recovered with manual retraction and 4 required a secondary surgical procedure (12). In all of the three studies mentioned above, no steroids were administered, and invasive interventions were preferred.

Palmer et al. were the authors who first presented an investigation in which Betamethasone (0.05%, 3 times a day for 3 weeks) was administered and manual retraction was applied to 14 patients who had undergone circumcision during the neonatal period and recovered with cicatrix at the post-operative 1st month (13). In this study, 9 of the patients recovered with this treatment, while two of the 5 patients who did not recover underwent relaxation incision and remaining three underwent penoplasty. In a study with a group of 33 patients, Alpert et al. performed dilation on cicatrix line using a clamp followed by administration of local Betamethasone (0.1%) for 2-7 weeks as the initial treatment, and reported that 6 of the patients required additional intervention due to recurrence (9).

Among the major confusions on topical steroid usage are the duration of treatment, the criteria for determination of unresponsiveness and discontinuation of the treatment regimen. There is no standard practice in literature with respect to duration of treatments. As we believe that secondary physical trauma increases the possibility of recurrence in cicatrix patients, we avoided secondary invasive interventions. Indeed, we observed full recovery in all of our patients.

In this study we reported our observations regarding the treatment solely with 0.1% Betamethasone ointment and manual retraction for the first time in literature. Taking into consideration that previously high steroid concentrations were effective in the recovery of phimosis, we managed our treatment regimens with 0.1% preparation from the initial stage (14). The main factor distinguishing the results we obtained in this study from earlier studies is that no secondary interventional procedure was required. It is noticeable that success was attained, although with different durations of treatment, in this method where family-patient-physician congruence is important. The fact that successful outcomes were observed despite prolonged treatment durations in some cases, questions the need for additional interventions in such patients. The retrospective nature and the insufficient number of patients are the main limitations of the study.

CONCLUSION

In conclusion, treatment with administration of a topical steroid and manual retraction is an effective and non-invasive treatment method. We believe that before choosing secondary applications that could potentially traumatize the patients and their parents, insisting on topical steroid application and manual retraction will provide a satisfactory outcome.

Competing interests: The authors declare that they have no competing interest.

Financial Disclosure: There are no financial supports.

Ethical approval: The local ethical board approved the study (Ref. No:143/16.10.2019).

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