

Clinical efficacy of intracavitary injection of triamcinolone acetonide in children with multiple tarsal cyst.

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Abstract

Objective: To observe and evaluate the clinical efficacy of the intracavitary injection of triamcinolone acetonide for children with multiple tarsal cyst.

Methods: A retrospective study was performed. A total of 72 patients with multiple tarsal cyst recruited in our Eye Center from January 2013 to February 2015 were selected as the objects in which there were 30 girls and 42 boys at the age of 3 to 12 with the disease course ranging from 2 to 32 w. Cysts, 2-5 in number, were confined with no local tenderness. Among the involved cases, 42 patients had cysts with one eye and 30 with both eyes of which the cysts ulcerated through the skin in 28 cases. All patients were given intracavitary injection of triamcinolone acetonide. 0.4% oxybuprocaine was used for topical anesthesia with intracavitary injection of 0.05 to 0.1 ml triamcinolone acetonide suspension. Compression for 5 to 10 min was applied to stop bleeding. Injections were performed for each cyst. After one week, injections were performed again for cysts which was not completely absorbed with the topical injection for 1-2 times.

Results: In 44 cases of multiple cysts without skin ulceration, 7 d after the first injection there were 32 cases (72.73%) of complete absorption with no scar and 12 cases (27.27%) of incomplete absorption without scar in which 11 cases were complete absorption 1 w later without scar and 1 case was lost; By contrast, the marked absorption (100%) was found in all 28 cases of cysts with skin ulceration who were required the injection for the second time. 7 d after the second injection, there were 15 cases (53.57%) of complete absorption and 13 cases (46.43%) of incomplete absorption in which after 2 w 12 cyst cases were complete absorption without scar or pigment and 1 case was lost.

Conclusion: intracavitary injection of triamcinolone acetonide is worth being widely used in clinical trials due to its security and effectiveness in the treatment of children with multiple tarsal cyst.

Keywords: Tarsal cyst, Triamcinolone acetonide, Intracavitary injection.

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Introduction

Tarsal cyst, also called chalazia, refers to chronic inflammatory lipogranuloma of tarsal glands caused by obstruction of discharge line and it is a common multiple disease for children with such symptoms as aseptic and chronic granuloma, painlessness, no tenderness, clear boundaries and chronic congestion of corresponding conjunctival surface. Children are more likely to suffer the disease perhaps due to exuberant secretion of their glands, little attention to eye health, failure of treatment or incomplete therapy [1,2]. The clinical manifestations of tarsal cyst are often as follows: there are many cysts at one side of the upper and lower eyelids and even to the eyes, sometimes with ulceration prolonged unhealed. In the past, partial resection was performed, which, however, increased the risk of anesthesia and operation [3-5]. And for those who have skin ulceration, the waiting for its slow

absorption affects the skin appearance. Since 2013, the multiple tarsal cyst has been treated by intracavitary injection of triamcinolone acetonide in our Ophthalmic Center with certain curative efficacy reported as follows.

Materials and Methods

From January 2013 to February 2015, a total of 72 patients with multiple tarsal cyst recruited in our Eye Center were selected as the objects. There were 30 girls and 42 boys at the age of 3 to 12 with the disease course ranging from 2 to 32 w. Among them 42 patients had cysts with one eye and 30 with both eyes under a series of retrospective case study.

All patients have confined cyst and no local tenderness. In 44 cases, the cyst was confined to the bottom of eyelid skin surface, red-free and painless; local redness was found in 28

cases of cyst with skin ulceration but no pain. The patients have gone through the treatment of traditional antibiotic eye drops, oral antibiotic and hot compress but with no effects. All patients have normal blood routine and urine routine with no history of drug allergy.

Operation procedure

Patients were guided to take supine position followed by routine disinfection of the eye skin with sterile towels paved with the application of 0.4% oxybuprocaine for surface anesthesia; the intracavitary injection of 0.05-0.1 ml triamcinolone acetonide was conducted with eyelids opened and each cyst injected, hemostasis by compression for 5-10 min. After one week, the patients who did not absorb were treated repeatedly and each cyst was given the injection for no more than 2 times. All patients went through complete injection and there was no need to add another injection when the suspension overflowed.

Observation index

Observation was made on postoperative infection rate of the children, occurrence of hematoma, average operation time and hospitalization time. Before leaving hospital, double blind assessment was performed to evaluate satisfaction of the children's family to therapeutic effect by way of questionnaire with the results including satisfaction, general satisfaction and dissatisfaction; After leaving hospital, the patients were followed up for half a year with the recurrence of cyst observed.

Results

General manifestation of children

Of the 72 patients, 44 were cases of confined cysts and the cysts ulcerated through the skin in 28 cases. The children were 3-12 y old with the disease course of 2-32 w and the cyst number of 2-4. The confined cyst had a diameter of 2-9 mm and the cyst with skin ulceration had a diameter of 2-12 mm (Table 1).

Table 1. Patients with cystic disease.

| Group | Case | Age (y) | Course (w) | time | Cyst number | Cyst diameter |
|--------------------|------|---------|------------|------|-------------|---------------|
| Confined cyst | 44 | 3-12 | 2-32 | | 2-4 | 2-9 |
| Cyst of ulceration | 28 | 3-12 | 2-32 | | 2-4 | 2-12 |

Status of return visit patients 7 d after the first injection

In 44 cases of confined cysts, there were 32 (72.73%) cases of complete absorption without scar within 7 d, 12 (27.27%) cases of incomplete yet markedly improved absorption. After 1 w, there were 11 of complete absorption and 1 case was lost.

28 cases of cyst ulceration were all complete absorption (100%), and the patients were required to receive a second injection (Table 2).

Table 2. Changes of cyst 7 d after the first injection.

| Group | Complete absorption | Marked Absorption | No Change |
|--------------------|---------------------|-------------------|-----------|
| Confined cyst | 32 (72.73) | 12 (27.27%) | 0 |
| Cyst of ulceration | 0 (0%) | 28 (100%) | 0 |

Status of return visit patients 7 d after the second injection

28 cases of the skin ulceration of significantly reduced size were given second shot and 1 w later there were 15 cases (27.27%) of complete absorption and 13 cases (46.43%) of nearly complete absorption in which another week later there were 12 cases of complete absorption without scar or pigment and 1 case was lost (Table 3).

Table 3. Changes of cyst 7 d after the second injection.

| Group | Complete absorption | Marked absorption | No change |
|--------------------|---------------------|-------------------|-----------|
| Cyst of ulceration | 15 (27.27%) | 13 (46.43%) | 0 |

Satisfaction degree of family members of the patients in the two groups

The satisfaction of the patients was both moderately high in the two groups, reaching 81.8% and 82.1% respectively (Table 4).

Table 4. Satisfaction of family members of the patients in two groups.

| Group | Satisfaction | General satisfaction | Dissatisfaction |
|--------------------|--------------|----------------------|-----------------|
| Confined cyst | 36 (81.8%) | 5 (11.4%) | 3 (6.8%) |
| Cyst of ulceration | 23 (82.1%) | 4 (14.3%) | 1 (3.6%) |

Comparison of recurrence in two groups

After leaving hospital, the 72 children were followed for half a year for the observation of recurrence. During the follow-up 16 cases were lost including 2 cases in confined cyst group and 1 case in cyst of ulceration group with the recurrence rate of the two groups respectively as 4.55% (2/44) and 3.57% (1/28).

Discussion

Chalazion is the most common disease of eyelid as aseptic and chronic granulomatous inflammation, no pain and tenderness, clear boundaries and chronic congestion of the corresponding conjunctival surface and the accumulation of polymorphonuclear leukocytes, plasma cells, lymphocytes and multinucleated macrophages can be seen histologically [6]. The incidence is high in children and the patients are prone to suffer recurrent attacks with scars left, affecting the appearance

and even causing eyelid abnormalities, amblyopia or strabismus if serious [7]. Children lie in the critical period of visual development, thus making it necessary to adopt active and effective ways of treating tarsal cyst, which was previously treated with operation. However, due to the poor coordination of children, it is often hard to conduct the operation immediately after the complement of local anesthesia. As for multiple cysts, repeated general anesthesia not only increases the risk of surgery but also causes psychological trauma in children. There were overseas reports on good curative effects of intracavitary injection of triamcinolone acetonide earlier [8]. Triamcinolone acetonide is a long-acting and water-resisting glucocorticoid with slow absorption in local tissues and with the effects lasting 2-3 w. It can inhibit chemotaxis of inflammatory cells as well as reaction of complement and promote the absorption of inflammation [9,10].

Li pointed out in the study [11] that small cysts can be cured by a mere injection. Tarkowski [12] also demonstrated in his experiment that a small amount of triamcinolone acetonide could act in cysts. In this study, the 44 cases of confined cyst included 32 cases (72.73%) of complete absorption with no scar or pigmentation within 7 days and 12 cases (27.27%) of incomplete absorption which also turned to complete absorption after 1 w; In the study, 28 cases of the skin ulceration of significantly reduced size were given second shot and 1 w later there were 15 cases (27.27%) of complete absorption and 13 cases (46.43%) of nearly complete absorption in which another week later there were 12 cases of complete absorption without scar or pigment. Carlisle [9] also noted that children are relatively prone to accept the intracavitary injection. Leinfelder has applied methylprednisolone to treat acute prostatitis with remarkable effects. In this study, the selected cases all were with tarsal cyst and no signs of acute infection. Jha [10] proposed in his research that 89.6% of the patients had been cured by intracavitary injection. In this study we found there were some cysts ulcerating through the skin with relatively large size. In this case the absorption rate was 61.1% after the first injection and 100% after the second injection. In this course, triamcinolone acetonide may overflow from the injection point, which needs no supplement of the drug. Each cyst needs to be injected with a maximum of 2 in times, which eliminates the pain from several times of surgery. This treatment way does not require sophisticated instrument and has less strict requirement of disinfection than operation. The pain from intracavitary injection is similar with a mere shot of anesthesia in extent and even less because the drug dose is only 0.05-0.1 ml.

Alsuhaibani et al. [13] pointed out in their study that the patients with no skin ulceration could be effectively treated with one mere shot while those with skin ulceration require another shot with each cyst injected no more than 2 times, which coincides with the results of this study. Therefore, treatment should be taken as soon as possible when the cyst remains confined without infection to achieve good performance.

In addition, Wojtowicz et al. [14] put forward in their study that the edema resulting from hot compress would cause errors on the measurement of the size of the cyst and after injection not like intraocular pressure changes or vascular obstruction. In this study, the children's coordination was also a possible cause of the error in the measurements. None of the 72 patients developed complications such as pigmentation, vascular obstruction or intraocular pressure changes. But before the operation, patients and their families should also be informed of the possibility of corresponding complications.

Besides, the study result showed the satisfied levels of patients and relatives were both moderately high in the two groups, reaching 81.8% and 82.1% respectively with the postoperative recurrence rate respectively as 4.55% (2/44) and 3.57% (1/28). It was indicated that this treatment can achieve significant clinical results with high degree of family satisfaction and low postoperative recurrence rate.

To sum up, intracavitary injection of triamcinolone acetonide is effective in the treatment of children with multiple tarsal cysts, freeing the patients from the risk of general anesthesia and multiple operations, especially for the treatment of refractory tarsal cyst with skin ulceration. For the sake of safety, intracavitary injection of triamcinolone acetonide is more suitable for the treatment of children with tarsal cyst.

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