Original Article

Outcome of Low Dose Intralesional Steroid Injections in Superficial Infantile Capillary Hemangioma (SICH) of Eyelid

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ABSTRACT

Purpose: To evaluate the outcome of low dose intralesional steroid injections used in superficial infantile capillary hemangioma (SICH) of eye lid**.**

Study Design: Prospective Study

Place and Duration of Study: This study was conducted at Department of Ophthalmology, Chandka Medical College Hospital Larkana from September 2001 to October 2011.

Materials and Methods: Only, patients with congenital SICH involving eye lids with closure of visual axis were included in this study and SICH involving eye lids without closure of visual axis were excluded from study. The diagnosis of disease was based on history and clinical examination. All the patients were treated by mixture of low dose intralesional steroids triamcinolone 20mg (0.5ml) and dexamethasone 4mg (1.0ml). A total of three injections were given with interval of two months. After injection, the follow-up examinations were carried out at first week, every second month for six months and then annually. After treatment, outcome was recorded. The successful outcome was labeled when there was complete regression of lesion.

Results: Out of 37 patients 28(75.67%) were female and 9(24.32%) were male with female to male ratio of 3.1:1 and age range of 2 to 12 months. All the patients had unilateral growth; with left eye lid involvement in 22(59.45%) cases and right eye lid involvement in 15(40.54%) cases. The successful outcome seen was early regression of lesion in 24(64.86%) cases by age of 2.3 years and in 13(35.13%) cases by age of 3.1 years.

Conclusion: The outcome of this study was that, early treatment of SICH of eye lid with intralesional steroid injections resulted reliable, quick, beneficial effects and good cosmetically functional eye lid by early involution of growth.

Key Words: Intralesional Steroid Injections, Capillary Hemangioma, Anisometropia, Astigmatism, Amblyopia

INTRODUCTION

Hamartomas are congenital abnormal proliferations of normal tissue at normal site. The most common example of these is superficial infantile capillary hemangioma (SICH) of eye lid which is abnormal growth of vascular endothelial cells made up of masses of very small –caliber vessels.[1,2]. It is the most common benign soft tissue tumor of infancy. Approximately 4%-10% of children are suffering from these lesions in which half of these lesions involve the head and face with female: male ratio of 2.5-4:1.[3,4] Most of the lesions are not visible at birth but more than 50% of them are evident during 1-2months of early life and 90-100% in 6-8 months of life.[5] The lesion is diagnosed by history of red or purplish growth which becomes larger and thicker on crying of child. On inspection the lesion is strawberry in appearance and is non-pulsatile on palpation because of diminished blood flow. It empties with pressure and refills after releasing of pressure (empting-refilling sign).Indication of its treatment is threat of visual loss by occlusion, mass effect, amblyopia, and astigmatism.[6] Spontaneously most of the lesions involutes progressively in such a way that 40- 60% completely regressed by age 4 years and 76% by age of 7 years of life.[7]Treatment options are mixture of intralesional steroid injections-40 mg/ml triamcinolone + 6mg/ml betamethasone[8], oral steroids-prednisolone1-2-5mg/kg/day[9], topical steroids[10], interferon alfa-2a[11], vincristine[12], beta blockers[13], external beam irradiation[14], carbon dioxide laser , argon laser, Nd:YAG laser [15,16], pulsed dye laser [17], and surgical excision.[18]

MATERIALS AND METHODS

This prospective study was conducted from September 2001 to October 2011 at Department of Ophthalmology Chandka Medical College Hospital Larkana on 37 patients with unilateral SICH of eye lids. The patients were selected from the out-patient department after diagnosis of disease based on history and clinical examination of red or purplish growth increasing in size on crying of patient and strawberry, non-pulsatile in appearance with empting and refilling sign. All the patients were admitted in the eye ward where a specific proforma containing patient's bio-data, age, sex, laterality, site, treatment and their complications was filled. Only patients with SICH of eye lids with closure of visual axis were included tin this study and patients with SICH of smaller size not showing closure of visual

axis were excluded from study. To rule out systemic associations of SICH, complete blood cell count and ultrasound abdomen was performed in all cases. All the patients after aseptic measures received intralesional mixture of steroids injections triamcinolone 20mg (0.5ml) and dexamethasone 4mg (1.0ml). The eye lids were padded and patients were kept on oral antibiotic cephradine 30-50 mg/kg body weight/day and analgesic ibuprofen 15mg/kg body weight/day in divided doses for 5 days. Eye dressing was removed on the next day and topical antibiotic ointment was given for one week. The follow-up examination was carried out at first week, every second month for six months and then annually. After treatment outcome was recorded. The successful outcome was labeled when there was complete regression of lesion.

RESULTS

Our study included 37 patients, 28(75.67%) females and 9(24.32%) males with female: male ratio of 3.1:1 and age range from 2 to 12 months. The left eye lid was involved in 22(59.45%) cases and right eye lid in 15(40.54%) cases. All the patients were with unilateral growth causing complete closure of visual axis. With first local intralesion steroids injection in all cases, the immediate effects seen were violet discoloration and increase in size of growth followed by decrease in size of growth in 2-3 weeks. Due to insufficient decrease in size of growth and lid opening after two months of first injection, in all the patients further two doses of same mixture of intralesional steroid injections were repeated with interval two months in each injection. (Please see Annex). Outcome of injections was the early regression of lesion in 24(64.86%) cases by age of 2.3 years and in 13(35.13%) cases by age of 3.1 years.

Before Treatment **After Treatment**

Figure No.1: Color Photograph of 11 Months old baby girl with Superficial Infantile Capillary Hemangioma of the left upper eyelid before treatment and after treatment

DISCUSSION

Although SICHs of lid are benign in nature but when larger in size or sufficient to cause closure of visual axis and when these left untreated may lead to significant visual loss caused by anisometropia, astigmatism, amblyopia at early age and dysfunctional eye lid and cosmetic blemish later in life. Therefore they should be treated as earlier as possible at early age to prevent blindness and disfigurement. Study conducted by of Friedens IJ et al showed approximately 2/3 occurrence of SICH in females and 1/3 in males. The same was observed in our study with female to male ratio of 3.1:1.[3] Before starting treatment it is important to differentiate SICH of eye lid from dermoid cyst, vascular malformations (i.e.lymphangioma / arteriovenous malformations), metastatic neuro-blastoma, nevus flammeus (port-wine stain) and to search for systemic associations like high output heart failure (SICH with very large fast growing visceral hemangioma), Kasabach Merritt syndrome (SICH with thrombocytopenia, anemia, low levels of coagulating factors, large visceral tumors) and Maffuci syndrome (SICH with enchondromata of hands, feet and long bones as well as bowing of long bones).[19] Fortunately in our study we had not seen any of this case with systemic association. The synthetic topical, local intralesion and systemic steroids are widely used in various diseases of eyes involving lids, adnexa, anterior segment, posterior segment, cranial nerves related with eyes and disorders of many organ systems. Triamcinolone, dexamethasone are synthetic glucocorticoids steroids with marked anti-inflammatory actions like: Stabilizing cell lysozomal membrane which prevents release of lysozomal proteolytic enzymes; decreasing capillary permeability which prevents plasma loss and white blood cells migration into inflammed area; depressing white blood cells ability to digest phagocytized tissue which prevents further release of inflammatory materials; suppressing antibodies and T-cells which prevent immune reactions that cause inflammation; modifying the body's immune responses to diverse disease stimuli.[20,21,22] These corticosteroids can produce serious side effects like Cushing's habitus (a characteristic appearance with rounded face, narrow mouth, supraclavicular hump and truncal obesity with thin limbs, fragile skin, muscular weakness), susceptibility to infections, delayed wound healing ,peptic ulceration, osteoporosis, growth retardation, fetal abnormalities cleft palate, elevation of blood pressure and blood sugar, osteoporosis, psychosis, congestive cardiac failure and renal failure.[23] In our study we used intralesional mixture of triamcinolone 20 mg, which is long acting steroid and dexamethasone 4mg which is short acting steroid. During the follow up, the post injection, local intra-lesion complications seen were bleeding in 5(13.51%) cases, soft tissue atrophy in 4(10.81%) cases, hypo pigmentation in 3 (8.10%) cases and systemic hirsute in 2 cases (5.40%). Shorr N et al had noticed one of the most serious ocular complication, central retinal artery occlusion after use of mixture of local periocular intralesion steroids injection (40 mg/ml triamcinolone + 6mg/ml betamethasone), but contrast to this, in our

study we had not noticed such type of complication in any case, this may be due to use of low and divided doses of steroids 20 mg(0.5ml) triamcinolone with 4mg(1.0ml) dexamethasone.[8] Margileth AM et al noticed about 40% complete regression of lesion by age 4 years and about 70% complete regression by age 7 years without any treatment, but we observed early regression of lesion in 24(64.86%) cases by age of 2.3 years and in 13(35.13%) cases by age of 3.1 years with early treatment by local intralesion steroids injections.[7] In contrast to other expensive and unsafe methods of treatment for SICH, we noticed that local intralesion steroids injection treatment is not only cheap, easily approachable but results in early regression of lesion without significant local and systemic complications. Another important advantage of early regression of SICH of lid is to reduce the risk of refractive error, astigmatism, amblyopia, visual loss and cosmetic blemish. Hence we recommended that local intralesion steroids injections are important in controlling the growth phase, substantial shortening of the natural coarse and early regression of SICH. Although in our study family history was absent but patient's parent education about natural course of regression and genetic counseling is highly recommended.

CONCLUSION

We observed that early treatment of SICH with intralesional steroids results reliable, quick, beneficial effects and good cosmetically functional eye lid by early involution of growth.

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