



## INTRALESIONAL BLEOMYCIN INJECTION (IBI) IN ORBITAL LYMPHANGIOMA, STUDY OF TEN CASES

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**ABSTRACT** A prospective study was conducted on 10 patients, clinically and radio logically diagnosed as orbital lymphangioma. All the patients were treated with intralesional injection of Bleomycin. Age of the patient varied from 2 to 40 years. Lesions were present in different parts of orbit. All were fresh cases without any previous treatment. Inj Bleomycin was dissolved in normal saline to make a solution 1 IU/ml. Under LA /GA, drug was injected into the lesion, after aspirating denatured blood from the cyst. In 3 cases there was total resolution of lesion after one inj of Bleomycin. In 5 cases 2 to 4 injections were required for a satisfactory result. In 2 cases there was residual lesion even after 4 injections. No systemic or ophthalmic side effects were seen. Intralesional bleomycin injections can be used as a first line or as an alternative treatment option in cases of orbital lymphangiomas.

**KEYWORDS :** Orbit, Lymphangioma, Bleomycin

### INTRODUCTION

Orbital Lymphangioma is rare vascular hemartoma of lymphatic channels, found in periorbital region. It is abnormal growth of endothelial lined channels interspersed with in normal tissue. (1) According to Mulliken and Glowacki classification based of clinical and histological characteristics congenital vascular lesions can be haemangiomas and or vascular malformation. Vascular malformation is always present at birth. Unlike hemangiomas, lymphangiomas always grow proportionally in size with the body and never regress spontaneously. Lymphangiomas fall in the group of no flow or low flow malformation because they are hemodynamic ally isolated and clinically present during first decade of life. (2) Size of lesion fluctuates with posture, Valsalva maneuver and with upper respiratory infections. Complications like proptosis /squint/diplopia, visual disturbances secondary to optic nerve compression, exposure keratopathy, and chocolate cyst formation can occur if untreated.(1,2) USG in lymphangioma shows wide separations of echoes due to larger fluid lakes. MRI shows clusters of grape-like cystic lesions within internal septations.

Earlier intervention in lymphangioma leads to decreased subsequent enlargements, visual threats and chronic fibrosis. Lymphangiomas are amorphous, unencapsulated making excisions difficult with high risk of intraoperative bleeding. (1) Surgical excision was the mainstay of treatment in past. Postoperative risk of cosmetic disfigurement, infections and recurrence is there. Diathermy, cryotherapy, radiation, CO2 laser ablation are other treatment modalities. (2, 3)Percutaneous sclerotherapy is a newer modality. Bleomycin, cytotoxic antitumor antibiotic when given intralesionally by transcutaneous injections has sclerosing effect on vascular endothelium. Bleomycin leads to DNA degradation in under coiled strand regions and apoptosis in rapidly growing immature cells of vascular malformations. Various studies have found response rate of IBI to be between 85-97%, with complete remission in 90% of patients with lymphangiomas. (5, 6)

### METHOD OF STUDY

All ten patients of suspected lymphangioma were subjected to USG or MRI to confirm the clinical diagnosis and to determine the nature and extent of vascular malformation. Assessment of patient suitability for intralesional bleomycin injection was done by oculoplastic surgeon, anesthetists and physicians. Patients and relatives were informed regarding likely outcomes and possible side effects following intralesional bleomycin. Inclusion Criteria for Bleomycin sclerotherapy was lesions, impairing visual function, causing proptosis and/or exposure keratitis. Exclusion criteria were pregnancy, breast feeding, lung pathology, previous chest radiotherapy, chemotherapy, immunocompromised hosts.

Preoperative assessment included age, sex, weight, lesion location & size, clinical history, special investigations and final diagnosis. Standardized colored photographs were taken before during and after completion of the treatment. Investigations included hemogram, renal

function tests. Chest X-rays were done to rule out lung pathology. Urine pregnancy test to rule out pregnancy in young female patients. All were fresh cases without any previous treatment. Inj Bleomycin was dissolved in normal saline to make a solution 1 IU/ml. Under LA /GA, drug was injected into the lesion, after aspirating the denatured blood from the cyst/lesion. Dose of bleomycin in 1 session did not exceed 10 mg. Drug was given using multi puncture technique. Compression and pressure bandage was applied for 24 hours. Antibiotics and analgesics were given and were discharged home. Post operative assessment was done on the following day. Weekly follow up was done. Procedure was repeated after 3-4 weeks as per response, with a total of 3-5 sessions.

### PATIENT DETAILS

Age of the patient varied from 2 to 40 years. Lesions were present in different parts of orbit. All were fresh cases without any previous treatment. Pain, epiphora, and subconjunctival hemorrhage in the affected eye were chief complains. On examination a hemorrhagic, fleshy mass/cyst on bulbar conjunctiva was seen. Visual acuity was normal. Inj Bleomycin was dissolved in saline to make a solution 1 IU/ml. Under LA/GA, drug was injected into the lesion, after aspirating the denatured blood from the cyst. In 3 cases there was total resolution of lesion after one inj of Bleomycin. In 5 cases 2 to 4 injections were required for a satisfactory result. In 2 cases there was residual lesion even after 4 injections and was kept under close observation. IBI decreased the size of mass significantly and was effective in symptom reduction and functional status improvement. All patients had comfortable eye with good visual acuity. No patient had recurrence till two years of follow up and vision was stable.

### RESULTS

**Table I**

| Patients (No) | IBI (No) | Response (%)  |
|---------------|----------|---------------|
| 3             | 1        | Excellent(30) |
| 5             | 3-5      | Good(50)      |
| 2             | 4        | Fair(20)      |

Table I shows no of patients, no of bleomycin injections given and response rate (%)

### DISCUSSION

Lymphangiomas present at birth in 50—65%, detected before the end of second year of life in 80—90% of cases and have equal occurrences in males and females. [10]. Lymphangiomas are soft, cystic, transilluminant and may suddenly increase in size with infections or hemorrhage. (1)They are benign but cause significant morbidity due to their large size. Due to extensive ramifications, the lesion becomes difficult to excise if tissue extends between major vessels and nerves. (2, 3) Nerve palsies and recurrences are common post-operatively. To reduce morbidity of surgery, sclerosing agents are tried. (4) Kumaet al had good results in 95% of non orbital lymphangiomas treated with

bleomycin. Rozman et al had excellent response in 63% and good response in 23% patients treated with IBI. (7) Side effects with IBI are pain, erythema, and swelling. Pain usually lasts 72 hours but is relieved with analgesia. Local skin necrosis, hyper pigmentation of skin may occur after bleomycin (20%). (10) Pigmentation fades with cessation of drug. Pulmonary fibrosis is not documented within low dose range.

We used intralesional bleomycin in ten de novo cases with no prior history of any surgical intervention, steroids or radiotherapy. With this therapy in 3 cases there was total resolution of lesion after single inj of Bleomycin. In 5 cases 2 to 4 injections were required for a satisfactory result. In 2 cases there was residual lesion even after 4 injections. All patients were kept under close observation. No major complications or mortality were seen. All patients had comfortable eye with good visual acuity. No patient had recurrence till two years of follow up and vision was stable. Two patients with residual lesion are not having disease progression.

Bleomycin is an antitumor, antiviral, and antibacterial glycopeptides. (5) Yura et al used it as a sclerosing agent in lymphangiomas. (4) Side effects of bleomycin sclerotherapy are local swelling and inflammation, pulmonary fibrosis. (8,9) For sclerotherapy Sung et al suggested dose of less than 1 mg/kg at an interval of not less than 2 weeks, with total dose not exceeding 5 mg/kg. We used 1 mg/ml for larger lesions and 2 mg/ml for smaller lesions with maximum dose limited to less than 6 mg/kg. Our results with the use of bleomycin in lymphangiomas are quite similar to their results. Our study also includes use of bleomycin in haemodynamically less active vascular malformations. Bleomycin is absorbed systemically even when used as a sclerosing agent. (6) Complications of surgery in terms of nerve palsies (12.5-44%), residual disease or recurrence (25 to 52%) and mortality (0- 20%) are recorded. (8,9) Our result with IBI shows less incidence of residual disease. IBI in 10 cases of haemodynamically less active lesions had favorable results.

#### CONCLUSION

All ten cases in our study showed satisfactory regression with marked clinical improvement after receiving between 1 to 5 IBIs. No systemic or ophthalmic side effects were noted. IBI may be considered as a first line treatment modality in cases of orbital lymphangiomas.

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