

## ORIGINAL ARTICLE

### Intralesional Bleomycin in the treatment of Orbital Lymphangioma- Original Article

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#### ABSTRACT

A prospective study of 15 patients of orbital lymphangioma, diagnosed clinically and radiologically, is presented. Age of patient varied from 2 to 45 years. Treatment of patients was combination of intralesional injection Bleomycin in all patients with surgical excision in some where cyst was anteriorly situated. Dose of drug was 0.5 mg /Kg body weight, not exceeding 10 units at a time. A 24 g needle was passed into the orbital cyst and fluid was aspirated. Keeping needle in same position, drug was injected into the cyst. Follow up after 6 months, 4 patients had total regression clinically and on B scan. Seven patients had partial regression and injection was repeated. In 2 patients as mass was anteriorly situated, surgical excision with injection of dye in posterior lesions. In 2 patients there were residual asymptomatic cysts in posterior part and so patients were kept under observation. No significant side effects were observed.

#### INTRODUCTION

Although benign and representing only 1 to 3 percent of all orbital masses, orbital and periorbital lymphangiomas are an obstinate bunch: These hamartomatous, nonencapsulated tumors interwine with surrounding normal tissue, increase in size with infections, and create proteinaceous or blood-filled cysts that can bleed spontaneously—despite the absence of an identifiable blood supply.

#### AIM

The study was conducted to find out the clinical effect of Inj Bleomycin on clinically diagnosed orbital lymphangiomas.

#### MATERIAL

This is a prospective non randomized clinical study carried out in Nagri Eye Hospital, Ahmedabad between January 2015 and April 2016. Patients having complains indicating lymphangioma were investigated radiologically with B scan ultrasonography, CT scan and MRI. If diagnosed as lymphangioma, patients were included in the study. Clinical features were proptosis, bluish conjunctival mass, subconjunctival hemorrhage with proptosis or dilated blood vessels, or rarely hemolacryma(bloody tears). There was a history of upper respiratory tract infection(URTI) in 5 patients. Four patients gave a history of sudden increase in the amount

of proptosis with URTI. One patient gave a past history of operated by a neurosurgeon for swelling on forehead 5 years back. On systemic examination, a two year old child showed a brownish vascular tuft on the hard palate in the mouth.

Age of the patient varied from 2 year to 45 years and all were reported to have developed within past five years of life. There were 8 females and 7 males. It was unilateral in all cases. None had a positive family history.

#### METHOD

Two treatment modalities were employed in the study. If the mass was anteriorly situated and well localized, the surgical excision was done with injection of Bleomycin in the microcysts. If the lesion was big and posteriorly situated, an attempt was made to expose the anterior extent of the lesion which on examination under microscope appeared as bluish pearly lobules. A 24 gauge needle on 5 cc empty syringe was inserted in the mass towards center and posterior pole. With suction, fluid was aspirated, which was dark brown in all cases with some times fresh blood was aspirated along with. This led to collapse of the macrocyst and the proptosis reduced. A gentle pressure was maintained and with needle in place syringe was detached. Another syringe containing bleomycin solution was attached and the solution was injected into the cyst. Amount of fluid injected was either equivalent to the amount of fluid aspirated or

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according to pre injection dose calculated. Constant firm pressure was maintained and pad was applied to prevent upthrust. Eye was bandaged with moderate pressure.

Injection Bleomycin is available in vial. A fresh drug is prepared It is diluted in 5 cc saline. Dose of drug was 0.5 mg /Kg body weight, not exceeding 10 units at a time.

### OBSERVATION

Patients were followed up on the first post operative day to examine the status of proptosis, chemosis, visual acuity and fundus to see the condition of optic disc . Next follow ups were done after 15, 30, 45 and 60 days. Late follow up was at the end of one year. Follow up after 6 months, 4 patients had total regression clinically and on B scan .Seven patients had partial regression and injection was repeated. In 2 patients as mass was anteriorly situated, surgical excision with injection of dye in posterior lesion was done with total regression. In 2 patients there were residual asymptomatic microcysts in posterior part and so patients were kept under observation. No significant side effects were observed.

### DISCUSSION

Lymphangiomas are rare vascular hamartomata of lymphatic channels

They are hemodynamically isolated from the vascular system and are most commonly found in head and neck region.They consist of enlarged, non-capsulated channels lined with a single layer of endothelium. The lesion is a hamartoma- abnormal growth of endothelial lined channels interspersed with normal tissue

Histopathology study of lymphangioma shows infiltrative endothelium like channels, with a sparse cellular network and lymphocytes. Lymphatic follicles are also seen in the walls of the tumor. Red blood cells are not present unless secondary hemorrhage has occurred.Orbital imaging is essential to help make correct diagnosis and also, to determine the extent of the lesion .Superficial lesions can be identified clinically but deep lesions can be diagnosed only with the use of radiology. USG is the first line of investigation and should be performed in all the patients. In capillary hemangiomas - USG shows high amplitude, closely packed echoes from vessel walls adjacent to blood filled spaces. Lymphangiomas have a similar USG pattern, however, with very wide separations of echoes due to larger fluidlakes. CT scan plays a very important role in diagnosis as well as for depiction of extent of the disease due to its multiplaner reformation capability and

high spatial resolution. CT findings correlate well with surgical and histological findings MRI on T1 signal shows blood as hyperintense but rest of the lesion will be hypointense. On T2 signal lesion gives hyperintense signals. In Flow Void Phenomenon tumor vessels can be delineated without the use of contrast agents

Treatment options for Lymphangioma can be broadly categorized into:

Observation

Surgical excision

Non-surgical interventions

Surgery can be carried out for well localized small lesions or as a part of debulking. Non surgical therapy is in the form of scleroing agents like ethyl alcohol, Na tetradecyl sulphate, ethanolamine oleate, OK-432, Doxycycline and Bleomycin. Cryotherapy, radiotherapy or CO2 laser are useful in selected cases.

Inj bleomycin intralesionally is a new modality which is found to be useful in lymphangioma. Its mechanism of action is:

1. Cytotoxicity mediated by DNA cleavage at the level of linker DNA between nucleosomes
2. Proptosis is induced in rapidly growing immature cells including those of vascular malformations
3. Specific Sclerosing effect on vascular endothelium cells

Bleomycin is a cytotoxic antitumor antibiotic. It can be administered intralesionally by transcutaneous injections and effective as a modulator of vascular anomalies. It provides "Non-surgical" and "Scarless" treatment. It is predictable and significant response rates are observed in vascular malformations including microcystic lymphatic malformations.

15 (15 mg) units of bleomycin powder is available in a vial. A solution is reconstituted with 1.5 ml of 0.9% normal saline yielding a 1unit/ml concentration A 24 Gauge needle attached with a 5cc syringe is used to administer the dose Dose of bleomycin in 1 session 0.5 - 1 unit /Kg not exceeding 10 mg at a time. Its side effects are minimum with a big safety margin. A rare complication is pulmonary fibrosis which is dose dependent .Erythema, edema, pain at the site of the injection are some of the minor complications which can be easily treated . Local skin necrosis and eschar formation at the site of injection are also rare.

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**Limitation of study:**

1. Shorter follow up.
2. No controlled study with other drugs. Small number of patients. Not all cases diagnosed on histopathology.

**CONCLUSION**

Intralesional bleomycin is one of the effective non invasive methods for the treatment of orbital lymphangiomas. It is safe without major complications.

**REFERENCES**

1. AnnieStuart,ContributingWriterNovel Approaches to Orbital Lymphangioma ,Eye Net MagazineInterviewing Kenneth V. Cahill, MD, JillA. Foster, MD, and Mary O'Hara, MD,2014.
2. Caroline Godding et al; IntralesionalBleomycin: A Potential Treatment for Refractory Orbital Lymphangiomas; OphthalPlastReconstrSurg, Vol. 30, No. 3, 2014
3. Jason L Acevedo; Non-surgical therapies for lymphangiomas: a systemic review;Otolaryngology–Head and Neck Surgery (2008) 138, 418-424

4. Intralesional Bleomycin in Lymphangioma: An Effective and Safe non Operative Modality of Treatment; V Kumar, P Kumar, A Pandey, D K Gupta, R C Shukla, S P Sharma, and ANJ CutanAesthet Surg. 2012AprJun; 5(2): 133–136.
5. Baskin D, Tander B, Bankaglu M. Local Bleomycin injectin in the treatment of lymphangioma
6. Kertesz Z, Bala G, Bancu S, Gozar H, Virgil G, Horvath E, Pavai Z. Bleomycin therapy for lymphangioma. Chirugia(Bucur)2011; 106: 103-7(PubMed)
7. Rozman Z, Thambidorai RR, Zaleha AM, Zakaria Z, Zulfiqar MA. Lymphangioma: Is intralesional Bleomycin sclerotherapy effective? Biomed Imaging Interv J. 2011;7:e18[PMC free article][PubMed]