



SCLEROTHERAPY USING POLIDOCANOL: A CONSERVATIVE TREATMENT OPTION FOR INTRA ORAL HAEMANGIOMA OF BUCCAL MUCOSA.

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Abstract:

The word hemangioma comes from Greek word, 'hema' which translates blood, 'angio' means vessel, 'oma' refers to tumor.(1) The term hemangioma was first given by Szejder et al in 1973 & was called "Haemorrhagic Hemangioma. It was first described by Poncet and Dor in 1897 as Botryomycose humane.(2) Vascular lesions are classified either as hemangiomas or vascular malformations(1).

Keywords: Sclerotherapy ;Hemangioma ;Polidocanol ;Vascular malformations.

Introduction:

A hemangioma is a benign lesion of blood vessels or vascular elements characterized by a proliferative growth phase and by very slow involutive phase. They are usually classified into capillary, cavernous, or mixed hemangiomas. Oral mucosa and skin are most commonly affected, followed by bone and muscles within the oral cavity. These lesions appear as flat or raised deep blue in color over the surface of the mucosa.(3)

Hemangioma is usually not seen at birth. A majority of hemangiomas appear during the first 6 weeks of life. These lesions occur more commonly in females, with a ratio of 3:1 (F:M). This tumour is also more frequent in whites than in blacks. The most common site is the head and neck region (60%), followed by the trunk (25%), and then the limbs (15%). Cutaneous hemangiomas are superficial (capillary) in approximately 60% of cases and deep (cavernous) in 15% of cases.(4)

In 1982, Mulliken and Glowacki described a classification system for vascular tumours. These vasoformative tumours are classified under two broad headings of hemangioma and vascular malformation. Hemangioma is further sub classified based on their histological appearance as: 1) capillary lesions; 2) cavernous lesions 3) mixed lesions and recently a sclerosing variety discovered that tends to undergo spontaneous fibrosis. (5) Intramuscular hemangioma (IMH) is a relatively rare lesion, constituting less than 1% of all hemangioma cases, and is usually located in the skeletal muscles of the trunk or limbs. IMH most frequently involves the pelvic region, but 10% to 15% occur in head and neck regions, generally in the masseter, sternomastoid, and trapezius muscles, the masseter muscle is the most commonly involved, constituting near about 36% of all head and neck IMH cases.(6) The prevalence of

hemangiomas is estimated to be around 2-3% in neonates, 10-12% below 1 year of age and 22-30% found amongst babies who at the time of birth weigh less than 1000g. Most of the hemangiomas (eighty percent) occur as single lesion, while multiple tumors are found in 20% of affected patients.(7)

Standard radiographs are a common diagnostic tools for detection of hemangioma as they can detect phleboliths, which are strongly suggestive of hemangioma additional diagnostic imaging modalities such as computed tomography (CT), magnetic resonance imaging (MRI), and ultrasound can be used to enhance the accuracy of a preoperative diagnosis, out of these MRI is considered as the highly reliable imaging technique for tissue characterization and identification of hemangioma. Where as definite diagnosis of vascular malformations or suspected hemangioma can be done using digital compression and diascopy.(8,9)

The gold standard for hemangioma treatment, especially for smaller circumscribed lesions and peripheral hemangiomas, is conventional surgical excision. Surgical excision of hemangiomas in the oral cavity and lips can be extremely traumatic and the bleeding can be difficult to control. Alternatively Sclerosing solutions can be used for the management of these vascular tumors, they obliterate the blood vessels, thereby leading to fibrosis and disappearance of the hemangioma.(9,10)

Case Report:

A 50-year-old male patient referred to the Department of Oral and Maxillofacial Surgery K.D. Dental College and Hospital, Mathura. The chief complaint was chronic cheek bite on the right buccal mucosa since 7-8 months. Patient developed swelling due chronic trauma from occlusion while chewing. Initially swelling was small in size & gradually enlarged to attain the present size (Fig.1) without

any incidence of pain according to the history given by the patient.

Intra-oral physical examination revealed, a sessile growth on the right buccal mucosa almost near to the opening of the stensen's duct.(Fig.3) Smooth irregular painless swelling measuring about 1.5x2.5 cms, dark blue colored lesion under intact mucosa present on right side of buccal mucosa which was soft on palpation

Upon firm palpation over the swelling the color changed and it became flat which upon removal of pressure later came back to its pathognomic color. This being highly suspicious of a vascular malformation, hence the patient was advised for a color Doppler USG to reveal the vascular status of the lesion at the same time patient was referred for routine investigations.

The differential diagnosis of hemangioma or vascular malformation or lymphangioma was made based upon case history intra oral examinations. Final diagnosis were made on the basis of color Doppler USG (Fig.2) , which showed a vascular lesion with an arterial as well as a venous supply to the lesion. Haematologic investigations revealed that the the patient was Hepatitis 'B' positive.

Considering the positive viral status of patient, universal precautions were followed during entire procedure. As haemangioma's of oral cavity can be highly traumatic and may be difficult to control the bleeding .Treatment protocol for the management of hemangioma includes intralesional injection of sclerosing agents under local anaesthesia which is an non-invasive alternative to surgical excision.

stensen's duct was cannulated, purse-string suture were given (Fig.4) around the lesion, 2% polidocanol solution was injected slowly into the periphery of the lesion (Fig.5) in between the sutures. 0.4ML of the solution was injected. The patient was put on antibiotic and analgesic therapy for 5 days.During follow up size of lesion decreased in size but was not completely resolved hence the procedure were repeated after 2 weeks (Fig.6) .Subsequent follow ups showed the lesion was tremendously reduced and mucosalization was seen over a time period of 1 month.



Figure 1: Showing intra oral vascular lesion on right buccal mucosa



Figure 2: Showing ultrasound of right buccal mucosa having having feeder vessel both arteries & vein supplying into the lesion.



Figure 3: Showing cannulation of stenson's duct which lies in proximity with the lesion.



Fig. 4 localization of haemangioma done using purse-string suture given around the lesion.



Figure 5: Application of 2% povidone-iodine solution, injected slowly into the periphery of the lesion in between the sutures.



Figure 6: showing 2 weeks post operative view of the lesion, reduction in the volume of lesion can be appreciated.

Discussion:

Hemangiomas are presumed as benign tumors of the infancy and childhood, and have a varying life cycle, recognized by three stages: endothelial cell proliferation, rapid growth, and, at finally, spontaneous involution. The prevalence of hemangiomas is approximately 2-3% in neonates, 10-12% below 1 year of age and 22-30% found among still babies who are under 1000g of weight at the time of birth & Thrice more commonly involves in females than the males. (11,12) hemangioma is considered one of the most common soft tissue tumors of the head and neck, it is relatively rare in the oral cavity and uncommonly

encountered by the clinicians affecting as many as 12% whites, but it rarely occurs in dark-skinned individuals.(5)

Studies by Kocer U, Ozdemir R *et al.* & Acikgoz A, Sakallioğlu U, Ozdamar S acknowledged that oral site is less commonly involved by hemangioma but if involved commonly seen on gingiva followed by lip, tongue & palate are chiefly involved, however Akyol MU *et al.* Suggested that common sites for intra oral hemangiomas are buccal mucosa (45.2%), followed by the tongue (35.5%), lip (9.7%), gingiva (6.5%), and palate (3.2%).(13,14,15) In our case age of a patient were 50 years old male which is

unusual, rare presentation as hemangioma commonly seen in newborns & having strong female predilection as per literature review. The site of occurrence in our case seen on buccal mucosa which is similar to sites mentioned in current literature. The exact cause & development behind the hemangiomas is yet to be discovered. Different hypothesis were presented for the etiopathogenesis of hemangioma by various authors. The two most recommended hypothesis are haemangioma developing from disrupted placental tissue & disordered Angiogenesis stimulation.

As haemangioma is composed of endothelial cells, these cells are originated from disrupted placental tissue which are embedded in the foetal soft tissues during the time of gestation or birth. This is based on fact that markers of haemangioma have been found in placental tissue. The discovery of endothelial progenitor and stem cells in the circulation of patients with haemangioma gave a way to another theory. This theory was then supported by the development of haemangioma in experimental animals from the stem cells isolated from human specimens.(12,16)

Where as another theory states that excesses of these angiogenic factors causes disordered Angiogenesis, to an extent that excessive angiogenic factors outweighs gamma-interferon, tumor necrosis factor-beta, transforming growth factor-beta which are key angiogenesis inhibitors.

These angiogenic factors are Cytokines like basic fibroblast growth factor (bFGF) and vascular endothelial growth factor (VEGF). (2)

Sclerosing agents basically are irritants that injure the endothelial surfaces, ultimately resulting in obliteration of the space between these surface. Sclerosing agents have been classified into three groups based on the mechanism of action causing the injury to the endothelium.

a. Detergents: sodium morrhuate, sodium psylliate, sodium tetradecyl sulfate, ethanolamine oleate, and povidone-iodine (aethoxysklerol 3%, 1% or 0.5%) The detergents cause injury by altering the surface tension surrounding endothelial cells.

b. Osmotic agents: Hypertonic saline, hypertonic saline/dextrose. They act through endothelial damage through dehydration.

c. Chemical irritants: include the corrosives, which act by a cauterizing action and those which injure cells by a heavy metal effect & these are Chromated glycerin, poly-iodinated iodide.(3,9)

Alternative treatment choice available for oral hemangioma is laser therapy mainly relied on the

coagulative effect of superpulsed laser beams causing painless vaporization of tissue in real time. Mainly used for superficial / ulcerated haemangioma as the depth of penetration of laser into of PDL is approximately 1.2 mm. complications comprises of ulceration, pain, residual scarring components of hemangiomas, and sometimes a life-threatening bleeding.(17)

Polidocanol (aethoxysklerol) is an detergent solution which act by causing localized inflammatory reaction, obliterative thrombosis of hemangiomatous space, and subsequent fibrosis of the endothelial spaces, leading to the regression of the lesion. These advantages of sclerosant use are the absence of pain on intravascular injection, a high level of efficacy and safety, and a very low occurrence rate of allergic reactions . There is

also no hemolysis as a direct effect of the drug and, therefore, the potential for less hyperpigmentation..(3,18)

Bnayahu Minkow *et al.* Stated that the interval of 2 weeks between injections allows the surrounding tissues to recover from the vascular damage and reduces the inflammatory reactions. (10) In our case the size of lesion decreased in size in 1st injection but not completely resolved hence the procedure were repeated after 2 weeks which is in accordance with review literature.

Conclusion:

Intraoral Haemangioma of buccal mucosa is an uncommon presentation. Although majority of haemangiomas resolves on itself but few cases which does not undergo involution requires treatment. Antecedent detection, biopsy and definitive treatment can efficiently avoid further complications. Decision of treatment choice should consider challenges such as as close proximity with neurovascular structures, etc. Surgical excision is gold standard for management of haemangioma but has complications related to its invasive nature of treatment. Sclerotherapy is a well established , efficient, cost effective, and simple maneuver to cure haemangioma , thus sclerotherapy emerges as conservative alternative to current gold standard for management for haemangioma.

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