Study of Role of Intralesional Corticosteroid Therapy on Surface Haemangiomas

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ABSTRACT

Introduction: Hemangiomas are the most commonly seen human congenital anomalies. They are commonly seen in infancy and childhood. Patients commonly present to pediatrician or plastic surgeon with one of the most difficult problems known in medicine. Hemangiomas are not true neoplasms but may be defined as "congenital hamartomas, representing mesodermal rests of vasoformative tissue". Study aimed to summarize the basis, principles of selection and timing of treatment, approaches to various clinical types of surface haemangiomas with special reference to role of intralesional corticosteroid therapy.

Material and Methods: The study was performed in patients of haemangiomas attending outpatient department or being admitted in our surgical wards of LLR's and associated hospitals Kanpur from the period of august 1992 to July 1993. After proper consent different modes of treatment such as (Sclerosing agent, interstitial diathermy coagulation, Compression treatment, Surgery and oral/intralesional Corticosteroids) were applied and results were analyzed statistically.

Results: Capillary type of lesion was most frequent and more commonly seen in females**.** Usual Complication were ulceration, infection hemorrhage and hematoma Combined treatment was good is small sized capillary lesion. Compression with systemic / Intralesional corticosteroid shows mixed response while Surgery gave best results than other modes of therapy. Intralesional corticosteroid therapy shows very good response in rapidly growing haemangiomas which are small or medium sized capillary / cavernous both types of lesion effect in large sized slow growing lesion was poor.

Conclusion: Intralesional corticosteroid therapy is better amongst angiomatous lesion less than 3cm (80-100%).

Keywords: Colored Naevi, Haemangioma, Intralesional Corticosteroids Therapy

INTRODUCTION

From the long back "Birth marks" are so common and their deforming nature have been of considerable concern to affect and of interest. It is believed that hemangiomas are blood containing spaces lined by endothelium walls which contain, no muscular tissue bound together by certain amount of fibrous tissue. The development of principal arterial stem is divided into three stages. The Plexiform stage, the rectoform stage and stage of stem formation. Arrest of 1st stage gives rise to capillary angiomas. Sudden connection of blood vessels gives rise to progressive cavernous dilatation. Cavernous hemangiomas develops as a result of non-fusion of blood vessels, in second stage of development. In third stage persistent anomalous trunk appears which takes an atypical course in affected extremity. Hemangiomas are benign growth of blood vessels also supported by Eving (1940). Delanio (1947)[1] said that vascular nevi are simple dilatation of pre-existing vascular nevi tissue with or without proliferation of new vessels. Pendergrass, et al (1948) described that hemangiomas are localized hyperplasia of the cutaneous subcutaneous vascular tissue which may involve dermis subcutaneous tissue or both. Innes (1953)[2] mentioned that hemangiomas are embryonal arrest of vasoformative tissue which are apparent at birth or in neonatal period. Hemangiomas consist of endothelial connective tissue and smooth muscles cells and do not represent proliferation of cellular element. In this sense most hemangiomas are hamartomas rather than true neoplasms. Martin and Mac Collum (1961)[3] in their study mentioned that hemangiomas arise as a remnants of fetal tissue which generally involves skin, but may involve bone, viscera or other organs in body. Although name denotes a neoplasm it has been debatable whether it is true neoplasm or a hamartomas Andrews and Domonkos (1952)[4] and Boyd (1962). Most are in favour of its congenital nature and arise from embryonic sequestrum of mesoderm cells Goetech (1938).[5] It is thought that these tumors develops in isolated segment of vessels walls and have no connection with surrounding tissue. Their growth depends on proliferation of tumor capillaries which invade surrounding tissue without involving, normal preexisting vessels. Devis et al (1934) said that trauma is the cause of lesion. It is believed that hemangiomas consist of endothelial connective tissue and smooth muscle cells and do not represent proliferation of one cellular element, most are hamartomas rather than true neoplasm. Prasad (1970) attributed this lesion to various factors viz. Chromosomal defects, maternal medication, genotype and irradiation. Shapiro (1958) found it to be present in 0.03/ 1000 live birth. Simpson (1959)[6] found that incidence is 0.45% in those surviving one year. Thus it is evident; ratio is 60-65% females to 35-40% males in most of

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series Phelan (1963). Martin and Mc Collum (1956)[3] in their study found 425 capillary, 39% mixed and 12% cavernous type of haemangiomas supported by works of Simpson (1959).[6] Prasad (1970) in his series of 101 cases observed 40% capillaries, 11% mixed and 49% cavernous type of hemangiomas. Simpson (1959)[6] – collected a series of 140 children with 170 lesions in which he found that trunk was the site in 33.75%, face in 20%, scalp 14%, upper extremity 5%, lower extremity 14.75%, neck 4% and genitalia 3%. Duncan (1895) proposed treatment of vascular naevi by electrolysis. Simpson (1959)[6], Pusey (1907)[8] used CO2 snow and later used liquid nitrogen for small superficial hemangiomas. Some children's were also treated by local vaccination for strawberry nevus by inducing resolution by artificial ulceration. From sixties role of systemic corticosteroid and in seventies, Intralesional corticosteroid therapy has been found favorable and latest have an impact is argon laser for superficial hemangiomas.

Aims and objective of this work was to find out response of the various forms of treatment in different varieties of hemangiomas.

MATERIAL AND METHODS

The present study was performed in patients of haemangiomas attending outpatient department or being admitted in our surgical wards of LLR's associated hospitals Kanpur from the period of august 1992 to July 1993. Ethical clearance was taken from the department as well as from the institute. Informed as well as written consent was taken. Sample size was estimated and it was 30.

Inclusion criteria

- Patients with congenital haemangioma

Exclusion criteria

- Patients not giving consent
- Patients with associated systemic disorders
- Patients with previous intervention for the lesion

All the cases under consideration were divided in to two groups:

a. Cases where no treatment was given. These cases were also followed for a period from 3-6 months and if they did not regress by that time, they were given treatment.
b. Cases where active growth was present were treated according to their clinical types. These cases were also followed by response of treatment, any complication or recurrence.

The cases were studied according to following plan-

a History: a detail history of every case was elicited thoroughly.
b Clinical examination: General /Systemic examination.
c Complete local examination.

Investigations

- Routine blood investigations
- Urine examinations
- Any other relevant investigations

The diagnosis of every case was established by above method of clinical examination and in few cases where doubt existed lesion was excised and sent for histopathological examination.

The specific diagnostic points were:

- Size and color of the lesion
- Thickness of the lesion
- Blanching and sign of emptying
- Auscultation- any bruit over swelling
- Area involved
- Any local gigantism

Treatment options

Sclerosing agent: In this study, in most of the selected cases sclerosants used was boiling water, except in one case where 50% dextrose solution.

Interstitial diathermy coagulation

Compression treatment

Surgery

Corticosteroids: all cases selected for corticosteroid were examined carefully initially at an interval for 15 days to 1 month. Corticosteroid therapy given in two forms:

a. Oral corticosteroid- In most of the cases treatment was continued between 3-6 months(less than 5 kg 10mg once a day, more than 5 kg 20 mg once a day)

b. Intralesional corticosteroid- The dose ranges from triamcinolone 5-40 mg and betamethasone 1-4 mg depending upon the size of the lesion. The dose repeated in 3 weeks – 1 month interval till complete regression occurs.

Response of the treatment was classified as:

- Excellent- > 75% to near total disappearance
- Good- 75% reduction in size within 1-3 months or complete disappearance of the lesion
- Fair- 50% decrease in size in 1-3 months or less than 75% at the end of 6 months and with noticeable scars, except in strawberry marks, over 5 cm in size.
- Poor- results were 25% reduction in 3 months or not over 50% during six months after therapy or scars in small lesion.

All cases whether treated actively or not were followed up during entire course for study response, any complications or recurrences.

RESULTS

In this study 30 cases were considered and their analytical description presented as follows:

Age: In this series maximum number of patients attended hospital for advice, after 10 years of age i.e. 8 cases (26.67%), likewise 7 cases (23.33%) attended in age group of 6 months to one year. Least number of cases i.e. 2 cases each (6.67%) attended in age group 0-3 months and 5-10 years (Table 1).

Mode of Presentation: As the lesion presented in various forms, we have observed most of the cases presented as only a swelling (10 cases 33.33%), while 1 case with painful swilling and three cases sought treatment for difficulty in opening eye.

Family History: In our series, no significant family history was found:
History of trauma was observed in 3 cases (10%). Multiplicity of lesion was observed in only two cases in one capillary type it was present at just below right scapula and one at left of umbilicus.

Complexion: In this series 18 patients (60%) were fair while 12 (40%) were dark complexion. Associated congenital anomaly was not seen in any case.

Site of lesion: Most of the lesions were present on face i.e. 15 cases (50%) while on extremities 8 cases (26.67%) and it was least at trunk 1 (3.3%), with two lesions on face and it was commonest on lips 5 cases (16.67%).

Rate of Growth: It was slow growing lesion in most of the cases i.e. 14 cases (46.67%) while 4 cases were rapidly growing i.e. (13.33%). No one noticed regression in size of the lesion before reporting to us.

Size of lesion in Relation with age group: Most of the cases were seen in age group 6 months- 1 year (7 cases 23.33%) as well after the age of 10 years (7 cases -26.67%) as well (1.1-3cm) in 14 cases (46.67%). But only 2 cases (6.67%) measured in size group or less than 1 cm in diameter (Table 2)**.**

Type of lesions: In this study capillary lesion was commonest i.e. 16 cases (53.33%), cavernous in 11 cases (36.67%) while mixed were 2 (6.67%). Capillary type of lesion was more common in females (Table 3).

Type of lesion with Age Group: Capillary lesion was observed mainly in the age group (6monts -1 year) and also in age after 10 years with equal frequency 4 cases (13.33%) but cavernous lesion most commonly seen in age group of after 10 years.

Relation of type of lesion with size of lesion: Capillary type usually (50%) measured from 1.1-3cms while cavernous type usually (54.54%) in same range. A single case of cystic hygroma measured more than 10 cm in size. In this study, maximum sized lesion was cystic hygroma but among haemangiomas was of extremity 15X7.8cm x 4cm and smallest one 0.80 in diameter (capillary over check)

Complications: While infection and ulceration was seen in 3 cases in one patient had hematoma formation after Intralesional corticosteroid therapy which resolved in due course of treatment.

Management: Out of 30 patients treated: 26 cases by single mode of treatment, 4 cases by combination method and one case of cystic hygroma treated by oral prednisolone therapy (Table 4)
Relation of response of treatment (by any mean) in different

Age groups	Male		Female		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
0-3 Months	1	3.33	1	3.33	2	6.67
3-6 Months	2	6.67	4	13.33	6	20
6 Months-1 year	1	3.33	6	20.0	7	23.33
1-5 years	2	6.67	3	10	5	16.67
5-10 years	2	6.67			2	6.67
>10 years	6	20	2	6.67	8	20.67
Total	14	46.67	16	53.33	30	100.0

Table-1: Age groups

Age group	0-1cm		1.1-3cm		3.1-5cm		5.1-10cm		10cm		Total	
	No	%	No	%	No	%	No	%	No	%	No	%
0-6 months	1	3.33	3	10	2	6.67			2	6.67	8	26.67
6months-1year	1	3.33	3	10	1	3.33			1	3.33	7	23.33
1-2 years			2	6.67							2	6.67
2-5 years	1	3.33	1	3.33			1	3.33			3	10.0
5-10 years			2	6.67			1	3.33			2	6.67
>10 years	2	6.67	3	10			1	3.33	2	6.67	8	26.67
Total	5	16.67	14	46.67	3	10	3	10	5	16.67	30	100

Table-2: Size of lesion in Relation with age group

Sr. No.	Type of Lesion	Male		Female		Total	
		No	%	No	%	No	%
1	Capillary	6	42.83	10	62.50	16	53.33
2	Cavernous	6	42.83	5	31.25	11	36.67
3	Mixed	1	7.14	1	6.25	2	6.67
4	Cystic hygroma	1	7.14	-		1	3.33
	Total	14	100	16	100	30	100

Table-3: Type of lesions

age groups: The response was very favorable in age group 6Months -1 year but fair or poor among patients more than 10 years of age (37.50%)(Table 5)

Relation of size of lesion with response to treatment: Usually results were excellent/ good in smaller size i.e. up 5cm (35-60%) in diameter while it was poor/fair in large size lesions (20-33.33%).

Relation of site of lesion to response to treatment: The result of face was excellent/good-40% while in extremities fair/poor in 37.5/12.5%.

Effect of Intralesional triamcinolone/Betamethasone: This has been studied in relation to various other factors viz.

Size of lesion: In lesion >1cm response was excellent or good 75% cases. It was fair (100%) in lesion >5cm size.

Age of patient: In younger patients up 1 years result were excellent/good in all cases. But afterward results were fair in most of cases 1 year -5 years 66.67%. Type of lesion: The response is more excellent in cavernous haemangiomas 50% and also capillary lesion had more fair response (22.22%). There was no response of Intralesional corticosteroid on mixed and cystic hygroma (Table 6).

Effect of Combination therapy:
It was used in four cases:

1. Oral prednisolone + ILCST in 2 cases with result fair.
2. Oral prednisolone+ ILCST+ Compression- poor response in one cases
3. Surgery followed by ILCST- one case fair result

Combined result of various form of treatment: Study showed that surgical excision gave excellent result; in our series combination treatment produced worse result.

Complication during Surgery: Only in 3 cases in two cases ulcerations reported and in 1 case hematoma formation occurred during ILCST but in all these case complications subsided in due course of time after appropriate measure taken.

DISCUSSION

This study is based upon observations made in 30 cases of haemangiomas.

Age Incidence: In our series in 11 cases (36.67%) lesions was seen at birth**.** Simpson (1959)[6] reported in his study 29%. Thus our results are closely in accordance with these studies.

Sex Ratio: We observed 14 cases male (46.67%) and 16 cases female (53.33%) with haemangiomatous lesion thus ratio being 9:11 in favors of females. Increase incidence in Females is explained due to relation of haemangioma in some way, with sex hormones.

Mode of Presentation: In this series most of cases presented with swelling (tissues mass) only i.e. 10 cases (33.33%) while 7 cases (23.33%) presented for cosmetic lesion and 6 cases (16.67%) with dis-coloration of skin. This is in complete harmony with other reports viz, Craford (1948)[9] Prasad (1970) and Malhotra et al (1991)[10] etc. who observed swelling alone is the commonest way of presentation.

Type of Treatment	Capillary		Cavernous		Mixed		Cystic hygroma		Total	
	No	%	No	%	No	%	No	%	No	%
Surgery	1	3.33	1	3.33					2	6.67
Compression			1	3.33					1	3.33
Oral prednisolone	4	13.33	1	3.33	2	6.67	1	3.33	8	26.67
Combination	1	3.33	3	10					4	13.33
Intralesional corticosteroid therapy	10	33.33	5	16.67					15	50
Total	16	53.33	11	36.67	2	6.67	1	3.33	30	100

Table-4: Management

Age groups	Excellent		Good		Fair		Poor		Total	
	No	%	No	%	No	%	No	%	No	%
0-6Mths	3	37.50	3	37.50	2	25.00			8	26.67
6m-1yr	3	42	4	57.10					7	23.33
1-5yrs			2	40	3	60			5	16.67
5-10yrs	1	50	1	50					2	6.67
>10yrs	3	37.50	2	25	2	25	1	12.50	8	26.67
	10	33.33	12	40	7	23.33	1	3.33	30	100

Table-5: Relation of response of treatment

Type of lesion	Excellent		Good		Fair		Total	
	No	%	No	%	No	%	No	%
Capillary	3	33.33	4	44.44	2	22.22	9	60
Cavernous	3	50	2	33.33	1	16.67	6	40
	6	40	6	40	3	20	15	100

Table-6: Age of patient

Complexion of patients: We observed 18 cases (16%) with fair complexion while 40% were having dark skin. This is in accordance with works of Prasad (1970). In our series we did not observe single instance of haemangioma associated with any congenital anomaly. This is well supported by works of Malhotra et al (1991)[10], foot (1945).

Regional Distribution: This is clearly evident that majority of cases are seen in head areas especially on face. O'Brien (1964)[11] explained high vascularity is perhaps responsible for increased incidence in this area, likewise we did not observe single case of haemangiomas in anorectal and genital regions, as even in other big series- it has been.

Rate of growth of Lesion: We observed slowly growing lesion in 14 cases (46.57%) and rapidly growing 4 cases (13.33%), in rest it was stationary. In none of case self-regression was observed.

Complications: In our study we came across 1 case (3.33%) with bleeding. Similarly, ulceration and infection was present in 3 cases (10%), while Craford (1948)[9] observed in 17.3% and Simpson (1859)[6] in 11.6% of their study.

Management

Surgery: Wherever, feasible is best modality of treatment Elkin's and Cooper (1947)[12] Martin and Mac-Collum (1956)[3] Observed quite excellent/good results in range of more than 70%.

Recent view is that surgery should not be done in active growing lesions and resection should be complete but due to surgical morbidity and mortality, fear of patient towards surgery attracts workers to adopt other modality of treatment. We employed surgery in 2 cases with 100% excellent results in our series with no complications observed.

Compression Treatment: Is to be given where it become possible to produce an adequate pressure to initiate involution which is best possible in extremities. The compression treatment itself is almost free of any side effects or complications. It can be employed with systemic or intra lesional corticosteroid therapy to induce early involution and to reduce exposure to corticosteroid therapy.

Magnus et al (1972)[13] observed appreciable result on compression treatment with or without systemic corticosteroid therapy

We have employed compression alone in one patient with good result and two patients with compression + systemic corticosteroid therapy with 50% good and 50% poor result and in one case who treated with compression+ Intralesional corticosteroid therapy show excellent response.

We assessed effect of intra-lesional corticosteroid in detail in relation with various other factors and observed. Intralesional corticosteroid therapy in patient with haemangiomas is an excellent demonstration of the responsiveness of this lesion in early life time the agents Triamcinolone acetanides, Betamethasone acetate are both short acting and long acting betamethasone is known to be effective as 2-3 weeks from Intralesional injection.

The effect of Intralesional corticosteroid therapy is in accordance with following workers. Most of previous studies of Intralesional corticosteroid therapy are with ophthalmic angioma.

Our series proves that surgical excision where ever feasible is still best mode to treatment similarly oral prednisolone also marked response in rapidly growing large size lesions.

Lastly it can be told that aim of treatment must not be disappearance of lesion, with the presence of apparently normal tissue, at the site, several years after treatment, but must be presence of undamaged normal tissue, decades, later.

CONCLUSION

In spite of all said and done, research for proper management of hemangiomas is still on, as choice of optimum method of treatment for a given hemangiomas, not only depends on specific variety of hemangioma, under consideration but also may change with its (a) Precise extent (b) age of the patient and (c) exact anatomical location of angioma, so far none of selected mode of treatment has proved effective 100% in every case but result with various method are encouraging more so with use of surgery and intralesional corticosteroid therapy.

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