

**MAST CELLS IN SURFACE HEMANGIOMAS**

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**SUMMARY**

*Thirty five patients of surface hemangioma within the age group one month to sixty-five years were studied for the presence of mast cells in them by using special stains. It was found that lesions with an increase in the number of mast cells showed a tendency for spontaneous involution.*

Hemangiomas constitute the single largest group of 'neoplasm' in childhood (Waisman, 1968). Surface hemangiomas continue to pose a problem to surgeons. It is not seldom that we are confronted with parents with a 'disfigured' child. Often the clinical course is unpredictable and hence the decision of non-interference in the hope of natural involution is important. An attempt has been made in this study to understand hemangiomas at the cellular level and co-relate their clinical course with the respective histology.

**Materials and Methods**

This study covers patients with surface hemangiomas who attended the Department of Plastic Surgery, Medical College, Trivandrum. The patients were divided into four groups based on the rate of growth, as follows:

1. Rapidly growing
2. Slowly growing
3. Stationary
4. Regressing

A detailed proforma incorporating history, clinical features and investigations was used. Histopathologic studies were done with tissue obtained either from excision or incision biopsy. Incision biopsy was taken from the centre of the lesion. It was not considered essential to include normal skin in the specimen. The specimen was fixed in 10% buffered formalin. Thin paraffin sections were made and stained with Hematoxylin and Eosin, Toluidine blue, Alcian blue safranin and Vangeisson stain. Toluidine blue and Alcian blue safranin are

special stains to demonstrate mast cells. Vangeisson stain is for collagen. Mast cells were counted under high power field of light microscope. Normal skin obtained from other operative procedures was used as control. Altogether thirty-five patients (forty-eight hemangiomas) were studied during the three year period (1984 to 1987).

**Observations**

Majority of the patients were under two years (68.2%). The youngest patient was one month old while the oldest was sixty five years. Females predominated in this series (54%). In the majority of patients hemangiomas were noticed soon after birth and in 29% of patients they manifested within the first 30 days. A significant number of patients presented for the first time after 12 years of age (21%).

The number of mast cells counted in the different groups are as given below:

<i>Type</i>	<i>The number of Mast cells/H. P. F.</i>
1. Rapidly growing	12.6-23.2
2. Slowly growing	5.6-13.2
3. Stationary	0.6-1.8
4. Regressing	1.8-6.2
5. Control	1.3-4.4

In the regressing varieties, the number of mast cells was similar to that in the normal skin. There was a definite increase in the mast cell number in the growing varieties especially the rapidly growing ones. Collagen

tissue showed a increase in the regressing varieties. Conservative management was carried out in infants and children, who showed an increase in mast cells. They showed fair results with tendency to regress on follow up.

### Discussion

There are many functions assigned to mast cells. The mast cells have a tendency to align along capillaries (Sagher and Even, 1967). The observation of an increased number of mast cells in highly vascularized areas suggest their contribution to the growth of vascular endothelium (Kessler, 1976). Mast cells may stimulate vascular proliferation and regression (Aziz Khan, 1980). Glowacki and Mulliken (1982) observed a relationship between hemangiomas in the proliferative phase and the large number of mast cells in these lesions. They raised the possibility that mast cells may have an important pathophysiological role in the formation and maintenance of hemangiomas. Pasyk et al. (1984) studied in great detail about the association of mast cells and hemangiomas. His study confirmed the earlier observation of Glowacki and Mulliken (1982) that Strawberry

hemangiomas in the growing stage have an increase in the number of mast cells which decrease during involution (Mulliken and Glowacki, 1982).

The concentration of mast cells was connected with the growth of fibrous connective tissue inside the tumor. The mast cell count gets reduced when the hemangioma is converted into scar tissue. Immature granules were observed by Pasyk et al. (1983) in the growing stages of hemangioma by electron microscopic studies inside the mast cells. A normal mast cell count was seen in involuted lesions and vascular malformations.

### Conclusion

From this study we would like to highlight the role of biopsy in a vascular lesion. We can detect the exact nature of the lesion. Mast cell studies will help plan the treatment. A raised mast cell count will favour spontaneous involution. On the contrary lesions with a normal mast cell count are unlikely to regress spontaneously and therefore other modalities of treatment will have to be tried.

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