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Original Research Paper

General Surgery

STUDY OF INCIDENCE AND PRESENTATION OF HEMANGIOMA IN BUNDELKHAND REGION

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ABSTRACT

BACKGROUND AND OBJECTIVE: There are variety of vascular lesions which are mostly present in childhood. Due to different etiologies and management these are divided in to two groups (a/c to biolo gical classification) tumor or swelling –include infantile hemangioma, congenital hemangioma, kaposiform endothelioma, pyogenic granuloma and malformation –include arterial venous lymphatic..among these lesion infantile hemangioma (typical) is most common tumor of infancy. This study was taken up to estimate the incidence and presentation of hemangioma (typical) in children of Bundelkhand region.

MATERIAL AND METHOD: Our study include 1066 children of age group up to 5 yrs..each and every child was examined in detail and record were measured meticulously.

RESULT AND CONCLUSION: Actual incidence is not known. Overall reported incidence is 4-5%.In our study incidence is 3.1%,presented more in male, associated with prematurity, mostly present as single lesion & distributed more on head (60%),neck(25%) than trunk & extremity(15%)

KEYWORDS : Infantile Hemangioma, Congenital Hemangioma, Kaposiform Endothelioma.

INTRODUCTION

Word "hemangioma" is commonly used in generic sense to describe a variety of vascular lesions both congenital and acquired of differing etiologies and natural histories.

This confusing nomenclature has been largely responsible for illogical treatment of cutaneous vascular lesions.

On basis of clinical and cellular studies the vascular anomalies of infancy and childhood divided in two major categories hemangioma and malformations by **Muiliken & Glowacki** in 1982.

Vascular tumours of childhood are typically benign. Most common type are –

- Infantile hemangiomas
- Congenital hemangiomas
- Kaposiform hemangioendothelioma and
- Pyogenic granuloma

Infantile hemangiomas are most common tumor of infancy, 90% of IH are diagnosed by history and examination. Deeper lesions, may be difficult to diagnosed as they noted later than superficial lesions and may not have significant over lying skin changes.

The field of vascular anomalies has been impeded by imprecise terminology. Non uniform terminology has created diagnostic confusion, blocked communication between doctors, inhibited research and caused incorrect treatment.

Biological classification clarified the field of vascular anomalies by categorizing lesions based on their clinical behavior and cellular characteristics.

BIOLOGICAL CLASSIFICATION:

MULIKAN AND GLOWACKI (1982):

Investigated vascular anomalies on the basis of cellular features and cell kinetics. . They classified vascular anomalies in two major groups namely hemangioma demonstrating endothelial hyperplasia & malformation lesions with normal endothelial turnover.

They proposed biological classification for vascular ano malies:

BIOLOGICAL CLASSIFICATION OF VASCULAR IN INFANTS AND CHILDREN (1982):

Hemangiomas	Malformations
Proliferating phase	Capillary
Involuting phase	Venous Arterial Lymphatic Fistulae

Using this classification 90% of vascular anomalies could be correctly diagnosed by history & physical examination.

This classification was accepted by international society for the study of vascular anomalies (ISSVA) in 1996.

Classification of vascular anomalies continues to expand and has become more precise as knowledge of these lesion evolves.

In present study we followed biological classification of ISSVA

CLASSIFICATION OF HEMANGIOMA:

There are two recognized subsets of hemangioma that demonstrate pattern of histological and biological behavior.

1. ***Infantile hemangoima (Typical)***: Benign tumor composed of endothelial cells, follow a predictable clinical course of proliferation in infancy followed by involution, usually with in first 5 to7 years of life
2. ***Congenital hemangioma:*** They develop during prenatal life and present fully developed at birth.

A) **Rapidly involuting congenital hemangioma** (involute rapidly during first few week or month of life)

B) **Non involuting congenital hemangioma** (persists in to late childhood)

INFANTILE HEMANGIOMA (TYPICAL)

CLINICAL FEATURES:

1. Most common benign tumor of infancy
2. Affect Caucasian infants (4% to5%)more than dark skinned
3. 23% of infants less than 1200gm developed infantile hema

ngioma
4. Female infants are more frequently affected ,male to female ratio ranges from 1:3 to 1:5 in different studies
5. Head and neck is most common site (80%) followed by trunk (25%) and extremity (15%)
6. In 80%cases there is single lesion

Median age of presentation- 2 Weeks
Biological behaviour of hemangioma (typical)

HEMANGIOMAS ARE ENDOTHELIAL TUMOR WITH A UNIQUE BIOLOGIC BEHAVIOR

- Grow rapidly
- Regress slowly
- Never recur

STAGES IN LIFE CYCLE OF HEMANGIOMA:

1. Proliferating phase (0-1 yr of age) : hemangioma is composed of plump,rapidly dividing endothelial cells that form tightly packed sinusoidal channels.
2. Involuting phase(1-5 yr of age) : there is decreasing endothelial proliferation ,increasing apoptosis,and beginning of fibrofatty replacement of hemangioma
3. Involuted phase(>5 yrs of age): after complete regression,all that remains are few tiny capillary like feeding vessel and draining veins.the endothelium lining of these vessels is flat and mature.

PATHOGENESIS OF HEMANGIOMA STILL REMAINS A MYSTERY DIFFERENT HYPOTHESIS

1. Human papilloma virus -8 infection
2. Abnormal hormonal influence
3. Chorionic villous sampling
4. Local hypoxia

Bischoff and Co-workers reported that hemangioma endo thelial cell **(HemECs)** and hemangioma endothelial proginator cells, both present in hemangiomas, are immature and share features with cord blood Ecs

HemECs express genes that are expressed by placenta ,umbilical cord and bone marrow stem cells. One of them,the **glucose transporter protein GLUT-1,has become a marker for histopathological diagnosis of hemangioma**.

CLINICAL CONSIDERATIONS:

Infantile hemangiomas may be subdivided in accordance to the depth of soft tissue involvement ; superficial ,deep, and mixed.

Additionally they may be divided by whether they are spatially confined (LOCALISED),or cover a territory (SEGMENTAL).

Segmental infantile hemangiomas are more often associated with the so-called PHACES and LUMBAR syndromes.

COMPLICATIONS OF HEMANGIOMA:

1. In proliferative phase
a. Ulceration
b. Bleeding
c. Congestive heart failure
d. Skeletal distortion
e. Hypothyroidism
2. In involution phase
a. Stigma –in form of skin atrophy
b. Wrinkling
c. Pallor
d. Talengiecatic vessels
3. Diagnosis
a. Most cases donot require imaging. If clinical features are atypical or the anatomic extent of lesion not apparent than USG and MRI can be used.

AIMS AND OBJECTIVES

- To find out incidence of hemangioma in Bundelkhand region.
- To find out sex ratio among children of Bundelkhand region.
- To find out incidence of hemangioma at the time of birth and after birth
- To find out whether prematurity associated with hemangioma
- To find out incidence of multiple or single lesion and their distribution according site

MATERIAL AND METHOD

Our study include children of age group from 0 up to 5 yrs., who visited vaccination counter of MLB Medical College Hospital between 1st January 2012 to 30th October 2013.

1066 children in that age group visited vaccination counter. Each and every child was examined for hemangioma. Children with hemangioma was examined in detail and their record were measured meticulously. These children managed accordingly for the hemangioma. In 1066 children screened by us, hemangiomas were detected in 34 children.

In our study we managed these children by these four modalities - Wait & Watch, Oral steroids, Intralesional steroids and Surgical treatment.

Most of patients kept under close observation, and regular 2 months follow up. At every visit lesion examined for increase or decrease in size by measurement and for any complication.

Every patient advised for compulsory ultrasonography (USG) to find out any association with visceral hemangiomatosis and advised for proper care of lesion to prevent bleeding & ulceration.

RESULT:

Our study include children of age group from 0 up to 5 yrs. Who visited vaccination counter of M.L.B. Medical College hospital between 1st January 2012 to 30thOctober 2013.

Table 1: Incidence of hemangioma (in our study)

Incidence	Number of patients	Percentage (%)
Patients without hemangioma	1032	96.9%
Patients with hemangioma	34	3.1%
Total	1066	100%

Table 2: Incidence of hemangioma in female in our study)

Heamagioma in female	Number of patients	Percentage (%)
Total female without hemangioma	440	94.8%
Total female with hemangioma	24	5.2%
Total	464	100%

Table 3: Incidence of hemangioma in male (in our study)

Hemangioma in male	Number of patients	Percentage (%)
Tatal male without hemangioma	592	98.33%
Tatal male with hemangioma	10	1.67%
Total	602	100%

Table 4: Distribution of patients according to sex

Sex	Number of patients	Percentage (%)
Male	10	29.4%
Female	24	70.6%
Total	34	100%

Table 5: Distribution of cases with respect to age group (Age at the time of entry into the study)

Age grope	Number of patients	Percentage (%)
<1yr	23	67.6%
1-5 yr	11	32.4%
Total	34	100%

Table 6: Distribution of cases according to time of pre sentation

Time of presentation	Number of patients	Percentage (%)
Lesions present at birth	3	8.8%
Lesions appear after birth	31	79.4%
Total	34	100%

Table 7: Distribution of case according to pre-maturity

Pew-maturity	Number of patients	Percentage (%)
H/O prematurity present	5	14.71%
No H/O prematurity	29	70.5%
Total	34	100%

Table 8: Distribution of case according to number of lesions.

Number of lesions	Number of patients	Percentage (%)
Single lesion	32	94.117%
Multiple lesion	2	5.88%
Total	34	

Table 9: Distribution of case according to site of lesions

Site of lesions	Number of patients	Percentage (%)
Lesion on head & neck	21	50%
Lesion on trunk	12	35.2%
Lesion on extremities	9	26.4%
Total	42	100

DISCUSSION

INCIDENCE

In our study group 1066 children from vaccination counter of pediatric department, we found hemangioma in 34 children. So incidence in our study group is 3.1%.

Actual incidence of hemangioma is not known. According to **Holmdam; (1955), Jacobs (1957)** it is approx 10%-12% in children at age of 1 yrs and according to **Pratt (1969), Jacobs & Walton(1976),** approx 1:1 to 2.6% in first few days of life. They reported overall incidence is 4% to 5% (approximately).

Our figure is different from these studies. Possible reason for this may be erroneous nomenclature followed in past. We have followed the biological classification for diagnosis. Other reasons can be our small samples size.

SEX RATIO:

Female predominance was also reported by **Bones, Graham Tonilnson (1950)** and confirmed by **Finn, Glowacki & Mulliken (1983)**. In their studies they reported females to male ratio of 3 to 5:1. our female to male ratio is less than these authors.

Reason may be that girls are paid less attention in Bundelkhand region. Illiteracy, poverty, and females feticide may be other reasons.

Previously in early studies, according to Greenhouse **1955 Hoimdat!** 1955. Preterm infants showed equal frequency compared with full term infants. But in newer studies hemangioma more common in preterm as frequently as 22.9%.In our study 14.7% associated with prematurity (5 of 34 patient associated with prematurity).

Approximately 80% hemangioma present as single lesion. In our study 94.11% (32 out of 34 patients) hemangioma present as single lesion.

According to Distribution hemangioma involve 60% head & neck, 29% trunk & 15% extremity. In our study hemangioma involve 50% head & neck, 35.2% trunk, 26.4% extremity.

According to **Malgileth & Mureles 1965** less than 5% hemangioma ulcerate. In our study 3 patients out of 34 ulcerate — 8.8%.

According to study 2.3% patients as with other congenital anomalies but according in our study none of patients associate with any congenital anomalies & not associates with visceral hemangioma.

So in our study 24 out of 34 patients kept under observation & their natural history followed, most of them follow natural history according to **Lister** but clear confirmation could not be given in short period of follow up of patients.

CONCLUSION

1. In total study sample size of 1066 having 602 (56.66%) males and 464 (43.5%) females. In our study M:F = 1.3:1
2. In total 1066 children in our Study, presenting with hemangioma only in 34 children.
3. Incidence of hemangioma according to our study population of Bundelkhand region is 3.1%
4. In our study hemangioma in more common in female out of 34 children with hemangioma 24 (70.6%) are females and 10 (29.4%) are males. Female to male ratio is 2.4:1.
5. Majority of cases 23 (67.6%) were of less than 1 yr of age (at the time of entry into study)
6. Hemangiomatous lesion were present at the time of Birth in 3 (8.8%) cases.
7. Hemangiomatous lesion were appeared after birth in 31 (79.5%) cases.
8. Prematurity associated with 5 (14.7%) cases.
9. Among pre-mature babies 3 were female (8.82%) and 2 were males (5.88%)
10. Among 34 patients, single lesion was present in 32 patients (94.11%) & multiple in 2 patients (5.88%), so hemangioma present mostly as single lesion.
11. Among lesion (42), distribution according to site 21 in (50%) in head & most, 12 in (35.2) in trunk, 9 in (26.4) in extremities
12. Among total 42 lesion 5 lesions complicate(11.9%)
13. Among our study group no patient had associated any congenital anomaly
14. In our study group no patient had visceral hemang io matosis
15. Among study group no associated with any syndrome

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