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Clinicopathological Study of Hepatomegaly in Children Up to 12 yrs (including neonates)

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Abstract: ***Hepatomegaly is the one of the commonest clinical sign in children due to variety of primary or secondary systemic diseases in our country.Aim of the study was to review various clinical pathological factors of hepatomegaly in children up to 12 yrs.This study was undertaken in dept of Pediatrics GGH, Guntur from 2009 to 2012. Children up to 12 yrs were included in the study.detailed history and clinical examination findings were documented. Routine laboratory tests, complete hemogram, LFT, urine analysis, histopathological examination were done. We found most common etiological factor was infections, of which viral hepatitis tops the list. Most common symptom is was fever. Most common associated finding was splenomegaly. Majority of cases had mild hepatomegaly and only few cases had massive hepatomegaly due to rare causes like storage disorders.***

Keywords: Hepatomegaly, splenomegaly, histopathology, liver span, storage disorders.

1. Introduction

Hepatomegaly can represent intrinsic liver disease or may be the presenting physical finding of a generalized disorder. Early diagnosis and treatment of children who have liver disease is important because specific treatments are available for some diseases. We can prevent disease progression of hepatic failure [1]. Keeping this in mind a study was undertaken between 2009 to2012 at pediatric dept GGH Guntur to review various clinicopathological factors of hepatomegaly in children and study the various cases of hepatomegaly in children.

2. Materials and Methods

Children with increased liver span were admitted in the study. All patients were subjected to routine investigations like complete hemogram, urine analysis, stool examination, LFT, viral markers and CXR. Special investigations like Mx, widal, blood culture & sensitivity, tridot, dengue serology, QBC, coagulation studies, Hb electrophoresis, U/S abdomen, lymph node and liver biopsy were done depending on provisional diagnosis after detailed history and physical examination.

3. Observation of results:

Sex distribution – M:F = 56:44

Age distribution

Age	% of cases
<1yr	23%
1-4yrs	30%
5-9yrs	26%
10-12yrs	21%

Etiology

Etiology	% of cases
infections	40%
congestion	32%
Hemolysis	13%
Neoplastic	5%
Cholestatic	3%
Metabolic	2%
Miscellaneous	55

Various etiological agents among infections (40%):

Etiological agent	% of cases
Viral infections	16%
Bacterial infections	14%
Protozoal infections	8%
Others (IU)	2&

Associated disorders:

Disorder	% of cases
RTI	14%
PEM	39%
CHD	13%
Acquired HD	12%
HTN	1%

Grades of Hepatomegaly :

Grade	%of cases
Mild (not up to umbilicus)	68%
Moderate (up to umbilicus)	27%
Severe (crossing umbilicus)	5%

Signs and symptoms:

Signs and symptoms	% of cases
Splenomegaly	80%
Fever	70%
Jaundice	33%
Anemia	31%
CCF	32%
Anasarca	22%
Bleeding	9%
Loss of consciousness	8%
Convulsions	8%
Gen lymphadenopathy	55
Mental retardation	2%
Microcephaly	1%

Age distribution of various disorders:

Age	infections	congestion	hemolysis	neoplastic	cholestatic	metabolic	miscllaneous
< 1yr	3%	11%	4%	2%	2%	1%	-
1-4yrs	10%	9%	6%	2%	-	-	3%
5-9yrs	16%	6%	2%	-	1%	-	-
10-12yrs	1%	6%	1%	1%	-	1%	2%

4. Discussion

Sex distribution slight preponderance in males with ratio 56:44.Regarding age distribution maximum number of cases occurred in 1-4yrs(30%) may be due to high incidence of infections like infective hepatitis, incidence of infection about 10% followed by congestion -9%,hemolysis-6%,neoplatic-2,miscellaneous-3%.Followed by 26% of cases distributed in 5-9yrs age group, again infection tops the list.

Among infections viral infection tops the list followed by bacterial, protozoal. Involvement of liver in tuberculosis is common. On histopathological examination specific features like granulomas were seen in 10-15% cases of tuberculosis according to Udani et.al[2]and Sundervalli[3],but non of the cases in present study showed specific changes. Non specific features reported include round cell infiltrations 70% and kupffer cell hyperplasia60% in consistent with the study of RS Sethi, V.Rastog et al[4]. Five cases of typhoid fever associated with hepatomegaly and elevated liver enzymes, one case had jaundice. Similar reports were given by Ramachandran, Godfrey[5],ER Seddeh[6]. According to the study of hepatic manefestations in typhoid fever by K Jagadish,AR Patwar,S Sarin[7]. Hepatomegaly in typhoid cases was 51.6%. HIV virus is the major determiment of hepatomegaly according to Halzkis et. al[8].Hepatomegaly along with splenomegaly was observed in 27-40% and raised hepatic enzymes were found in 20% falciparum vivax. According to SY Bhave, SV Jhoshi<V ward, Hc Phar[9]Nadgir et.al[10] it was almost 48% and in Nityanand et.al[11]it was about 75%.

Fever was the commonest symptom (about 70%) which lead to seek the medical advise.39% of fever cases were associated with infection and 5% were associated with neoplasm. Jaundice was associated in 26% of cases of which 18% had combined hyperbilirubinemia, 3% conjugated and 12% unconjugated bilirubin.

Splenomegaly was the commonest associated finding in 80% of cases, most of them were due to infections and congestion and associated with mild splenomegaly. Most of the metabolic, neoplastic and hemolytic diseases associated with massive splenomegaly. Dr. Reddy YR and Jayalakshmi in their study of splenomegaly in infants and children found that hepatomegaly was an associated finding in 96% cases of splenomegaly [12].

Most of the cases had mild hepatomegaly of which infections top the list. Massive hepatomegaly was seen less frequently. Most common cause of hepatomegaly(40%) was infections of which viral hepatitis stood first followed by congestion(32%). In most of the hepatic congestion were associated with CCF as a result of either CHD or acquired heart diseases or sever anemia. In this study 13%cases of hepatomegaly were due to hemolytic anemia. it was due to extramedullary erythropoisis with only a minimal alteration in the liver function test[13] and 5cases of hepatomegaly associated with neoplasm. Two cases of metabolic diseases were reported in the study of which one case was Gaucher's disease.

5. Summary and Conclusion

100 cases of hepatomegaly were taken up for study. The different etiology, grades of enlargement, age and sex distribution were taken in to consideration. Presenting signs and symptoms and laboratory data were analyzed. The following conclusion was drawn.

1) Male: Female ratio = 56:44.
2) Maximum number of cases in age group 1-4(about 30%).
3) All grades of hepatomegaly, from mild to massive were noted.
4) Mild hepatomegaly comprised maximum number (68%), followed by moderate-27%, massive-5%.
5) Infections, congestion, hematological causes contributed almost 85% of cases with remaining 15% neoplastic, cholestatic, storage disorders and miscellaneous.
6) Among infections viral hepatitis was the commonest and CCF was the commonest cause of congestive hepatomegaly.

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