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Original Research

Assessment of clinic- pathological profile of hepatoblastoma in children

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ABSTRACT:
Background: Primary hepatic malignancies in children comprise about 0.5–2% of all solid tumors in children of which hepatoblastoma is the most common with an incidence of 1.5 cases per million children less than 18 years of age worldwide. The present study was conducted to assess clinico- pathological profile of hepatoblastoma. **Materials & Methods:** 24 children of Hepatoblastoma (HB) of both genders were included in our study. PRETEXT staging was performed with contrast computed tomography (CT). Histological data on biopsy and/or resection specimens were analyzed. **Results:** Jaundice was seen in 6, abdominal distention in 2, vomiting in 4 and mass abdomen in 2. Duodenal sepsis was seen in 2, fever at 1 month in 1 and uneventful in 2 cases. The difference was significant (P< 0.05). Pretext stage I was seen in 8, II in 7, III in 4 and IV in 5, histology was epithelial in 16 and mixed epithelial & mesenchymal in 8, risk was high in 9 and standard in 15, treatment given was nil in 4, Plado 1 cycle in 2, Plado 2 cycle in 1, Plado 4 cycle in 5, Plado 6 cycle in 4 and Plado with surgery in 8 cases. The difference was significant (P< 0.05). **Conclusion:** Pretext stage II was less commonly involved in children diagnosed with hepatoblastoma.
Key words: hepatoblastoma, Pretext, Plado cycle

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INTRODUCTION

Primary hepatic malignancies in children comprise about 0.5–2% of all solid tumors in children of which hepatoblastoma is the most common with an incidence of 1.5 cases per million children less than 18 years of age worldwide, followed by hepatocellular carcinoma.[1] It mostly occurs in children less than 5 years of age with a slight preponderance to males. Factors such as prematurity, low-birth weight, maternal smoking, alcohol, oral contraceptive use, and methods of assisted reproduction are some risk factors. It is also seen to be associated with syndromes such as Beckwith-Wiedemann syndrome, familial adenomatous polyposis, Li-Fraumeni syndrome, trisomy 18, and other metabolic disorders.[2]

Hepatoblastoma (HB) preferentially affects boys and occurs in infants or very young children with a median age of presentation of 16 months.[3] Most cases of HBs are sporadic and they have rare but definite associations with specific predispositions and commonly arise within the setting of normal hepatic function. HBs are the most common liver tumors in children. The cornerstones of successful treatment include preoperative chemotherapy followed by complete anatomical resection of tumor, followed by adjuvant chemotherapy. Advances in chemotherapy in the last 2 decades have been associated with a higher rate of tumor response and possibly greater potential for resectability.[4]

Diagnosing hepatoblastoma is challenging for a general pathologist even from specialized institutions owing to its rarity, histological diversity as well as a lack of a current international consensus on its classification. Histology is very important because it is incorporated as a risk stratification parameter in the Children's oncology group (COG) protocols for planning treatment. It is seen that each of the histological parameters have distinct clinical associations.[5] The present study was conducted to assess clinico- pathological profile of hepatoblastoma.

MATERIALS & METHODS

The present study comprised of 24 children of Hepatoblastoma (HB) of both genders. Parents were made aware of the study and their written consent was obtained.

Demographic data of each patient such as name, age, gender etc. was recorded. Laboratory parameters such as liver function tests; alpha fetoprotein levels (APLs); complete blood count, etc. were recorded. PRETEXT staging was performed with contrast computed tomography (CT). Histological data on biopsy and/or resection specimens were analyzed. Results of the study this obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Total- 24		
Gender	**Male**	**Female**
Number	14	10

Table I shows that out of 24, males were 14 and females were 10.

Table II Characteristics of cases

Characteristics	Number	P value
Symptoms		
Jaundice	6	0.05
Abdominal distention	2	
Vomiting	4	
Mass abdomen	2	
Birth history		
Duodenal sepsis	2	0.03
Fever at 1 month	1	
Uneventful	2	

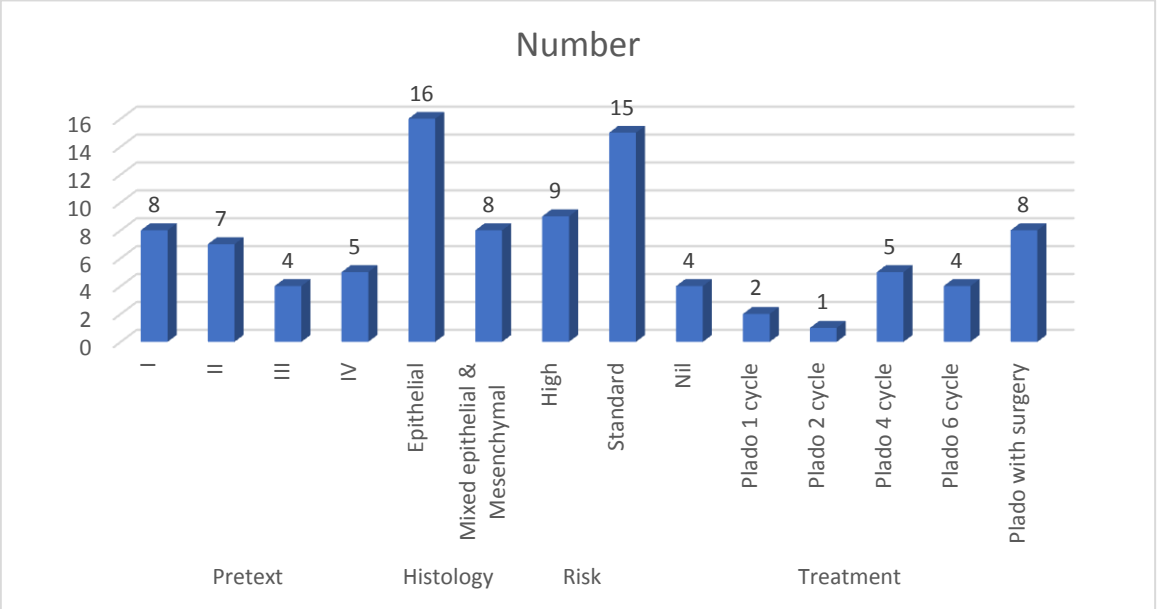
Table II shows that jaundice was seen in 6, abdominal distention in 2, vomiting in 4 and mass abdomen in 2. Duodenal sepsis was seen in 2, fever at 1 month in 1 and uneventful in 2 cases. The difference was significant (P< 0.05).

Table III Hepatoblastoma features

Variables	Parameters	Number	P value
Pretext	I	8	0.05
	II	7	
	III	4	
	IV	5	
Histology	Epithelial	16	0.01
	Mixed epithelial & Mesenchymal	8	
Risk	High	9	0.03
	Standard	15	
Treatment	Nil	4	0.05
	Plado 1 cycle	2	
	Plado 2 cycle	1	
	Plado 4 cycle	5	
	Plado 6 cycle	4	
	Plado with surgery	8	

Table III, graph I shows that Pretext stage I was seen in 8, II in 7, III in 4 and IV in 5, histology was epithelial in 16 and mixed epithelial & mesenchymal in 8, risk was high in 9 and standard in 15, treatment given was nil in 4, Plado 1 cycle in 2, Plado 2 cycle in 1, Plado 4 cycle in 5, Plado 6 cycle in 4 and Plado with surgery in 8 cases. The difference was significant (P< 0.05).

Graph I Hepatoblastoma features



DISCUSSION

Hepatoblastomas (HB) are rare pediatric neoplasms, with incidence of 1.5 per million, and comprising 1% of pediatric malignancies. Till 1970s, surgery was the primary modality of treatment of HB.[6] Unfortunately, up to 60% of the patients present in an unresectable stage. Later, the chemo-responsiveness of the tumor was demonstrated which led to the incorporation of adjuvant chemotherapy with cisplatinum and doxorubicin in the treatment of HB. International Society of Pediatric Oncology (SIOP) pioneered the concept of neoadjuvant chemotherapy in the management of HB.[7] Surgical resection of the tumors were made easier by reducing the size and vascularity of the tumor and the chances for obtaining negative margins of resection were more. A partial response (PR) status could be achieved in 82% of the cases in SIOPEL-1 study. Surgical resection after neoadjuvant chemotherapy could be done in 87% of the cases whereas historically only 30% of the cases were operable upfront. Surgical morbidity was also less if resection was performed after neoadjuvant chemotherapy.[8] The present study was conducted to assess clinico- pathological profile of hepatoblastoma.

In present study, out of 24, males were 14 and females were 10. Archana et al[9] in their study a retrospective study was done on 10 children diagnosed with hepatoblastoma. The median age of these children at diagnosis was 11 months, and only 1 child was premature at birth. Most children were presented with abdominal distension. One child had lung metastasis at presentation. Elevated alpha fetoprotein levels were present in 90% of the children. The histological types were fetal, embryonal, macrotrabecular, and mixed epithelial-mesenchymal types. SIOPEL risk stratification was done, which showed 40% of the children to be of high risk. Three children had PRETEXT 1, 2, and 4, respectively.

We found that jaundice was seen in 6, abdominal distention in 2, vomiting in 4 and mass abdomen in 2. Duodenal sepsis was seen in 2, fever at 1 month in 1 and uneventful in 2 cases. Singh et al[10] analyzed single center experience with neoadjuvant chemotherapy (NACT) and surgery in HBs. There were 9 boys and 3 girls, aged 5-60 months (median age at tumor diagnosis was 24 months). All received NACT containing cisplatin and doxorubicin. Of the 12 children, 9 underwent hepatectomy and among them, 4 patients each had right and left hepatectomy and 1 patient underwent right extended hepatectomy. After surgery, all patients completed rest of the chemotherapy course (total 6 cycles). R0 resection was carried out in all the 9 cases with no life-threatening complications.

We found that Pretext stage I was seen in 8, II in 7, III in 4 and IV in 5, histology was epithelial in 16 and mixed epithelial & mesenchymal in 8, risk was high in 9 and standard in 15, treatmentgiven was nil in 4, Plado 1 cycle in 2, Plado 2 cycle in 1, Plado 4 cycle in 5, Plado 6 cycle in 4 and Plado with surgery in 8 cases. College of American Pathologists (CAPs) protocols, correct pre-treatment extent of tumor (PRETEXT) staging, and the risk status have been have mentioned in numerous studies.[11] These parameters play a major role in guiding the oncologist to tailor treatment as per the individual's status and needs. Immunohistochemistry and molecular methods are being investigated and may the pave way in future to distinguish hepatoblastoma from hepatocellular carcinoma, which poses a diagnostic difficulty as well as in subclassifying hepatoblastoma, which also has important clinical implications.[12]

CONCLUSION

Authors found that Pretext stage II was less commonly involved in children diagnosed with hepatoblastoma.

REFERENCES

1. López-Terrada D, Alaggio R, de Dávila MT, Czauderna P, Hiyama E, Katzenstein H, et al. Towards an international pediatric liver tumor consensus classification: Proceedings of the Los Angeles COG liver tumors symposium. Mod Pathol. Nature Publishing Group 2013;27:472.
2. Herzog CE, Andrassy RJ, Eftekhari F. Childhood cancers: hepatoblastoma. Oncologist. AlphaMed Press; 2000;5:445-53.
3. Shanmugam N, Scott JX, Kumar V, Vij M, Ramachandran P, Narasimhan G, et al. Multidisciplinary management of hepatoblastoma in children: Experience from a developing country. Pediatr Blood Cancer 2017;64:e26249.
4. Reynolds P, Urayama KY, Von Behren J, Feusner J. Birth characteristics and hepatoblastoma risk in young children. Cancer 2004;100:1070-6.
5. Roebuck DJ, Aronson D, Clapuyt P, Czauderna P, de Ville de Goyet J, Gauthier F, et al 2005 PRETEXT: A revised staging system for primary malignant liver tumours of childhood developed by the SIOPEL group. Pediatr Radiol 2007;37:123-32.
6. Rudzinski E, Ranganathan S, Hicks J, Kim G. Protocol for the Examination of Specimens from Patients with Hepatoblastoma. College of American Pathologists; 2019.
7. Arora RS, Ramandeep D, Arora S. Outcomes of Hepatoblastoma in the Indian Context. Indian Pediatrics 2012;49:307-9.
8. Iacob D, Şerban A, Fufezan O, Badea R, Iancu C, Mitre C, et al. Mixed hepatoblastoma in child. Case report. Med Ultrason Med Ultrason 2010;12:157-62.
9. Archana B, Thanka J, Sneha LM, Scott JJX, Arunan M, Agarwal P. Clinicopathological profile of hepatoblastoma: An experience from a tertiary care center in India. Indian J Pathol Microbiol 2019;62: 556-60.
10. Singh T, Satheesh C T, Appaji L, Kumari BA, Padma M, Kumar M V, Mukherjee G. Hepatoblastoma: Experience from a single center. Indian J Cancer 2010;47:314-6.
11. Rougemont A-L, McLin VA, Toso C, Wildhaber BE. Adult hepatoblastoma: Learning from children. J Hepatol Elsevier 2012;56:1392-403.
12. Fasano M, Theise ND, Nalesnik M, Goswami S, Garcia de Davila MT, Finegold MJ, et al. Immunohistochemical evaluation of hepatoblastomas with use of the hepatocyte-specific marker, hepatocyte paraffin 1, and the polyclonal anti-carcinoembryonic antigen. Mod Pathol 1998;11:934-8.