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Clinical features of hepatomegaly

Details Category: Volume 07 Issue 05 May 2019 Hits: 908 Title: Study of Etiological and Clinical Profile of Hepatomegaly in Children up to 10 years of Age Authors: Dr Sasmita Devi Agrawal, Dr Himanshu Sekhar Sahoo, Dr Sri Harsha Lanke, Dr Sidhant Swarup, Dr Gautam Tripathy, Dr Rajendra Meher DOI: Background: Liver enlargement could be an indicator of underlying liver disease, even if there are usually no symptoms associated with it. On the other hand, Symptoms of a grossly enlarged liver include abdominal discomfort or feeling full could potentially provide an insight into an underlying serious pathology It could be due to a various number of infective/Inflammatory, Congestive, infiltrative, proliferative (Kupfer cell) reasons. It could also be a manifestation of an underlying intrinsic hepatic disorder and Storage related disorders. Material and Methods: All children upto the age of one month to 10 years presenting to the Hitech Medical College and Hospital with increase in liver span were included in the study over the span of the past year. Patients were subjected to routine investigations and in some cases some special investigations depending on provisional diagnosis after detailed history and physical examination. Results and Conclusion: The most common age group presenting with hepatomegaly was found to be between 1 to 5 years followed by 5 to 10 years. The most common aetiology was found to be infections and the most common presenting signs and symptoms were found to be fever, anemia followed by oedema and jaundice. Keywords: Hepatomegaly, infections, fever, aetiology. References Wolf DC. Evaluation of the size, shape, and consistency of the liver; In: Clinical methods: The history, physical, and laboratory examinations, 3rd edition, Walker HK, Hall WD, Hurst JW (Eds), Butterworths, Boston 1990. Naylor CD. 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Anusha G, Somaiah G, Siddique AM, Srikanth B. Study of Etiological and Clinical Profile of Hepatosplenomegaly in Children between 1 Month and 15 Years of Age. Scholars Journal of Applied Medical Sciences. 2014;2(2A):554-7 The JMSCR is accepting manuscripts for its coming issues to be Publish Volume 09 Issue 07 July 2021 the JMSCR invites authors to submit manuscripts Reporting original medical research, original article, research article, case report, systematic reviews, or educational Innovations for publication for the coming issues that will be released in Volume 09 Issue 07 July 2021. Types of manuscripts suitable for JMSCR include: Medical research, Clinical research Educational Innovation, Brief Report, Reviews on Teaching In keeping with high quality scholarship, Read More..... If any difficulty you can also submit to: This email address is being protected from spambots. You need JavaScript enabled to view it. Crossref - DOI Prefix: 10.18535/jmscr Authors should prepare their manuscripts according to the instructions given in the authors' guidelines. Manuscripts which do not ... Read More..... JMSCR is published as monthly journal with 12 issues per year. Special editions are also planned subjected to the scope and need... Read more... Authors are invited to submit their research articles, review papers, Case Report properly formatted as per the author guidelines..... Read more... Click for pdf: Hepatomegaly General Presentation Hepatomegaly can represent intrinsic liver disease or may be the presenting physical finding of a generalized disorder. It is important to realize that the liver is easily palpated in most children at 1-2 cm below the right costal margin. A normal liver should feel soft and is easily moveable upon inspiration. An enlarged liver rarely presents alone and usually accompanies other clinical signs and symptoms based on the underlying pathophysiology. Associated signs and symptoms to watch out for in the pediatric population include shortness of breath, fatigue, abnormal bruising, jaundice, loss of consciousness, seizures, diarrhea, and splenomegaly. General mechanisms of hepatomegaly include inflammation, excessive storage, infiltration, congestion, and obstruction Table 1: Expected liver span in the pediatric population by percussion (Adapted from Bate's Guide to Physical Examination and History Taking) Signs of an Abnormal Liver · >3.5cm below the right costal margin in a newborn · Rubbery (hepatitis) · Tender (acute hepatitis, right heart failure, venous congestion) · Firm (cirrhosis) · Nodular (malignancy) Questions to Ask Is there any history of recent infection? (eg: rash, pharyngitis, cough, SOB, fever, exposure, poorfeeding, malaise etc) Has the child consumed any contaminated food or experienced any diarrhea and/or vomiting? Is there any history of loss of consciousness or seizures? Does the child have any preexisting liver diseases, lung diseases, or congenital heart diseases? Were there any complications during pregnancy, delivery, and after delivery? Are there any growth (weight gain) and developmental concerns? Is there any maternal history of hepatitis B or C, CMV, EBV or HIV? Is there any family history of cystic fibrosis, alpha-1 antitrypsin deficiency, storage diseases, liver diseases, heart diseases, autoimmune diseases or malignancy? Has the child had any change in stool color? What color are his/her stools? Is there any history of drug or toxin ingestion? Is there any exposure to radiation? Is the child on any medications right now? Is there any recent travel? Is there any history of trauma? General Physical examination DEHM: Petechiae and purpura (malignancy), pruritis/jaundice (liver disease),rashes (infection) HEENT: Icterus, cherry red retinal spots or cloudy cornea (lipid storage disease), Kayser-Fleischer (Wilson's disease) CNS: decreased LOC, seizures (hypoglycemia due to storage disease) CV/ RESP: Murmur, abnormal heart sounds (S3, S4) (congenital heart diseases), SOB/ abnormal breath sounds (alpha-1 antitrypsin deficiency) GI: tenderness, distension, ascites, hepatomegaly (liver disease, gallstones, trauma), splenomegaly (hemolytic anemia) MSK: joint tenderness (hepatitis), bone pain (malignancy) Liver Exam: Percussion: Liver span is determined better by percussion than by palpation in children. Percuss along the midclavicular line to find the upper margin of the liver. The transition from resonance to dullness indicates the upper liver border Palpation: Start palpating from the lower right quadrant and work towards the costal margin. Direct fingers inwards upon each inspiration to feel the liver edge. Scratch test (Figure 1): Place the diaphragm of your stethoscope just above the right costal margin at the midclavicular line. Lightly scratch the skin of the abdomen with the fingertip along the midclavicular line, starting from below the umbilicus towards the costal margin. A change in sound indicates the liver edge. Figure 1. The scratch test to determine the liver's edge. (Adapted from Bate's Guide to Physical Examination and History Taking) Laboratory Investigations AST, ALT, GGT, alkaline phosphatase, bilirubin, total protein, albumin Serum electrolytes and BUN Urinalysis CBC with differential and peripheral blood smear Fasting blood glucose Hepatitis serology Additional investigations based on clinical suspicion: EKG, total and direct bilirubin, lipid profile, ceruloplasmin, alpha-1-antitrypsin (AAT), HIV serology, blood culture, autoantibodies, alpha fetoprotein, bone marrow aspiration and biopsy Glucose Lactate Free Fatty Acids B-Hydroxybutyrate Glycogen Storage Diseases 1 N N N Defect in Gluconeogenesis 1 N 1 N Defect in Fatty Acid metabolism 1 N 1 1 Table 2. Common laboratory findings in storage diseases that cause hepatomegaly. (Adapted from Sperling Pediatric Endocrinology, 3rd ed.) Imaging Abdominal ultrasound with Doppler Abdominal CT or MRI (hepatic masses, biliary tree, anatomical obstructions) Echocardiogram (congenital heart defects) ERCP (stones) Liver Biopsy Conclusion Hepatomegaly is a symptom that can be caused by a variety of conditions that affect different organ systems. When evaluating a child with hepatomegaly it is very important to identify conditions in which immediate medication intervention is needed and provide appropriate treatment options. References 1) McClain K, Landaw S. Approach to the child with an enlarged spleen. (Last updated: July 22, 2008) In: UpToDate, Mahoney D, Hoppin A (Ed), UpToDate, Wellesley, MA, 2010. 2) Anand B, Krok K, Pollak E. Evaluation of hepatomegaly. First Consult (Last updated September 19,2007). Available from: [Accessed on January 8, 2010] 3) Bickley L, Szilagyi P, Bates B. Bate's Guide to Physical Examination and history Taking, 10th ed. 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Guyton and Hall Textbook of Medical Physiology. 14th ed. Philadelphia, PA: Elsevier; 2021:chap 16. Professional Reference articles are designed for health professionals to use. They are written by UK doctors and based on research evidence, UK and European Guidelines. You may find one of our health articles more useful. Treatment of almost all medical conditions has been affected by the COVID-19 pandemic. NICE has issued rapid update guidelines in relation to many of these. This guidance is changing frequently. Please visit to see if there is temporary guidance issued by NICE in relation to the management of this condition, which may vary from the information given below.Hepatomegaly is enlargement of the liver. The liver edge is normally palpable in children and thin adults and some patients may have a palpable right lobe of the liver. It is smooth, uniform, non-tender and descends to meet the palpating fingers on inspiration. The best way to assess size is by percussion - a normal-sized liver can appear enlarged if displaced downwards by lung disorders. An enlarged liver expands down and across towards the left iliac fossa (LIF). To avoid missing a really big liver, always begin liver palpation in the LIF and work towards the right upper quadrant.[1]The most common causes of hepatomegaly in the UK are alcoholic liver disease, malignancy (particularly metastases) and congestive cardiac failure.Associated symptoms may be few or rather vague - eg, loss of appetite, weight loss and lethargy.There may be symptoms relating to liver dysfunction - eg, jaundice, bruising, gynaecomastia, spider naevi, ascites; or related to the underlying cause - eg, xanthelasma suggests autoimmune liver disease.Measure the hepatomegaly by percussing the upper and lower borders (will rule out causes such as emphysema which can push the liver down giving a false impression of hepatomegaly).Smooth hepatomegalySuggests: hepatitis, chronic cardiac failure, sarcoid, early alcoholic cirrhosis, tricuspid incompetence with a pulsatile liver.Craggy hepatomegalySuggests: primary hepatoma or secondary tumours.NB: a small liver is typical in late cirrhosis and nodular cirrhosis typically produces a small shrunken liver not a large craggy one. Ask particularly about alcohol consumption, sexual activity, intravenous (IV) drug abuse, blood transfusions and recent travel.InfectionViral hepatitis (acute and chronic).Infectious mononucleosis - Epstein-Barr virus (EBV).Cytomegalovirus (CMV).Malaria.Helminthic infection.Pyogenic abscess.Amoebic abscess.CongestiveRight ventricular failure.Congestive cardiac failure (CCF).Constrictive pericarditis.Budd-Chiari syndrome.AutoimmuneAutoimmune liver disease.Biliary diseaseExtrahepatic obstruction - eg, pancreatic cancer, cholangiocarcinoma.Primary biliary cirrhosis.Primary sclerosing cholangitis.Tumours and infiltrative diseasesSecondaries (metastatic carcinoma).Primary hepatic tumour - eg, hepatocellular.Lymphoma.Granulomatous hepatitis.Amyloidosis.Sarcoidosis.Haematological disordersThalassaemia.Sickle cell disease.Haemolytic anaemia.Myeloma.Leukaemia.MetabolicHaemochromatosis.Wilson's disease.Glycogen storage diseases.Porphyrria.Non-alcoholic fatty liver disease.Diabetes mellitus-associated fatty liver.Toxic/drug-relatedAlcoholic liver disease: acute alcoholic hepatitis and alcoholic fatty liver Drug-induced hepatitis - eg, statins, macrolides, amiodarone, paracetamol (indicates significant damage).Hepatomegaly in neonates and children[4]Infections: TORCH* infections, hepatitis viruses and EBV and malaria.Metabolic: galactosaemia, lipid storage disorders - eg, Gaucher's disease.Neoplastic: leukaemia, lymphoma and hepatoblastoma.Haematological: sickle cell anaemia and thalassaemia.Cardiovascular: congestive cardiac failure and tricuspid regurgitation.Miscellaneous: schistosomiasis, toxins, sepsis, polycystic kidneys and liver.Drugs: for example, antituberculous medications.HepatomegalyWith normal bilirubin: consider hepatoblastoma, metabolic diseases.With raised conjugated bilirubin:With splenomegaly: TORCH (TOxoplasmosis, Rubella, CMV and Herpes simplex) infections, sepsis and disorders of carbohydrate metabolism - eg, galactosaemia.Without splenomegaly: liver tumour, choledochal cyst, biliary atresia, neonatal hepatitis.With raised unconjugated bilirubin: CCF, toxins, haemolytic anaemias.If unwell, may need urgent admission.Full history: include recent travel, tattoos, IV drug abuse, medications as well as herbal remedies, alcohol intake and sexual history.Full examination: look for stigmata of chronic liver disease, delirium tremens, lymphadenopathy, and presence of splenomegaly: digital rectal examination may be necessary.Investigations: if the patient does not need urgent admission then request some basic investigations - eg, LFTs, FBC and film, U&Es, clotting, inflammatory markers, hepatitis screen and liver ultrasound scan. Further tests can be decided according to the results of these tests.Referral to a specialist: for further assessment, diagnosis and management.

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