

Pancreatitis in a child with acute lymphoblastic leukemia after Erwinia asparaginase: Evaluation of ultrasonography and computerized tomography as diagnostic tools

Akut lenfoblastik lösemili bir çocukta Erwinia asparaginazdan sonra olan pankreatit: Tanı araçları olarak ultrasonografi ve bilgisayarlı tomografi ile değerlendirme

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To the Editor,

Acute pancreatitis is a well described complication of L-asparaginase therapy [1,3]. Complications include hemorrhage, pseudocyst formation, pancreatic insufficiency, sepsis, and respiratory distress due to pulmonary edema or pleural effusion [2,5]. An 8 year old boy with ALL, who was on St. Jude Total XIII-high risk continuation therapy, tolerated E-coli asparaginase treatments well until he developed anaphylaxis reaction during E-coli asparaginase administration at 8th week of continuation therapy. According to protocol the next L-asparaginase treatment was four weeks later. We switched E-coli asparaginase to Erwinia asparaginase, and he received vincristine, and prednisone at the 12th week of continuation treatment. One week after first Erwinia asparaginase administration the patient was admitted to hospital with vomiting, diffuse abdominal pain and

decreased oral intake. Physical examination revealed a pale, ill appearing child in acute distress with a diffuse sensitivity of upper abdomen but no rebound tenderness or guarding. Laboratory findings showed an amylase level of 477 mg/dl (normal <125 mg/dl), pancreatic lipase 292 U/L (0-60 U/L), pancreatic amylase 81 U/L (17-115 U/L). The most possible diagnosis was drug induced pancreatitis. Repeated laboratory evaluation showed a gradual increase in the serum amylase to 775 mg/dl by hospital day two. On the second day of admission, ultrasonography of the abdomen showed the pancreas was diffusely enlarged and heteroechogen. Although hypoechoic texture is expected in pancreatitis, ultrasonographic evaluation was heteroechogen in our patient. On the third day of admission abdominal computed tomography (CT) study was done to explain heteroechogenity in ultrasonography. Computed tomography scanning with intravenous contrast

was normal. Initial management included nasogastric tube placement with suctioning, bowel rest, and analgesics. Intravenous hyper-alimentation was also begun. The following day serum amylase level was decreased to 172 mg/dl. The patient was discharged home on hospital day seven, tolerating a regular diet, free of abdominal pain, and with an amylase of 128 mg/dl. The rest of the L-asparaginase treatment was omitted. Imaging techniques confirm the diagnosis of pancreatitis, and sometimes identify the cause, and also assess complications such as pseudocyst [3]. Among the most useful and frequently used are ultrasound and CT. The two major sonographic findings are increased pancreatic size and decreased pancreatic echogenicity [4]. However, a normal gland can be observed in mild cases [3]. Changes in pancreatic size, contour, and echotexture are appreciated best with ultrasonography, as is the presence of dilated ducts, pseudocysts, abscesses, ascites and associated gallstone disease. While pancreatic enlargement and hypoechogenicity are usually diagnostic of acute pancreatitis, because of the variability of the size of the normal pancreas, enlargement is often difficult to assess. Thus, abnormality is based more often on the relative echogenicity of the pancreas rather than its size. On the other hand, the pancreas in normal children is equal or more echodense than the left lobe of the liver owing to the increased fibro fatty content of the pancreas [4]. Computed tomography often is used to help manage the complication of pancreatitis, such as providing guidance in the aspiration and drainage of an abscess, phlegmon, or pseudocyst or prior to surgical intervention. Computed tomography scanning is gaining favor despite the common notion that CT is not useful in children due to their having less retroperitoneal fat [5,6]. It is not clear how soon the full extent of the necrotic process will occur, but it is at least four days after the onset of symptoms and early CT may therefore underestimate the final severity of the disease [7]. Kearney et al, reported 39% of children with clinical and chemical pancreatitis did not have abnormalities detected by ultrasound; therefore,

the diagnosis should not be dependent on radiographic confirmation. There was a high concordance between ultrasound and CT in detecting abnormalities, and so it may be reasonable to reserve the use of CT for those patients with persistence or worsening of clinical symptoms or laboratory findings in the setting of non-diagnostic ultrasonography [8]. While ultrasound findings were compatible with acute pancreatitis, abdominal CT (on the third day of admission) in our patient was normal. This might be related with mild pancreatitis or having less retroperitoneal fat in children.

Written informed consent was obtained from the patients.

Conflict of Interest

No author of this paper has a conflict of interest, including specific financial interests, relationships, and/or affiliations relevant to the subject matter or materials included in this manuscript.

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