

Ultrasonic examination in the acute abdomen

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Abstract

This is a prospective study of 92 cases , 60 female 32 male presented with different acute abdominal conditions, evaluation of their ultrasonographic examinations had done and its accuracy rate in general was 92.3 percent. this rate reached 100 percent in certain cases as liver abscess, ovarian cyst while it is 95 percent in the diagnosis of calculus cholecystitis and 81.8 percent in the complications of appendicitis . being non invasive , safe and rapid this aid established in the investigation of certain acute abdominal disorders and nowadays routinely used in certain condition.

Introduction:

The assessment of patients referred for hospital admission and the decision making process regarding their management is crucial since some will have life threatening condition which necessitate immediate surgical intervention or soon after resuscitation , Diagnostic errors on the initial assessment at best lead to unnecessary surgical intervention and at worst to demise of the patient or a protracted clinical illness due to the development of complication which could have been avoided by earlier surgical intervention.

The initial diagnosis relies the detailed history, through clinical examination and often specific diagnosis is possible on the basis of the history and physical examination alone e.g. acute appendicitis at other times, the clinical evaluation establishes the presence of acute intra-abdominal pathology but only differential diagnosis is possible and patient need to investigated,

To reach diagnosis ultrasound examination the abdomen being one of the routine and valuable examination in certain situations as cholelithiasis acute cholecystitis and intra abdominal abscesses. Being non invasive , rapid , safe so the usage increasing rapidly, Bed sonar should be available in every surgical Unit for the investigation of the acute abdomen and result from special zed centers are impressive. However the problem of the operator variations and the difficulties in providing a 24h service will probably prevented it from being a first line investigation in our hospitals.

Objective

The object this study is to evaluate ultrasonographic examination in the diagnosis of acute abdominal conditions. Materials methods:

Patients and methods

92 patients admitted to the 3rd surgical unit (80 beds) at Medical city from Nov. 2018 - suitable for this study as most of acute abdomen admitted after 2 P.M. and operated doing sonography which is available only during working hours 8 A.M.-2 P.M..

60 patients were females and 32 were males

The age varies from 6 - 72 Y with average age of 36 years.

The cases including in the subject were presented as emergency acute abdomen , after clinical evaluation and ultrasound examination of the abdomen all gave surgical operations. A study between the ultrasound result and the operative finding done.

Type of cases	No.	Turesonar	F.Positive sonar	F.Negative sonar
Acute calculus cholecystitis	25	24	1	
Obstructive jaundice	6	6		
Hepatic abscess	5	5		
Infected hydrated cyst	4	4		
Abdominal abscess				
Intra peritoneal	3	3		

Retro peritoneal	2	2		
Extra peritoneal	2	2		
Complication of appendicitis				
Perforation	6	5		1
Appendicular mass	5	4		1
Gynecological conditions				
Ectopic gestation	8	8		
Twisted ovarian	5	5		
Ovarian cyst	6	6		
Abortion	2	1		1
pyosalpinx	1	1		
Pancreatic cyst	3	3		
Intest tumour	5	5		
Others				
Obst inguinal hernia	1			1
Peptic ulcer	2			2
Mesenteric cyst	1			1

Result:

In 7 cases the sonographic examination was undiagnostic and give false result and in one case there was false positive finding so in a cases out of 92 in which ultrasonic examination failed to detect the pathology and reach correct diagnosis that is to say the accuracy rate of the sonar in this study is 92.31 % this accuracy rate is increasing in certain condition up to 100% as in liver abscess and abdominal abscess, and it reach to 81.8 % in the diagnosis of complication of appendicitis. The type of the cases included in this study shown in the table below which show the pathology of the case found during operation, and the ultrasound result whether true or false (f) finding (positive or negative)

Type of cases	No.	true sonar	F.positive Sonar	F. Negative Sonar

Gynecological condition				
Ectopic gestation	8		8	0
Twisted ovarian	5		5	0
Ovarian cyst	6		6	0
Abortion	2		1	0
Pyosalpinx	1		1	0

Pancreatic cyst	3		3	0

Intest tumour	5		5	0

Others				
Obst inguinal hernia	1		0	0
Peptic ulcer	2		0	0
Mesenteric cyst	1		0	0

Discussion:

All cases of acute calculus cholecystitis the sonography revealed acute inflammation of Gall bladder and the presence of stones except in one case where sonography give false positive result and it was no stone in the Gall bladder as revealed by oral cholecystography done subsequently, ECG –changes

As tender swelling in the abdominal sonar and operative finding proved be in the abdominal wall (extraperitonially) between the muscle wall.

In cases of appendicitis and its complication in one case it was a young adult admitted with right side abdominal pain differential diagnosis between A . A sonar reveal normal gall bladder so operation decided and a high retrocecal acute appendicitis found.

In 4 cases suspected to have perforated appendicitis free fluid found in the pelvis or localized fluid collection found and laparotomy revealed perforated appendix.

In 5 cases of appendicular mass in 3 cases of them sonar confirm a mass in the right iliac fossa and in one case no mass was detected and in the 5 th case sonar revealed a complex mass was mostly complicated ovarian

cyst or tube ovarion mass laparotomy by gynecologist reval several inflamed appendix with early mass appendisectomy was done by general surgeon. In the intestinal lesions 5 cases presented with acute abdominal pain , 2 of these proved to be tumor of the colon and metominal to the liver (laparotomy) sonograpgy show distended loop of bowel no mass detected with metastasis in the liver in one case female patient presented with sever pain and fresh bleeding per rectum clinically diagnosed as intestinal obstrucution sonar revealed multiple polyp in the stomach and provide to be ischemia of the heart and referred to medical department.

In cases of obstructive jaundice , patient presents with billiary colic and ultrasound examination revealed in 2 cases hydratid cyst of the liver and dilattion of the common bile duct in favor of inter billiary rupture of hydrated cyst while in the other cases stones in the gall bladder and in the dilated common bile duct and in one case gall stone and dilation of the common bile duct only.

Cases of hepatic abscess there was 1 amoebic abscess and 4 bacterial abscess . 2 of them associated with perforated empyema of the gall bladder all have drainage of the abscess and removal of the gall bladder in the case of empyema. In the 4 cases of the infected hydrated cyst of the liver all where confirmed by the sonography and the clinical examination and laparotomy done for proper drainage.

In abdominal abscess there was 3 cases one due to missed pack , and other after cholecystectomy developed subphrenic abscess and the 3 rd case was pelvic abscess and ascitis after cessarion section. And the 2 cases of retroperititional abscess were due to neglection and they were only presented as a fever and proved to be retrocecal abscess - appendicitis - And the 2 cases of the abdominal wall abscess which present.

Bowel with well defined complex left hypochondria mass of 12 cm in diameter laparotomy shows intusseption of small bowel to which resection was done .In one case male patient with bleeding per rectum his sonography reveal normal liver with mass protruding from the pelvis either enlarged prostate or bladder tumor or lower GIT tumor, laparotomy proved carcinoma of upper rectum and anterior resection was done.

In the 5 th case sonography of 6 year old child presented with acute abdominal pain a complex mass in the supra

pubic region a thick bowel with food particles moving within the lumen laparotomy, showed lymphoma of small bowel. In the 3 cases of pancreatic lesions one case of pancreatic tumor which presented as upper abdominal mass with sever pain radiating to the back sonography showed hige transonic cyclic lesion oval in shape connected to the body of the

pancreas , during laparotomy pancreatic cyst found which drained on the stomach with enlarged lymph node found.

The other two cases of traumatic pseudo cyst sonographically confirm the diagnosis and operatively..

22 gynecological cases, some had been examined by general surgeon and then referred to the gynecologist, other managed in the gynecological department 8 cases of ectopic gestation which present as acute abdominal pain with missed period and signs of Internal bleeding ultrasound examination in all cases confirm the diagnosis.

In one case there was IUD and patient presented as lower abdominal pain and vaginal bleeding previously operated on for ectopic gestation U/S confirmed the presence of IUD and adnexial mass and free fluid inside the pelvis (complicated tuboovarian mass) laparotomy was done and salpingectomy for ectopic gestation.

12 cases of ovarian cyst (5) of these proved to be twisted ovarian and (7) cases ovarian cyst some of these cyst have hemorrhage inside , others big distention of the cyst found all the cysts confirmed by the U/S examination and during laparotomy.

Two cases presented as abdominal pain and vaginal bleeding in one case sonar or U/S failed to detect any mass or abnormality of the pelvis while in the second case bulky uterus with thickened endometrial cavity and ovarian cyst dilatation and curettage done for these two cases.

In one case of obstructed inguinal hernia which proved to be colonic (content of the hernia) U/S reveal only dilatation of part of the intestine.

In two cases proved to be peptic ulcer in one of them sonography reveled left hypochondrial mass (thick segments of intestine), endoscopy revealed malignant ulcer of lesser curvature of stomach for which total gastrectomy and splnectomy

done. in the others case prominent portion of duodenum and the stomach shown on U/s, and laparotomy reveal duodenal ulcer for which vagotomy and pyloroplasty was done

In the study by (J.R.C.ref.no. 8) Many surgeons strongly advocate early surgery for patient with acute cholecystitis , in prospective study of 100 patient presented with right hypochondrail pain and diagnosed clinically by qualified surgeons as having acute cholecystitis 25 of these found to have a different diagnosis in subsequent investigation and in further 11 patient no definite diagnosis could be established.

In another study (philip shfiled ref. no. 11) The application of ultrasound has transformed the diagnistis approach in jaundice , the presence of dilated duct is therefore easily and accurately determined in our study all the cases the sonographic examination showed the dilatation of common bile ducts and other lesions such as stone hydated cyst as a cause of the obstruction.

In a study by cooperberg and his colleagues ref. no. 3 record of sensitivity of 99 percent and specificity of 87 percent. the dilated common bile duct may be traced to the point of obstruction and its . cause ascertained in many cases.

Focal intrahepatic masses as a small as 5 mm may be successfully result providing there is a significant difference in acoustic characteristics between the abnormal focus and the adjacent normal liver. diagnosis of liver abscess and cystic masses reaching 100

present in our study and other different studies although the no. of cases included is little , the size , the number and the location of the cystic masses beautifully detemined by songraphy. Q forgo and other surgeons (ref.no. 12) studied 46 patient with pyogenic liver abscess the overall mortality was 24 percent all the 11 deaths occur in 24 patients prior to 1978, there was a deaths occur in 24 patients seen prior to 1978, there was a delay in the diagnosis of liver abscess mean 90 + 71 days after U/S average delay of about 28 + 20 days so early detection and good prognosis for liver abscess after U/S usage dan despite the problem of access resulting in poor sensitivity and specificity U/S has advantage over other methods of imaging for pancreatic diseases e.g, pseudo cyst, abscess may be readily accessed sonographically other study, especially on the pancreatic lesion needed to evaluate the U/S examination of the pancreas because the number is so little in this study.

Barium Studies remain the most specific radiological method of imaging the GIT however accurate U/S examination depend on the recognition of the bowel and its reliable differentiation from other organs. the importance of attention to the appearance of the bowel during U/S

examination had been stressed by price ref. no. 10. Who correctly identified a colonic Carcinomain 22 patients during the course of 1700 examination performed to investigate the abdominal pain . Fluid filled bowel loops are ready identified in patient with bowel obstruction . sonography however is unlikely to provide information sufficiently accurate to indicate the cause or level of obstruction.

Nearly all the cases of acute appendicitis operated of after 3 p.m when no U/S service available and diagnosis reached on clinical evaluation except few cases in which U/S had been done because of the complication of the abnormal presentation and 2 out of 11 U/S failed to reach a diagnosis in the complication of A.A. (accuracy rate of 81.8 percent). in Abu-yousif study (ref.no, 10) an accuracy rate of 90 percent and sensitivity study of 68 case percent have been demonstrated in prospective study of 68 case with equivocal A.A..

Application of real time diagnostic U/S scanning in gynecology has approved a useful adjunct to pelvic examination, masses can be acoustically categorized as solid cystic or complex and their location relative to other pelvic structures can be clarified . in our study 100 percent accuracy rate of detection of cystic masses in the pelvis and in the detection of complication masses relative to the ovary or tube different cases as ectopic gestation, pyosalphix or twisted ovarian cyst.

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