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## SONOGRAPHIC EVALUATION OF RIGHT UPPER QUADRANT ABDOMINAL PAIN

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### Abstract

A large number of conditions can cause right upper quadrant abdominal pain. The aim of this paper is to report the sonographic abnormalities associated with right upper quadrant abdominal pain in a sample of 155 adult patients from Basrah.

During the period from 1st of March to 1st of July 2013, 155 adult patients aged between 20 to 70 years (107 females, 48 males) with right upper quadrant abdominal pain were observed at The Port Hospital and private clinics in Basrah. A detailed medical history was taken and a thorough physical examination was made. All the patients were examined with abdominal ultrasound with aim of detecting any sonographic abnormalities that can help in the diagnosis and treatment of the patients.

Eight patients had no sonographic abnormalities, 197 ultra-sonographic abnormalities were detected in 147 patients. Genito-urinary abnormalities were found in 95 patients, hepato-biliary abnormalities were found in 82 patients and gastrointestinal abnormalities were found in 20 patients.

In conclusion, genito-urinary sonographic abnormalities found to be the most common sonographic abnormalities associated with upper quadrant abdominal pain as it were found in 95 patients (48%).

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### Introduction

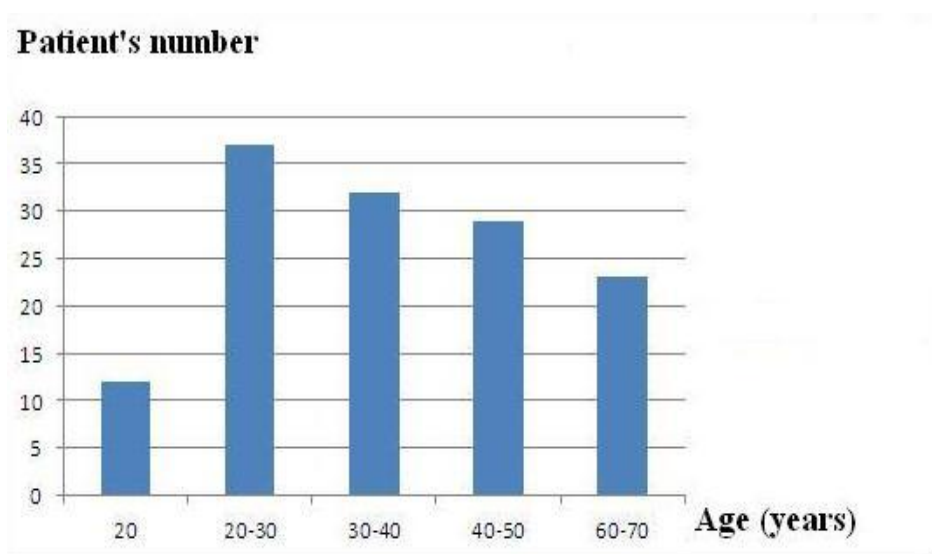
Abdominal pain has many potential causes. Often, the location of the abdominal pain can provide an important clue as to its cause. At other times, abdominal pain may occur in unexpected patterns, and its cause is less obvious. Nonetheless, it is helpful to think about abdominal pain in terms of its location. A large number of conditions can cause right upper quadrant abdominal pain such as appendicitis, cholangitis, diverticulitis, gallstones, gastritis, hepatitis, urinary tract infections, renal stones, pancreatitis, peptic ulcer, and many other conditions. The organs that are located in the right upper abdominal quadrant are liver, gall bladder with biliary tree, duodenum, head of pancreas, hepatic flexure of colon. Upper right quadrant pain should not be ignored, since it can indicate serious disease<sup>1-3</sup>. Abdominal ultrasound is useful to investigate the renal tract for stones or dilatation. It is the best way to detect gallstones and can also check the liver for

enlargement and establish if it has a homogeneous pattern or areas of different echo density<sup>4-6</sup>.

The aim of this paper is to report sonographic abnormalities associated with right upper quadrant abdominal pain in a sample of 155 adult patients from Basrah.

### Patients and methods

During the period from 1/3/2013 to 1/7/2013, 155 adult patients aged between 20 to 70 years (107 females, 48 males) with right upper quadrant abdominal pain were observed at The Port Hospital in Basrah and private clinics. Figure 1 show the age distribution of the patients. A detailed medical history was taken and a thorough physical examination was made. All the patients were examined with abdominal ultrasound with aim of detecting any sonographic abnormalities that can help in the diagnosis and treatment of the patients.



**Figure 1: The age distribution of the patients.**

## Results

### Characteristics of pain

Of the 147 patients, the pain was colicky in nature in 84(57%) patients; persistent pain was observed in 53(36%) patients, while 48(32%) patients had dull pain. Some patients complained of pains having 2 of these 3 characters (Colicky, persistent, and dull). Seventy seven patients have pain of several hours duration and 49 patients had pain of few days duration. Forty eight patients had history of previous attack of abdominal pain; 11 patients experienced pain during the previous month, 17 patients had pain during the previous 6 months, 9 patients had history of pain during the previous year, 10 patients had pain during the previous 5 years, and only one patient had pain dated back more than 5 years.

### Associated symptoms

Nausea was the most associated common symptom followed by vomiting and fever. Eighty five patients had nausea, 44 patients had vomiting, 44 patients had

fever, 6 patients had diarrhea, and 4 patients had jaundice.

Associated chronic diseases, previous surgeries, and medication administration

Thirty five patients were hypertensive, 22 patients were diabetic, 6 patients had peptic ulcer, 2 patients had ovarian carcinoma, and 4 patients each had sickle cell anemia, lymphoma, Sheehan's syndrome, and breast cancer.

Thirteen patients had cholecystectomy, 9 patients had cesarean section, 5 patients had hysterectomy, 3 patients had mastectomy, 4 patients had appendectomy, 3 patients had cardiac stent, 2 patients had laminectomy, 2 patients had oophorectomy, 2 patients had TL, and 3 patients each had nephrolithotripsy, nephrectomy, laparotomy.

Twenty six patients were receiving anti-hypertensive, 17 patients were on anti-diabetic drugs, 8 patients received anti-ulcer treatment, 5 with and anti-acids, 5 patients received anti-cancer, one patient received cardiac drugs, and one patient received contraceptive pills.

### Sonographic abnormalities

Eight patients had no sonographic abnormalities. 197 ultra-sonographic abnormalities were detected 147 patients. Genito-urinary abnormalities were found in 95 patients, hepato-biliary abnormalities were found 82 patients and gastrointestinal abnormalities were found in 20 patients. Table I, shows the

sonographic abnormalities. Table II, depending on the site of sonographic shows associated symptoms of Nausea, Vomiting, Fever, Jaundice, and Diarrhea abnormalities.

**Table I: The sonographic abnormalities.**

Abnormalities	Number of patients	Percentage
<b>Hepatic abnormalities</b>		
Fatty liver	18	9.1%
Cyst	3 simple , 1 hydatid	2%
Mass	9	4.5%
Hepatomegaly	3	1.5%
<b>Biliary abnormalities</b>		
Stone	3	1.5%
Dilatation	2	1%
<b>Gall bladder</b>		
Stone	29	14.7%
Thick wall	10	0.05%
Calculus cholecystitis	2	1%
Enlarged cystic duct stump	1	0.5%
<b>Genito-urinary (Mainly right sided)</b>		
Stone	29 renal, 11 distal ureteric, 6 proximal ureteric	23.3%
Hydronephrosis	11	5.5%
Hydro-ureter	6	3%
Malrotated right kidney	6	3%
Single cyst	3	1.5%
Polycystic kidney	2	1%
Mass	3 malignant , 1 benign	2%
Cystitis	3	2%
Contracted kidney	2	1.5%
Hypertrophy	2	1.5%
Single Kidney	1	0.5%
Ectopic kidney	1	0.5%
Nephropathy	1	0.5%
Ovarian cyst	7	3.5%
<b>Pancreas</b>		
Pancreatitis	1	0.5%
Pseudocyst	1	0.5%
Mass	1	0.5%
<b>Gastro-intestinal</b>		
IBS	5	2.5%
Gastritis and peptic ulcer	10	5%
Appendicitis	2	1%

**Table II: Associated symptoms, Nausea (N), Vomiting (V), Fever (F), Jaundice (J), and Diarrhea (D) depending on the site of sonographic abnormalities. No symptoms (0)**

Sonographic abnormalities	N	F	D	V	VF	NV	NF	ND	NVF	NVJ	VFJ	NFJ	NVFJ	0
Hepatic	4	1	1		1	2			2			1	1	
Biliary	11			3	2	7			7	1	1			6
Genito-urinary	17	3		6		5	5		3					2
Gastrointestinal	2					4	1	1	2					5
Normal US	3	2						1	1					

## Discussion

Upper abdominal pain is a common complaint in our locality and because some of the causes are life threatening, so ultrasound examination should be done for every case with this pain to narrow the possibilities of differential diagnosis. In many cases, ultrasound can reach the final diagnosis as in acute calculus cholecystitis. Ultrasonography is a rapid, noninvasive, multi-organ and highly sensitive test.

The results of this study showed that only eight patients out of 155 (5.2%) had negative findings. The prevalence of the positive results noticed among females in this study could be explained by that females are more cooperative during examination and does the rule of fasting more correctly, moreover females usually have gall stones more than males because of stasis occur in the biliary tree due to high estrogen level.

The results disagree with the results of other study done in basrah also as the most common significant abnormality detected in this series was genitourinary abnormalities (65%) as compared to other study<sup>7</sup> in which hepatobiliary diseases including cholecystitis and cholelithiasis regarded as the commonest problem.

The value of ultrasonography is well demonstrated in this study which showed that U/S is a very useful tool for screening patients with right upper abdominal pain and it helps in reaching the final diagnosis or narrowing the possibilities of differential diagnosis and suggesting the next needed specific investigation.

## Conclusion

Genito-urinary sonographic abnormalities were the most common sonographic abnormalities associated with upper quadrant abdominal pain as it were found in 95 patients. Hepato-biliary abnormalities were second most common sonographic abnormalities as it were detected in 82 patients. Gastrointestinal abnormalities were found in 20 patients and ranked as the third most common sonographic abnormalities associated with right upper quadrant abdominal pain. Stones (biliary and urinary) were the most common cause of right upper quadrant abdominal pain in this sample of patients causing pain in 74 patients. Ultrasound machine should be present in every hospital day and night for cold and emergency cases of acute and chronic upper abdominal pain.

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