

Acute abdomen in patients above sixty

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Abstract:

Background: Acute abdomen is the medical term used for pain in the abdomen that usually comes on suddenly and is so severe that a person may seek emergency treatment, it can signal a variety of more serious conditions, some of which require immediate medical care and or surgery.

Aim of the study: To evaluate the causes of non-traumatic acute abdomen and their presentation in elderly patients within the emergency department at Al-Yarmook Teaching Hospital and their correlation to the final diagnosis and outcome.

Patient and method: A descriptive study was conducted on 121 elderly patients aged sixty years and above, complaining of acute abdominal pain (traumatic cases were excluded & unknown patients fate), presented to the emergency unit of Al-Yarmook Teaching Hospital. The study was done during a period of fourteen months (1st of February 2015 till 1st of April 2016). The data were collected by interviewing questionnaire, reviewing of records, taking some measurements, and physical examination. Data analyzed by using SPSS program-22.

Result: Patients with acute abdomen were included in present study with mean age 68.4 ± 7.5 years with female to male ratio of 2.1:1. The most common chief complaint was pain presented in 100 (59%) of patients, 50 patients (41%) presented with duration of chief complaint in ≤ 24 hours, 56.2% of the studied patients were hyperthermia, 65% were hypertensive, mean pulse rate of studied patients was 110 ± 12 beat/minutes, 75.3% of them had tachycardia, mean respiratory rate of studied patients was 19 ± 2 /minutes, 52% of them had tachypnea. Most common site of pain was right iliac fossa (24.8%), murphy's sign was positive among 19 patients (16%), tenderness was present in 114 of the patients (94%), abdominal guarding was positive in 106 of the studied patients (88%), jaundice was observed in 27(22%) patients, dehydration was present among 79 (65%) of studied patients, and 76 of the patients (62.8%) had elevated WBC. Cardiovascular diseases were the common associated diseases (47%). Ultrasound findings of studied acute abdomen patients presented to emergency department revealed that 26 of them (21.5%) had gall bladder abnormality, 24 (19.8%) had no specific ultrasound findings, the X-ray finding were abnormal among 44 (36.4%). The most common diagnosis was perforated viscus for 18 (14.8%) patients. More than two-thirds (72; 59.5%) were treated surgically with mortality rate was 18 (14.8%).

Conclusion: Pain was the most common complaint among elderly with acute abdomen, and right iliac fossa was the common site of pain. Most patients attended to hospital late (after 24 hour from starting the symptoms). Perforated viscus & cholecystitis appears to be the main causes of acute abdomen among Iraqi elderly people.

Key word: Acute Abdomen, Elderly.

Introduction

Acute abdomen is the medical term used for pain in the abdomen that usually comes on suddenly and is so severe that a person may seek emergency treatment, it can signal a variety of more serious conditions, some of which require immediate medical care and/or surgery⁽¹⁾.

In USA abdominal pain is the chief complaint in 3% to 13% of older patients coming to emergency department, these patients are 6-8 times more likely to die and twice as likely to need surgery as their younger counterparts, misdiagnosis is common, ranging from 18% to 60%⁽²⁾. In Turkey, the most common surgical indication among elderly was acute cholecystitis (26.09%), followed by intestinal obstruction (25%). Morbidity was established as 22.8% and mortality as 15.2% with the most common cause of mortality was mesenteric vascular occlusion⁽³⁾.

In Iraq/Bagdad teaching hospital the most common cause of acute abdomen among patients above sixty was intestinal obstruction(57%), acute cholecystitis (20%), and perforated peptic ulcers(8%). Mortality was not related to age, but related to the cause of acute abdomen, number of medical diseases, and time delay in performing surgery.⁽⁴⁾

Mechanisms of acute abdomen in the elderly patient are not different from the ones of young adults, what differs is the large number of associated diseases

and specific geriatric pathology, ischemic disorders, diverticular disease.⁽⁵⁻⁹⁾

General causes of the acute abdomen may be divided into five large categories: the inflammatory causes may be divided into two subgroups: bacterial and chemical, some common examples of the bacterial causes would include acute appendicitis, diverticulitis, and some cases of pelvic inflammatory disease, an example of a chemical cause would be a perforation of a peptic ulcer, where spillage of acid gastric contents causes an intense peritoneal reaction, mechanical causes of an acute abdomen include such obstructive conditions as incarcerated hernia, post-operative adhesions, intussusceptions, malrotation of the gut with volvulus, vascular causes of acute abdomen include mesenteric arterial thrombosis or embolism, and when the blood supply is cut off necrosis of tissue results with gangrene of the bowel. Neoplastic causes like ovarian tumor, and congenital defects can produce AA(these are not included in our study)⁽¹⁰⁻¹⁴⁾.

Imaging plays a larger role in the workup of elderly patients with abdominal pain; it can be useful in detecting bowel obstruction, a dynamic ileus, nephrolithiasis, and perforation. Occasionally, gallstones may be observed, as well as late findings of mesenteric ischemia (i.e., pneumatosis intestinally).

Chest-X-ray is helpful in excluding pneumonia, which is a cause of abdominal pain, it may demonstrate free intraperitoneal air under the diaphragm in patients with perforated viscus.⁽¹⁵⁾ Abdominal ultrasonography is the initial study of choice when evaluating for biliary tract disease ⁽¹⁶⁾. Computed tomography scanning plays an increasingly important role in the evaluation of elderly patients with abdominal pain, especially when the diagnosis is unclear, this imaging modality allows the identification of the site of gastrointestinal perforations, ischemia, and the determination of the most predictive signs in this diagnosis.⁽¹⁷⁻¹⁸⁾

The current study was conducted aiming to evaluate the causes of acute abdomen and their presentation in non-traumatic elderly patients within the emergency department at Al-Yarmook Teaching Hospital and the final diagnosis and outcome.

Patients and Methods:

This is a descriptive study on 121 elderly patients aged sixty years and above, complaining from acute abdominal pain (traumatic cases were excluded & unknown patients fate), admitted to the emergency unit of Al-Yarmook teaching hospital. The study was done during fourteen months which extended from 1st of February 2015 to 1st of April 2016.

The data was collected through interviewing questionnaire, reviewing of records, taking some

Table 1: The age of patients with acute abdomen distribution according to their gender.

Age groups	Male		Female		Total	
	No.	%	No.	%	No.	%
60-69 years	22	56.5	48	58.6	70	57.8
70-79 years	13	33.3	26	31.7	39	32.2
≥ 80 years	4	10.2	8	9.7	12	10.0
Total	39	32.0	82	68.0	121	100
Mean±SD	67.7±7.3		69.2±7.8		68.4±7.5 years	

The most common chief complaint was pain presented in 100 (82.6%) of patients and the other complaints after pain were vomiting (43.8%) and fever (14.1%). In details, 58 (49.7%) of acute abdomen

measurements, and physical examination. The questionnaire form was prepared through modification of multiple questionnaires of national and regional studies on the acute abdomen and it covered demographic characteristics, chief complaints of patients, duration of the complaints, and associated medical illness.

Examination of all patients was performed including vital signs (pulse rate normally 60-100 beat/minute, temperature normally 36.5-37.2 °C, blood pressure normally systolic 100-135 & diastolic 60-85 mmHg, respiratory rate normally at rest 12-16 breath/minute), general and abdominal examination plus investigation including WBC count (normal value: 4000-11000/mm³), radiography (Chest x-ray in erect position, full further abdominal X-ray, KUB), and ultrasonography, then record the final diagnosis according to physician based report. Data analyzed by using SPSS program version-22.

Result:

A total of 121 elderly patients with acute abdomen were included in the present study with mean age 68.4±7.5 years, 70 (57.8%) patients were in age group 60-69 years. Elderly males were 39 (32%) and females were 82 (68%); female to male ratio was 2.1:1 (Table 1).

patients presented with pain alone, 28 (23.4%) patients presented with pain & vomiting, 18 (14.8%) patients presented with vomiting alone, 9 (7.4%) patients presented with pain & fever, etc. (Table 2).

Table 2: The complaints of patients presented with acute abdomen.

Complaints	No.	%
Pain alone	58	47.9
Vomiting alone	18	14.8
Fever alone	1	0.8
Pain & vomiting	28	23.4
Pain & fever	9	7.4
Pain & vomiting & fever	5	4.1
Vomiting & fever	2	1.6

The mean duration of chief complaint for acute abdomen patients was 43 ± 31 hours, 50 (41%) patients presented with duration of chief complaint in ≤ 24 hours and 71 (59%) patients presented in

duration > 24 hours. Regarding vital signs, body temperature, blood pressure, pulse rate and respiratory rate of studied patients, it is shown in table 3.

Table 3: The vital signs of patients with acute abdomen.

Vital signs	No.	%
Temperature: Normal	40	33.1
Hypothermia	13	10.7
Hyperthermia	68	56.2
Mean $\pm$ SD	37.2 ± 0.6 C°	
Blood pressure: Normal	35	28.9
Hypotensive	7	5.8
Hypertensive	79	65.3
Mean $\pm$ SD	$148/96 \pm 20/12$ mmHg	
Pulse rate: Normal	30	24.8
Tachycardia	91	75.2
Mean $\pm$ SD	110 ± 12 pulse/min	
Respiratory rate: Normal	46	38.0
Decreased	12	9.9
Tachypnea	63	52.1
Mean $\pm$ SD	19 ± 2 /min	

Table 4 shows that the location of abdominal pain at examination of acute abdomen patients was in right iliac in 30(24.8%) patients, generalized in 25(20.7%) patients, left iliac in 12(9.9%) patients, peri-umbilical in 12(9.9%) patients, right

hypochondrial in 11(9.1%) patients, left hypochondrial in 9(7.4%) patients, epigastric in 8(6.6%) patients, right lumbar in 6(5%) patients, left lumbar in 4(3.3%) patients and suprapubic in 4(3.3%) patients.

Table 4: The findings of physical examination of studied patients.

Abdominal pain at examination	No.	%
Right hypochondrial	11	9.1
Left hypochondrial	9	7.4
Epigastric	8	6.6
Right lumbar	6	5.0
Left lumbar	4	3.3
Peri-umbilical	12	9.9
Right iliac	30	24.8
Left iliac	12	9.9
Supra-pubic	4	3.3
Generalized	25	20.7

Figure 1 shows the physical examination findings of acute abdomen in elderly. Murphy's sign was positive among 19 (16%) of the patients with right hypochondrial pain. The tenderness was present

in 114 (94%) of the patients. Abdominal guarding was positive in 106 (88%) of the studied patients. Jaundice was observed in 27 (22%) patients. Dehydration was present among 79 (65%) of studied patients.

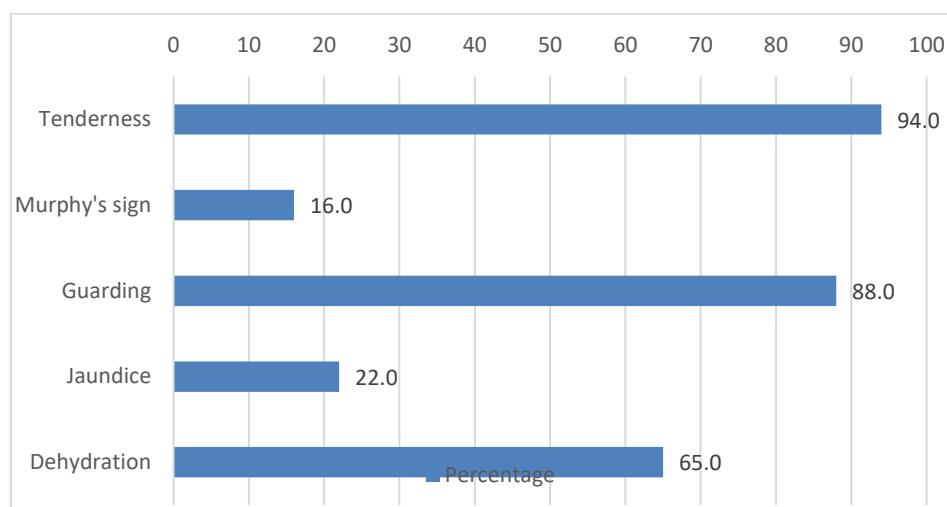


Figure 1: The findings of physical examination of studied patients.

Concerning the WBC, 76 (62.8%) acute abdomen patients had elevated WBC count and 45 (37.2%) of them had normal WBC count with mean

count for was $9 \pm 3.8 \times 10^3/\text{mm}^3$. Table 5 illustrates the associated diseases in patients with acute abdomen.

Table 5: The co-morbidity with other conditions in elderly with acute abdomen.

Associated diseases	No.	%
Cardiovascular	80	47.0
Pulmonary	39	23.0
Renal	31	18.0
Malignancy	17	10.0
Others	3	2.0

Ultrasound & X-ray findings of studied acute abdomen patients presented to emergency department revealed that 26 (21.5%) of them had gall bladder abnormality (wall thickening & or gall stone), 24 (19.8%) of them had no specific ultrasound findings, 22 (18.2%) free fluid, 12 (9.9%) had appendicular mass, 12 (9.9%) had abdominal solid

mass, 7 (5.8%) enlarged ovaries, 7 (5.8%) sign of appendicitis, 7 (5.8%) aortic calcifications and 4 (3.3%) pancreatic enlargement. X-ray finding (chest-X-ray, KUB, Plain abdominal X-ray erect & supine) in presented patients were abnormal among 44 (36.4%) as shown in table 6.

Table 6: The emergency US findings of studied patients.

Findings	No.	%
Ultrasound findings; Normal	24	19.8
Gall bladder abnormality	26	21.5
Free fluid	22	18.2
Abd. solid mass (tumor)	12	9.9
Appendicular mass	12	9.9
Enlarged ovaries	7	5.8
Sign of appendicitis	7	5.8
Aortic calcifications	7	5.8
Pancreatic enlargement	4	3.3
X-ray findings; Normal	77	63.6
Abnormal	44	36.4

The diagnosis of acute abdomen patients presented to emergency department was perforated viscus (14.8%), cholecystitis (13.5%), bowel obstruction (12.7%), strangulated hernia (9.9%), myocardial infarction (8.5%), heart failure (6.6%),

appendicitis (4.9%), abdominal aortic aneurysm (4.9%), ovarian tumors (4.6%), endometrial tumors for (4%), vascular occlusion (4%), and other diagnoses as shown in table 7.

Table 7: The diagnosis of elderly patients with acute abdomen.

Diagnosis	No.	%
Perforated viscus	18	14.8
Acute cholecystitis	16	13.5
Bowel obstruction	15	12.7
Strangulated hernia	12	9.9
Myocardial infarction	8	8.5
Heart failure	8	6.6
Appendicitis	6	4.9
Abdominal aortic aneurysm	6	4.9
Ovarian tumors	6	4.9
Endometrial tumors	5	4.0
Vascular occlusion	5	4.0
Colon tumor s	4	3.3
Colonic diverticulitis	3	2.4
Pancreatic tumors	2	1.6
Paralytic ileus	2	1.6
Renal stone	2	1.6
Mega colon	1	0.8

More than half 72 (59.5%) of studied patients were treated surgically (explorative laparotomy, cholecystectomy, appendicectomy, etc.), 21.5% of them were treated medically and 19% of them were treated conservatively. The final outcome of studied patients were discharged healthy for 65(53.7%) of

patients (after surgical and medical intervention), 38(31.5%) of them needed further management and 18(14.8%) of them died (10 patients died at emergency room before admission, 2 patients died intra-operatively and 6 patients died one week postoperatively) as shown in figure 2.

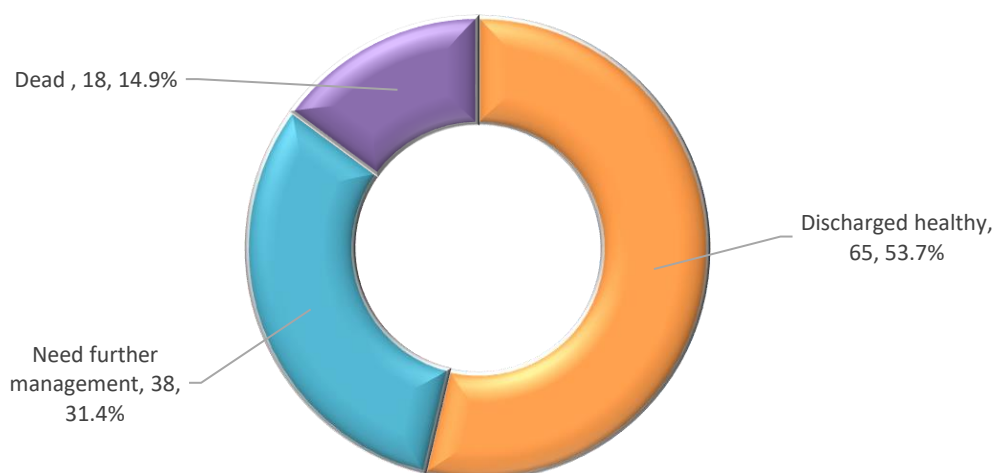


Figure 2: The outcome of elderly patients with acute abdomen.

Discussion

Since the mean age of the population is increasing, acute abdominal pain in the elderly is becoming more significant and important for the physician. Definition of "elderly" varies among different studies but most authors define patients older than 60 years as elderly.⁽⁹⁾

In this study, elderly males were lower than females; the ratio was 1:2.1, similar results were reported in other study in Turkey⁽¹⁹⁾. But unlike the result of research done in Al-Najaf hospital the males were higher.⁽²⁰⁾

From the result of our research the most common chief complaints of the studied patients were: pain (59%) ; vomiting (31%); and fever (10%), this rate less than astudy in Ethiopia: abdominal pain followed by vomiting which accounts 88.8% and 8.4% respectively were the most common presenting complaint⁽²¹⁾, but higher than study done in Korea the most frequent chief complaints were abdominal pain (16.81%), dyspnea (13.96%), and fever (11.16%).⁽²²⁾

Some patients in this study presented only with one complaint: 47.9% patients complaining of only pain, 14.8% only vomiting, and 0.8% complaining from fever, while the others complaining from more than one complaint.

Only 41% of our patients attended to hospital during first 24 hours from starting the symptoms. This result higher than 23.8% which reported by Al-Saiegh in Al-Najaf study⁽²⁰⁾, but lower than other study in Greece 83% of the patients presented within 24 hours after the onset of their symptoms.⁽²³⁾

The symptoms and signs in older patients are frequently milder and less specific than in younger adults with the same conditions, so the emergency physician must have a high index of suspicion based on clinical impressions rather than on "hard" data.⁽²⁴⁾

During vital signs measurements of the studied patients (56.2%) were increased body temperature, this result higher than measurements in study in Ethiopia (11%) feverish⁽²¹⁾, also higher than study in Greece (14%)⁽²³⁾. In our study, 65% were hypertensive, only 29% normotensive. These results disagree with measurements in research done in Ethiopia : (96.1%) normotensive⁽²¹⁾. 75.3% patients had tachycardia, this rate higher than other study (61.4%) tachycardia.⁽²³⁾ While 52% patients had tachypnea, 38% had normal respiratory rate, and 10% lower than normal rate.

During abdominal examination, 24.8% patients had RIF pain, while in Greece the patients located their pain mainly in the epigastrium (25%) and hypogastrium (35%)⁽²³⁾.

The majority of our patients (94%) had positive tenderness, and most of them 102 (84%) had negative Murphy's sign with reported sensitivity of 97% and predictive positive value of 93%.⁽²⁵⁾ Abdominal guarding was positive in (88%) of the studied patients. Jaundice was observed in (22%) patients, and dehydration was present among (65%) of studied

patients, this may be related to late coming of patients to the hospital.

Knowing that elder patients with abdominal pain may have a serious cause with a paucity of findings, laboratory testing and imaging are often the mainstay of evaluating these patients, so routine complete blood cell counts are mandatory, both leukocytosis and leukopenia indicate infection or inflammation in the elderly patients⁽¹⁾.

From the result of this research: 62.8% patients had elevated WBC and the others had normal WBC. In comparison with research done in Greece (33%) had elevated WBC and (67%) were normal⁽²³⁾.

In the present study, all the patients had history of chronic medical illness. The most common associated diseases were cardiovascular (47%), 23% had pulmonary diseases, 18% had renal diseases, 10% had malignancy. This agree with previous researches also cardiovascular diseases were the common (42.2%)⁽²⁶⁾. Other researches done in Baghdad General Hospital reveled 35% had cardiovascular diseases, 16% diabetes, 10% COPD⁽⁴⁾, also agree with research done in Italy 47% of the patients had cardiovascular disease, 33% had chronic pulmonary disease, and 28% had neurological pathologies⁽²⁷⁾.

The most common Ultrasound findings of studied acute abdomen patients presented to emergency department revealed that 21.5% of them had gall bladder abnormality, 19.8% of them had no specific ultrasound findings 18.2% free fluid, 9.9% had mass in right iliac fossa, and 9.9% had pelvic mass. Plain films are used primarily to look for free air in cases of suspected viscus perforation or for bowel obstruction, in addition to CXR to exclude extra abdominal pathology^(9,16).

The result of this research revealed that 63.6% of the patients had no abnormal finding in X-ray. The result was higher (88%) reported in another study, while abnormal X-ray in our research was in 36.4% of patients vs. 4.7%⁽²⁸⁾

In the present study the most common clinical diagnosis was perforated viscus (14.8%), cholecystitis (13.4%), while bowl obstruction the third cause (12.7%). In reverse to the research done in Basrah general hospital that revealed the most common cause of acute abdomen was intestinal obstruction which occurred in (55%) of the patients, hollow viscus perforation (17%), acute cholecystitis (12%), mesenteric vascular occlusion (MVO) (9%) and acute appendicitis (7%)⁽²⁶⁾, and in Bagdad general hospital also intestinal obstruction was the commonest cause (57%), acute cholecystitis (20%), perforated peptic ulcer(8%), acute appendicitis(6%)⁽⁴⁾, also the result was different in research done in Turkey: the first cause was acute cholecystitis (31.5%), strangulated hernia (18.2%), hollow viscus perforation (17.1%), bowel obstruction (10.5%), acute mesenteric ischaemia (9.4%), acute appendicitis (8.3%) and upper gastrointestinal haemorrhage (5%).⁽¹⁹⁾

About the type of therapy more than half (59.5%) of studied patients were treated surgically. This result reported in study done in AL-Najaf general hospital: (74.3%) patients underwent surgical operation, and the others treated conservatively (25.68%)⁽²⁰⁾, but the rate was half in other study (30-40%).⁽²⁹⁾

The outcome of our patients was 53.7% discharged healthy, 31.5% discharged unhealthy for further management and 14.8% of them died. So the mortality rate in this study lower than other study, 20% was found in Basrah general hospital⁽²⁶⁾, but higher than AL-Najaf study mortality rate was 5.5%⁽²⁰⁾, and 6.7% reported at the Hospital of St. Bernard Parish.⁽³⁰⁾

In conclusion, pain is the most common complaint among the studied patients, and right iliac fossa was the common site of pain and most patients attended to hospital late (after 24 hour from starting the symptoms). The most common associated illness of the studied patients were cardiovascular diseases (hypertension, angina, heart failure). Perforated viscus and cholecystitis appears to be the main causes of acute abdomen among elderly people in this study while the mortality rate is still considerably high that necessitate careful evaluation of elderly patients presenting with abdominal pain to decrease the rate of misdiagnoses and mortality

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