Al-Wataniya Journal of Medical Sciences
AL-WATANIYA JOURNAL OF MEDICAL SCIENCES
pISSN: 3105-3165
eISSN: 3105-3173
WJMS Issued by The National University of Science and Technology wjms.nust.edu.iq info.wjms@nust.edu.iq
AL-WATANIYA JOURNAL OF MEDICAL SCIENCES N.U.S.T 2025

ARTICLE

Aetiological Patterns of Acute Abdomen in Different Age Groups

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How to cite

Al-Omery A. Aetiological Patterns of Acute Abdomen in different age groups. Al-Wataniya Journal of Medical Sciences. 2025;1(3):22–28.

(Received: Nov 24,2025; Accepted: Dec 29,2025; Published: Dec 30,2025)

Access Article Online

Abstract

Background: Assessment of the patients at casualty room with severe stomach pain becomes a problem for the physician. Many factors can change the presentation, delaying the accurate diagnosis, with future adverse outcomes. Diagnosis of abdominal pain in elderly are challenging but the lack of obvious clinical findings and different presentations of intra abdominal disorders [1,2] .
Male to female ratio in Group A was 1.1:1 & in Group B was 0.76:1. The duration of symptoms was highly significant between both groups, with a higher mean among elderly (56.67±47.12) in comparison with young (18.27±21.77). History of hypertension, diabetes, CVA, IHD and tumors were more commonly & highly significant in elderly. Dehydration was significantly more commonly presented in elderly while tenderness, rigidity and guarding were more commonly presented in younger patients. Urinary system diseases were the most common cause of acute abdomen in elderly patients and the 2nd most common cause of admission was intestinal obstruction. Appendicitis was the most common cause of acute abdomen in young (51%).
Aim of study: To evaluate the differences of acute abdomen in elderly and young patients regarding the clinical presentation, causes and outcome. This Prospective study Conducted inAL- Nassyriah General Hospital in Thi- Qar from October 2023-October 2024. Seventy two patients who presented with acute abdomen 21 patients of 60 year old & above, (Group B) 51 patients below 60 years. Some of them required laparotomy and all patients were followed up .

Keywords: Acute abdomen, Abdominal pain, Elderly, Intestinal obstruction, Appendicitis.

1. Introduction

The United Nations and World Health Organisation (WHO) have decided that 60+ years may be typically denoted as old age in the poor world. However, most industrialised countries have recognised the age of 65+ years as the definition of "elderly" or older person. Severe abdominal pain that necessitates prompt medical attention is referred to as acute abdominal pain [1,2].

One of the most frequent reasons for admission to the emergency room is acute abdominal pain. An Iraqi study indicated that 1.7% of admitted patients with acute abdomen were elderly [3-6]. However, there is a lack of data demonstrating how the causes or results of acute abdominal discomfort vary by age. Caring for older people comes with a special set of difficulties. Assessing elderly individuals with acute abdominal pain also poses a special problem for the doctor. Atypical presentations, including delayed symptoms, less predictable changes in vital signs in response to sickness, and noticeably inaccurate physical tests, are caused by their unique physiology. Similarly, a patient who is really sick may have laboratory results that fall within the normal range[7,8]. Elderly people require more active use of imaging modalities and a high level of suspicion with a broad differential diagnosis than younger people. Compared to younger patients, older individuals have less reliable primary diagnoses at the casualty unit and at discharge. Elderly people typically exhibit nebulous symptoms and nonspecific examination results. Compared to younger patients, elderly patients are more likely to have a specific organic complaint and to arrive at the emergency room after experiencing symptoms for a longer period of time. Additionally, older patients may exhibit quite distinct symptoms from their younger counterparts [9,10]. Baseline changes in test markers and physical findings are additional challenges that make diagnosing abdominal illnesses in the elderly more challenging. Pre-existing medical conditions that change clinical manifestation and the difficulty of getting a complete history create further obstacles. Furthermore, elderly patients typically exhibit more vague symptoms and present later in their illness, although alternate diagnoses, such as myocardial infection or pneumonia, may manifest as acute stomach pain

in this demographic[11,12].

In addition, a number of non-medical issues, such as lack of transportation and fear of losing one's independence, may contribute to the delay in seeking medical attention. A reduced sensorium in many older persons allows pathology to progress to a harmful stage before symptoms appear. These variables lead to the first misdiagnosis of many elderly people with significant pathology as benign diseases like constipation or gastroenteritis. Additionally, they have a greater danger of being admitted to the incorrect service, such as in a medical situation involving surgery, and vice versa[3,13].

Degenerative alterations in the mucosal linings, a decrease in gut tone, a decrease in digestive capacity, and symptoms such as dyspepsia or chronic constipation are common age-related changes in the gastrointestinal tract. Changes in the motility of the esophageal sphincter can cause heartburn and water brash [14,15].

The morbidity rate for elderly individuals undergoing emergency surgery has been higher. Numerous variables, such as low symptom specificity and delays in proper diagnosis and treatment, contribute to the rise in morbidity among the aged. According to studies, 30–40% of older individuals who present with severe abdominal discomfort require surgery, and roughly 50% of them need to be hospitalised. Approximately 10% of these individuals die as a result of misdiagnosis, which affects nearly half of them. It is not uncommon for older people who are referred for surgery due to abdominal pain to have non-abdominal disease rather than intra-abdominal pathology. Elderly patients, including those with severe intra-abdominal disease, frequently present for medical care later than others for a variety of reasons. This may result from long-term painkiller usage, diabetic neuropathy, or decreased pain perception in the elderly [16,4].

A number of variables influence how older individuals with stomach pain are evaluated and treated. Immune function declines with age; the existence of underlying diseases like diabetes or cancer further reduces immunity. The elderly may be more difficult to evaluate since they are more likely to have had abdominal surgery in the past. Elderly people frequently have pulmonary and cardiovascular conditions at the same time, which reduces their physiologic reserve. Additionally, asymptomatic underlying disease is common in elderly people. Five to ten percent of older adults have abdominal aortic aneurysms, one-half have diverticula, and up to half have underlying cholelithiasis [17,18].

2. Materials and Methods

Study setting: A prospective comparative study conducted in Al-Nasiriyah General Hospital in Dhi-Qar from October 2023 to October 2024. Seventy-three patients who were sent to the emergency room due to stomach discomfort and seen by the surgeon on call and labeled as acute abdomen, were enrolled in this study. Patients aged below 14 years and any patient with a traumatic acute abdomen were excluded from the study [19].

To clarify how the aetiology and consequences of acute abdominal pain vary by age, the World Health Organization (WHO) and the United Nations determined that in the poor world, 60 years of age or older may typically be considered old age. - Patients were divided into two groups. Group A (21) patients aged 60 years old and above, Group B (51) patients below 60 years. All these patients required laparotomy and then follow-up. Study variables: Full history, proper examination, hematological and biochemical investigation were done. A proper questionnaire was designed for this study and included questions about duration of pain, vomiting, constipation, bleeding per-rectum and associated co-morbidities like diabetes mellitus, hypertension, carcinoma and ischemic heart disease [20].

General examination includes pallor, dehydration status, heart rate, blood pressure, respiratory rate, temperature and jaundice. Abdominal examination, including abdominal movement with respiration, tenderness, rebound tenderness, guarding, rigidity, bowel sound &digital rectal examination was also checked. Patients sent for radiological study, including CXR, abdominal X-ray in supine and erect position and abdominal U/S. After taking a consent form, the patient was transferred to the theater and laparotomy was done and the final diagnosis was confirmed whether it was acute abdomen or not and the exact pathology of the condition. Post-operatively, the patients were followed up in the ward during their admission, which ranged from 2 to 20 days (average 9 days) and post–operative complications were recorded. Statistical analysis of data was carried out using the statistical package of SPSS 22 (Statistical Package for the Social Sciences; SPSS Inc., Chicago, IL, USA). Simple metrics such as frequency, percentage, mean, and standard deviation were used to display the data. Chi-square analysis was used to compare groups for discrete data. The significance level was set at a P-value of less than 0.05 [21,22].

3. Results

Seventy-two patients were included in this study. These patients were divided into two groups according to age. Group A (21 patients), whose ages are more than or equal to 60 years, and Group B (51 patients), adults whose ages are between 14 and 60 years. As shown in Table 1.

In Group A, there were 11 patients (52.4 %) and 10 (47.6%). Their Mean±SD of age was 66.81±5.65 and ranged from 60-80 years.

In Group B, males were 22 (43.1%) and females 29 (56.9%). Their Mean±SD of age was 33.06±11.61 and ranged from 17 to 58 years. Total 21 (100%) 51 (100%), P value= 0.604,

4. DISCUSSION

One of the most frequent reasons for admission to the casualty unit is acute abdominal pain. Additionally, there is a lack of precise data demonstrating how the causes or effects of acute stomach discomfort vary by age.In the present work urinary system diseases were the most common cause of acute abdomen and were seen in 8 elderly patients (38.1%), five patients (23.8%) with UTI and three with urine retention (14.3%) due to B.P.H while it constitute (17.7%) in younger age group represent the genitourinary problems as the second most common cause of acute abdomen. As shown in Table 2.

In adult the most common genitourinary problem was renal stone (7 patients, 13.7%). while no one had stones in elderly patients. The second most common cause of admission to the emergency room was intestinal obstruction (33.3%), but (15%) showing that cholecystitis is another cause. The other most common causes of intestinal obstruction were inguinal hernias - obstructed or strangulated- (4 patients out of 7, 57.1%), which represent about (19%) of the total number of elderly patients and of (5.6%) total patients.The operations in elderly patients with abdominal wall hernia are increasingly more common as the patients get older. The second most common cause of intestinal obstruction was a tumor (2 patients out of 7, 28.6%; 9.5% of elderly patients and 2.8% of total patients), all of whom presented with large bowel obstruction. As shown in Table 3.

Our study showed that the 3rd common cause of acute abdomen in the elderly was cholecystitis, which represents 3 patients (14.3%). There is one female patient with a liver hydatid cyst, who presented with upper abdominal pain and obstructive jaundice, treated by open surgery. Hydatid cyst disease is still endemic in our country and should be suspected in every case of abdominal pain or masses. Peptic ulcer comprises (4.8%) of our patients, which is caused by the use of NSAIDs. This case was treated operatively with simple closure. Also, our study showed that acute appendicitis was most common in young people (51%), (6.7%) showed a lower percentage of occurrence. One case of acute pancreatitis was seen with a negative history of alcoholism, and then died postoperatively due to multiple organ failure. The incidence of pancreatitis was slightly higher. As shown in Table 4.

No cases of diverticulitis were recorded (8.5%); this may be attributed to the difference in the nature and lifestyle. We have 4 adults (7.8%) with twisted ovarian cysts, presented as acute abdomen, which occurs in young-aged females, who represent the 4th cause of acute abdomen as in our study. The present study showed the duration of symptoms in hours was highly significant between both groups, with a higher mean among elderly (56.67±47.12) in comparison with young (18.27±21.77), Elderly patients often have milder and less specific symptoms and signs than younger adults with the same disease, and many of them have a diminished sensorium, which allows pathology to progress to a dangerous point before symptoms appear. These factors may account for the longer duration of pain experienced by elderly patients. These variables lead to the first misdiagnosis of many elderly people with significant pathology as benign diseases like constipation or gastroenteritis. As shown in Table 5 and 6.

Delays in seeking medical attention can also be caused by a number of non-medical issues, such as a lack of transportation and fear of losing one's independence. In our study, statistically, there is no significant difference between groups regarding the type of presenting symptoms. Pain was the most common symptom in both groups. While constipation was the most common in the elderly, fever was the most common in young patients. Regarding the presented signs, dehydration was significantly more commonly presented in the elderly, while tenderness, rigidity, and guarding were more commonly presented in younger patients. The suppleness of the abdominal wall musculature, which decreases the presence of rebound and guarding, and changes in the neurological system that impact pain perception, may make it more difficult to localise abdominal soreness. According to vital signs, elderly people were far more likely to have bradycardia and hypothermia, which could be attributed to intrinsic heart illness or long-term usage of negative chronotropic drugs... History of hypertension, diabetes, CVA, IHD, and tumors was more commonly & highly significant in the elderly. As shown in Table 7 and 8.

The commonest postoperative complications in the elderly were chest infections (15.4%) and cardiac complications (15.4%), which are higher due to the higher incidence of cardiac diseases in the western countries. UTI, DVT, and wound infections were not statistically significant between groups. Mean duration of hospital stay (5.43±2.68) was not statistically significant between groups. The long duration of hospital stay is due to a large number of serious complications which need more stay. As shown in Table 9 and 10.

In the present study, the mortality rate was (2.8% of total patients; 9.5% elderly patients) only. The two patients who died had a history of previous CVA, IHD, and chronic hypertension with diabetes. So there is a strong association between presence of more than one medical diseases and mortality, the finding that is shown by other series, reporting

increasing death rate with increasing numbers of associated medical diseases Compared to younger patients, elderly patients were more likely to have particular organic diseases, arrive at the emergency room with a longer history of abdominal pain, and have fewer abdominal findings. Elderly patients with a high index of suspicion are a challenge for surgeons. The incidence of complications and death from acute abdomen in the elderly is considerable. In the elderly population, the atypical presentation of disease is clearly common. To make sure that every possibility is taken into account at the appropriate moment, the doctor should approach these patients with a broad differential and a methodical, step-by-step approach. As shown in Table 11.

Table 1. Gender distribution.

Gender	Group A		Group B	
	NO.	%	NO.	%
Male	11	54.4%	22	43.1%
Femal	10	47.6%	29	56.9%
M: F	1.1:1		0.76:1	
Total	21	100%	51	100%

*P value= 0.604

Table 2. Baseline Characteristics of Participants Prior to Presentation (Group A vs Group B).

		All Groups	Group A	Group B	P value
Age	Minimum	17	60	17	
	Maximum	80	80	58	
	Meam =SD	42.90+18.51	66.81+5.65	33.06+11.61	
Duration	Minimum	2	6	2	
	Maximum	168	168	120	0.001
	Meam =SD	29.47+35.6	56.67+47.12	18.27+21.77	
Hospital	Minimum	1	3	1	
	Maximum	12	12	10	0.155
	Meam =SD	5.43+2.68	7.81+2.52	4.45+2.07	

Table 3. Correct Intraoperative Diagnosis Among Study Groups.

Correct Diagnosis	Group A		Group B		*P Value
	NO.	%	NO.	%	
Yes	17	18.0%	48	94.1%	0.087

*P-value calculated by using chi-square

Table 4. Presenting Symptoms by Study Group (Group A vs Group B).

Symptum	Group A		Group B	
	NO.	%	NO.	%
Vomiting	3	14.3%	7	13.7%
Constipation	3	14.3%	1	2.0%
Pain	12	57.1%	35	68.6%
Melena	1	4.8%	1	2.0%
Fever	2	9.5%	7	13.7%

*P value calculated by using the square

Table 5. Comparison of Medical History Between Groups.

Medical History	Group A		Group B		*P Value
	NO.	%	NO.	%	
Hypertension	14	66.6%	6	11.8%	0.0001
Diabetes	16	76.2%	5	9.8%	0.0001
CVA	3	14.3%	0	0.0%	0.006
IHD	5	23.8%	0	0.0%	0.0001
Asthma	5	9.5%	2	3.9%	0.346
Tumors	2	9.5%	0	0.0%	0.025

*P value calculated by using chi-square

Table 6. Physical Examination Findings by Study Group (Group A vs Group B).

Sign	Group A		Group B		*P Value
	NO.	%	NO.	%	
Bleeding pericardium	1	4.8%	0	0.0%	0.117
Pallor	4	19.0%	16	31.4%	0.289
Dehyderation	9	42.9%	8	15.7%	0.014
Jaundice	3	14.3%	2	3.9%	0.116
Tenderness	4	19.0%	23	45.1%	0.038
Gaurding	5	23.8%	31	60.8%	0.004
Rigidity	3	14.3%	21	41.2%	0.028
Abdominal Distention	6	28.6%	7	13.7%	0.137

*P value calculated by using chi-square

Table 7. Comparison of Vital Sign Abnormalities Between Groups.

Vital Sign	Parameter	Group A		Group B		*P Value
		NO.	%	NO.	%	
Pulse rate	Normal	14	66.7%	39	76.5%	0.632
	Bradycardia	5	23.8%	9	5.9%	0.41
	Tachycardia	2	9.5%	3	17.6%	0.95
Temperature	Normal	13	61.9%	42	82.4%	0.592
	Hypotherma	7	33.3%	2	3.9%	0.001
	Hyperthermia	1	4.8%	7	13.7%	0.109
Respiratory rate	Normal	19	90.4%	43	84.3%	0.281
	High	1	4.8%	2	3.9%	0.782
	Low	1	4.8%	6	11.8%	0.145

*P value calculated by using chi-square

Table 8. Etiology of Acute Presentation by Study Group (Group A vs Group B).

Causes	Group A		Group B		*P Value
	NO.	%	NO.	%	
Appendicitis	0	0.0%	26	51.0%	0.0001
Cholecystitis	3	14.3%	9	17.6%	0.327
Intestinal obstruction	7	33.3%	1	2.0%	0.001
Perforated D.U	1	4.8%	1	2.0%	0.271
Acute pancreatitis	1	4.8%	0	0.0%	0.094
Raptured overian cyst	0	0.0%	4	7.8%	0.102
Ruptured hydatid cyst	1	4.8%	1	2.0%	0.271
Renal stone	0	0.0%	7	13.7%	0.041
Urinary tract infection	5	23.8%	1	2.0%	0.012

Urine retension(BPH)	3	14.3%	1	2.0%	0.034

*P value calculated by using chi-square.

Table 9. Surgical Intervention Rate by Study Group (Group A vs Group B).

	Operative treatment		**Conservative treatment**		**Total**	
	NO.	%	NO.	%	NO.	%
Group A	13	61.9%	8	38.1%	21	100%
Group B	44	86.3%	7	13.7%	51	100%

Table 10. Postoperative Complications by Study Group (Group A vs Group B).

Comlications	Group A (13 patients)		Group B (44 patients)		*P Value
	NO.	**%**	**NO.**	**%**	
Chest infection	2	15.4%	1	2.3%	0.035
UTI	1	7.7%	2	4.6%	0.148
DVT	1	7.7%	0	0.0%	0.094
Wound infection	2	15.4%	8	18.2%	0.596
Cardiac complications	2	15.4%	1	2.3%	0.035

*P value calculated by using chi-square

Table 11. Clinical Outcomes by Study Group (Group A vs Group B)

Final outcome	**Group A**		**Group B**		***P Value**
	NO.	**%**	**NO.**	**%**	
Recovered	16	76.2%	50	98%	0.10
Worsened	1	4.8%	0	0.0%	0.117
Death	2	9.5%	0	0.0%	0.025
Unchanged	1	4.8%	1	2.0%	0.511

Acknowledgments:

I would like to express my sincere gratitude and appreciation to everyone who contributed to the completion of this research, and to all the professors and colleagues who offered me their guidance, assistance, and valuable advice during the preparation of this study. My deepest thanks also go to my beloved family for their continuous support and encouragement throughout every step of this journey.

Special thanks are extended to my esteemed supervisor, Dr. Ali Naif, for his valuable guidance, continuous follow-up, and constant encouragement, which had a significant impact on the successful completion of this work.

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How to cite

Al-Omery A. Aetiological Patterns of Acute Abdomen in different age groups. Al-Wataniya Journal of Medical Sciences. 2025;1(3):22–28.

(Received: Nov 24,2025; Accepted: Dec 29,2025; Published: Dec 30,2025)

Access Article Online