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Original Research Article

Pattern and Presentation of Non-Traumatic Acute Abdominal Pain to an Emergency Department of a Tertiary Care Hospital

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ABSTRACT

Abdominal pain is one of the most common emergency presenting to emergency department(ED). It poses a diagnostic challenge for the emergency physicians as the causes are numerous, ranging from benign to life threatening conditions. Emergency physician must consider multiple diagnoses, especially those life-threatening conditions that require timely intervention to limit morbidity and mortality. This prospective observational study was conducted in a large ED of a tertiary care center in India. All patients older than 15 years and presenting with non-traumatic abdominal pain to the ED from July 2016 to December 2016 were included in study and their clinical profile, diagnosis were analysed. A total of 204 patients were included in the study. Almost half (52%) of the patients were in the age group of 15-30 years. 63% patients were male showing male predominance in our study. The onset of pain was sudden in 64% of patients. WBF scale was used to grade the severity of pain. WBF scale score of 1-4, 5–7 and 8–10 was seen in 50%, 36%and 14% of patients, respectively. Common types of pain included dull aching (49%) and colicky (34%). 39% patients reported lower abdominal pain, while 21% had upper abdominal location. The pain was generalized in 40% of patients. The majority of patients (80%) did not have any radiation of the pain. The groin, back and shoulder were the common sites of radiating pain in 11%, 07% and 02%, respectively. Common associated symptoms included nausea (56%), vomiting (42%), urinary symptoms (18%), and loss of appetite (13%).Out of total 204 patients 46% were admitted for further workup and management while 52% were discharged from emergency department while 02% of patients took discharge at request. The final diagnosis at discharge was grouped as follows: Surgical (32%), gastrointestinal (24%), urinary tract related (29%), obstetrics and gynaecology related (3%) and nonspecific diagnosis (12%). The most common reasons for ED visits due to abdominal pain were ureteric colic (22%), acute gastroenteritis (11%), acid peptic disease (11%), UTI (7%), hollow viscus perforation (08%) and acute appendicitis (07%).

Keywords **–** Acute abdominal pain, non-traumatic causes of abdominal pain, emergency department

INTRODUCTION

Abdominal pain is one of the most common emergencies presenting to emergency department (ED). [1] Approximately 10% of presentations at the emergency department are because of acute abdominal pain. [2] It poses a diagnostic challenge for the emergency physicians as the causes are numerous, ranging from benign to life threatening conditions. Causes include gastrointestinal, urological, and gynaecological among others. [3] Although most abdominal pain is benign, as many as 10% of patients in the emergency

department setting and a lesser percentage in the outpatient setting have a severe or life-threatening cause or require surgery. [1] Therefore, a careful and methodical approach is needed in order to reach a correct diagnosis. Despite extensive evaluation, a quarter of patients usually remained with a nonspecific cause but now with latest radiological imaging advances that number has reduced. [4] The elderly patients have atypical presentations with longer duration of pain at presentation. [5] Our study aims to determine the clinical profile and etiological spectrum of diseases presenting as acute abdomen at the emergency department.

METHODS

This was a prospective observational study conducted at the emergency medicine department of Government Medical College, Surat, Gujarat after obtaining approval from the Institutional ethics committee. It was conducted during the month of July 2016 – December 2016. All patients who were above 14 years of age who presented with abdominal pain to emergency department were included in the study. Patients with abdominal pain due to trauma were excluded from study. For all the patients detailed history was taken and thorough clinical examination was done. The patient's name, Age, Sex, co-morbid conditions, onset, duration, and type of pain were noted. The vital signs recorded i.e. Temperature, Pulse rate, Respiratory rate and Blood Pressure. Ultrasonography (USG) of abdomen was done for all patients. Other radiological and blood investigations were done when required. Wong Baker Faces Pain Rating Scale (WBF) was used to assess the severity of pain. The WBF scale uses a series of six faces with each describing an expression ranging from happy face, i.e., "no hurt" (score zero), to a crying face "hurts the worst" (score ten). The patients were asked to point out on the scale describing the severity of their pain. Oral or perentral analgesics were given according to severity of pain. The patients were followed up till discharge from ED/admitted ward and the final diagnosis at discharge was noted. Data analysis was done using the statistical package for social sciences (SPSS 16).

RESULTS

A total of 204 patients were included in the study. Almost half (52%) of the patients were in the age group of 15-30 years while 34% patients were in the age group of 31-50 years and only 14% were above 50 years of age. The minimum age of the patient in our study was 15 years and the maximum age was 90 years. The mean age was 33.66 years. 63% patients were male showing male predominance in our study. Comorbid conditions of diabetes mellitus, hypertension, ischemic heart disease, previous abdominal surgery, malignancy and tuberculosis were present in 04%, 04%, 0.5%, 3.5%, 2%, and 01% of patients, respectively. [Table 1]

The onset of pain was sudden in 64% of patients. WBF scale was used to grade the severity of pain. WBF scale score of 1-4, 5–7 and 8–10 was seen in 50%, 36%and 14% of patients, respectively. Common types of pain included dull aching (49%), colicky (34%), pricking (02%), throbbing (07%), and burning (07%). 39% patients reported lower abdominal pain, while 21% had upper abdominal location. The pain was generalized in 40% of patients. The majority of patients (80%) did not have any radiation of the pain. The groin, back and shoulder were the common sites of radiating pain in 11%, 07% and 02%, respectively. Associated symptoms helped in identifying the cause and sometimes to the presence or absence of complications. Common associated symptoms included nausea (56%), vomiting (42%), urinary symptoms (18%), loss of appetite (13%), constipation (08%), diarrhoea (11%), abdominal distension (3%), and jaundice (03%). [Table 2]

Out of total 204 patients 46% were admitted for further workup and management while 52% were discharged

from emergency department while 02% of patients took discharge at request. [Table 3]

Table 1. Characteristics of patients

Characteristics		Number (N=264)	Percentage (%)
Total Number of Patients		204	100
Age	15-30 years	106	52
	31-50 years	70	34
	≥ 50 years	28	14
Sex	Male	129	63
	Female	75	37
Duration of Pain	<3 days	167	82
	>3 days	37	18
Comorbidities	Hypertension	09	04
	Diabetes mellitus	08	04
	IHD	01	0.5
	Previous abdominal Surgery	07	3.5
	Malignancy	04	02
	TB	02	01

Table 2. Pain characteristics

Characteristics		Number (N=264)	Percentage (%)
Pain severity score	1-4	102	50
	5-7	74	36
	8-10	28	14
Onset of Pain	Sudden	130	64
	Gradual	74	36
Localization of Pain	Upper abdomen	42	21
	Lower abdomen	80	39
	Generalized	82	40
Type of Pain	Dull	99	49
	Colicky	71	34
	Pricking	04	02
	Throbbing	14	07
	Burning	17	07
Radiation	Back	15	07
	Groin	23	11
	Shoulder	04	02
	None	162	80
Associated symptoms	Nausea	115	56
	Vomiting	85	42
	Urinary symptoms	37	18
	Loss of appetite	26	13
	Constipation	16	08
	Diarrhoea	23	11
	Abdominal distension	07	03
	Jaundice	07	03

Table 3. Disposition from ED

Characteristics		Number (N=264)	Percentage (%)
Disposition from ED	Admitted	94	46
	Discharged	105	52
	Discharged at request	05	02

The final diagnosis at discharge was grouped as follows: Surgical (32%), gastrointestinal (24%), urinary tract related (29%), obstetrics and gynecology related (3%) and nonspecific diagnosis (12%). Among the surgical causes, acute appendicitis (07%), hollow viscus perforation (08%), intestinal obstruction (05%), acute cholecystitis (02%), gall bladder empyema (03%) and liver abscess (2%) were common etiologies. Common gastrointestinal etiologies were acute pancreatitis (02%), acid peptic disease (11%) and acute gastroenteritis (11%). Ureteric colic (22%), urinary tract infection (07%) and acute urinary retention (0.5%) were common urological causes. Obstetrics and gynaecological causes were ectopic pregnancy (1%), dysmenorrhea (1%), adnexal mass (1%), and ovarian cyst (0.5%). The cause of the abdominal pain could not be determined in 12% of patients [Table 4].

Table 4. Diagnosis

Diagnosis		Number (N=264)	Percentage (%)
General Surgical (n=65) (32%)			
	Acute appendicitis	15	07
	Hollow viscus perforation	16	08
	Acute intestinal obstruction	10	05
	Acute cholecystitis	05	02
	Gall bladder empyema	06	03
	Mesentric ischemia	01	0.5
	Splenic abscess	01	0.5
	Liver abscess	05	02
	Portal venous thrombosis	01	0.5
	Abdominal malignancy	05	02
Gastro-intestinal (n=48) (24%)			
	Acute pancreatitis	05	02
	Acid peptic disease	21	11
	Acute gastroenteritis	21	11
	Intestinal TB	01	0.5
Urinary tract (n=59) (29%)			
	Ureteric colic	43	22
	UTI	15	07
	Acute retention of urine	01	0.5
Obstetric and gynaecological (n=7) (3%)			
	Ectopic pregnancy	02	01
	Dysmenorrhoea	02	01
	Adnexal mass	02	01
	Ovarian Cyst	01	0.5
Non- Specific Diagnosis		25	12

DISCUSSION

Immediate Acute abdomen may be defined as "An abnormal condition characterised by sudden onset of severe pain within the abdominal cavity which requires immediate evaluation, diagnosis and may require surgical intervention". [6] All patients with abdominal pain do not require extensive diagnostic tests. Sometimes, adequate history and physical evaluation alone is sufficient to accurately diagnose the condition and treat accordingly. Patients may present with vague complaints and varying associated symptoms making diagnosis difficult which ranges from benign to life threatening conditions. [3]

In our study, most patients (50%) presented with a pain score of 1-4 on the WBS score. WBS is a standard scoring system used to assess the severity of pain and had been validated in our regional population by Bashir *et al.* [7] more than half of them reported their pain as sudden onset while the remainder described their pain as gradual in onset.

In our study, the most common site of radiation of pain was and was reported by 11%% of our patients. This correlates with the large number of ureteric colic patients in our study. Though many other associated symptoms were recorded, their value in establishing a firm diagnosis could not be established. Medical literature also suggests that associated symptoms often lack specificity and atypical presentations are common. [4,8]

Causes of acute abdominal pain include both medical and surgical. [8] In an observational study by Tariq *et al.* from Pakistan the most common cause of acute abdomen was acute appendicitis followed by acute pancreatitis and duodenal ulcer. [9] A study done in Ghana, Africa, also reported acute appendicitis followed by typhoid fever with ileal perforation and acute intestinal obstruction as most common causes of acute abdominal pain. [10]

In our study, the causes of abdominal pain were surgical in 32% of patients, medical in 24% of patients, urinary tract related in 29% of patients. Only 3% of patients presented with obstetric and gynaecological causes leading to abdominal pain. The most common reasons for ED visits due to abdominal pain were ureteric colic (22%), acute gastroenteritis (11%), acid peptic disease (11%), UTI (7%),

hollow viscus perforation (08%) and acute appendicitis (07%).

Out of all patients presented with acute appendicitis about 73% were below 25 years of age. Abdominal pain is the presenting issue in a high percentage of medicolegal actions against both general and paediatric EM physicians. [11,12] The modern physician should be humbled by the fact that, despite diagnostic and therapeutic advances (computed tomography [CT], ultrasonography, and laparoscopy), the misdiagnosis rate of the most common surgical emergency, acute appendicitis, has changed little over time. [13]

No specific diagnosis was found in about 12% of cases. Conditions like dengue can also cause abdominal pain as reported by Wong *et al.*, where a search for abdominal cause of abdominal pain may prove futile. [14] The approach becomes further difficult with special groups of population like the pregnant and the elderly presenting differently. [1] Due to these reasons, designing a common approach to acute abdominal pain is difficult.

A limitation of our study is that gold standards were not used for confirmation of the diagnosis as this is an ED based study.

CONCLUSION

Both serious and benign intra-abdominal conditions share many relatively nonspecific symptoms; it is often difficult to identify patients who have life-threatening problems early in the course of their disease. Apart from relieving the patient's symptoms, the emergency physician's primary role is to identify those cases that require immediate intervention in order to limit morbidity and mortality. An unexpected negative test result should prompt a reassessment of the patient and consideration for observation and repeat examination for disease progression. Whenever the diagnosis is in question, serial examination as an inpatient in an observation unit or in the ED is a sound strategy.

Conflicts of interest: The authors declare that there is no conflict of interest.

REFERENCES

1. Kamin RA, Nowicki TA, Courtney DS, Powers RD. Pearls and Pitfalls in the Emergency Department Evaluation of Abdominal Pain. Emerg Med Clin North Am. 2003;21:61–72. [PubMed: 12630731]
2. Lameris W, van Randen A, van Es HW, van Heesewijk JP, van Ramshorst B, Bouma WH, et al: Imaging strategies for detection of urgent conditions in patients with acute abdominal pain: diagnostic accuracy study. BMJ 2009;338:b2431.
3. Agboola JO, Olatoke SA, Rahman GA. Pattern and Presentation of Acute Abdomen in a Nigerian Teaching Hospital. Niger Med J. 2014;55:266–70. [PMCID: PMC4089059] [PubMed: 25013262]
4. Powers RD, Guertler AT. Abdominal Pain in the ED: Stability and Change over 20 Years. Am J Emerg Med. 1995;13:301–3. [PubMed: 7755822]
5. Laurell H, Hansson LE, Gunnarsson U. Acute Abdominal Pain among Elderly Patients. Gerontology. 2006;52:339–44. [PubMed: 16905885]
6. Mosby's dictionary of Medicine, Nursing and Health Professionals. 7th ed. Missouri: Mosby Elsevier Inc; 2006. p. 30.
7. Bashir MS, Khade A, Borkar P, Saleem M, Lingaswamy V, Reddy D. A Comparative Study between Different Pain Rating Scales in Patients of Osteoarthritis. Indian J Physiol Pharmacol. 2013;57:205–8. [PubMed: 24617173]
8. Saleh MA, Troy S, Etienne T. What Clinical and Laboratory Parameters Determine Significant intraabdominal Pathology for Patients Assessed in Hospital with Acute Abdominal Pain? World J Emerg Surg. 2007;2:26. [PMCID: PMC2116997] [PubMed: 17894892]
9. Muhammad TA, Asma H, Waqar SH, Shah SF, Zafar IM, Zahid MA. Presentation and Outcome of Acute Abdomen in a Tertiary Care Unit. Ann Pak Inst Med Sci. 2011;7:137–44.
10. OheneYeboah M. Acute surgical admissions for abdominal pain in adults

in Kumasi, Ghana. ANZ J Surg. 2006;76:898–903. [PubMed: 17007619]
11. Selbst SM, Friedman MJ, Singh SB. Epidemiology and etiology of malpractice lawsuits involving children in US emergency departments and urgent care centers. Pediatr Emerg Care. 2005;21:165–169. [PubMed]
12. Kachalia A, Gandhi TK, Puopolo AL, et al. Missed and delayed diagnoses in the emergency department: a study of closed malpractice claims from 4 liability insurers. Acad Emerg Med. 2007;49:196–205. [PubMed]
13. Flum DR, Morris A, Koepsell T, et al. Has misdiagnosis of appendicitis decreased over time? JAMA. 2001; 286:1748–1753. [PubMed]
14. Wong JG, Gan VC, Ng EL, Leo YS, Chan SP, Choo R, et al. SelfReported Pain Intensity with the Numeric Reporting Scale in Adult Dengue. PloS One. 2014;9: e96514. [PMCID: PMC4006847] [PubMed: 24788828]

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