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Acute Appendicitis Versus Ruptured Ovarian Cyst in Female Patients Presented as Acute Abdomen Pain

Wisam Mahmood Aziz[1], Hayder Adnan Fawzi[2]

[1]Department of Surgery, Albaag Hospital, Mosul, Iraq; [2]Clinical Pharmacy departments, Baghdad Medical City Hospitals Campus

ABSTRACT

Background: Acute appendicitis is one of the most common causes of the acute abdomen and one of the most frequent indications for an emergent abdominal surgical procedure worldwide, while Rupture of an ovarian cyst is a common occurrence in women of reproductive age.

Objective: differentiate between acute appendicitis and ruptured ovarian cyst by symptoms, signs and investigations before operations

Material and Method: A retrospective study comparing between ruptured ovarian cyst and acute appendicitis in Albaag hospital from the period of 1st January 2017 to 1st January 2018. The study included 236 patients, 196 with acute appendicitis and 40 patients had ruptured ovarian cyst.

Results: In the current study there was no significant difference in site of pain, duration of pain, rebound tenderness, abdominal distension. In the other hand poor appetite, fever, and abnormal WBC, were significantly higher in appendicitis compared to ovarian cyst. Irregular menstrual cycle, nausea and vomiting, abnormal GUE (general urine examination) and abnormal US findings, were significantly higher in ovarian cyst compared to appendicitis.

Conclusion: We found that poor appetite, fever, abnormal WBC, predict the diagnosis of acute appendicitis, while irregular menstrual cycle, nausea, abnormal GUE, and US findings suggestive of rapture ovarian cyst.

Keywords: *appendicitis, abdominal pain, ovarian cyst, duration of pain, site of pain*

INTRODUCTION

Appendicitis, an inflammation of the vestigial vermiform appendix, is one of the most common causes of the acute abdomen and one of the most frequent indications for an emergent abdominal surgical procedure worldwide [1]. Appendicitis occurs most frequently in the second and third decades of life. The incidence is approximately 233/100,000 population and is highest in the 10-to-19-year-old age group [2]. It is also higher among men (male to female ratio of 1.4:1), who have a lifetime incidence of 8.6 percent compared with 6.7 percent for women [2].

Corresponding Author:
Hayder Adnan Fawzi
linical Pharmacy departments,
Baghdad Medical City Hospitals Campus
Email: hayder.adnan2010@gmail.com

The natural history of appendicitis is similar to that of other inflammatory processes involving hollow visceral organs. Initial inflammation of the appendiceal wall is followed by localized ischemia, perforation, and the development of a contained abscess or generalized peritonitis. Appendiceal obstruction has been proposed as the primary cause of appendicitis [3]. Appendiceal obstruction may be caused by fecaliths (hard fecal masses), calculi, lymphoid hyperplasia, infectious processes, and benign or malignant tumors. However, some patients with a fecalith have a histologically normal appendix, and the majority of patients with appendicitis do not have a fecalith [4].

Rupture of an ovarian cyst is a common occurrence in women of reproductive age. Physiologic cysts, such as a follicular cyst or corpus luteal cyst, or pathologic cysts may rupture (endometriomas, cystic components of benign or malignant neoplasms). In the normal

menstrual cycle, the physiologic rupture of small follicular cysts that occurs with every ovulatory cycle is not typically clinically significant. This cyclic event is generally asymptomatic or associated with mild mid-cycle pain (also referred to as mittelschmerz) [5].

Rupture of an ovarian cyst may be asymptomatic or associated with a sudden onset of unilateral lower abdominal pain. The classic presentation is sudden onset of severe focal lower quadrant pain, often following sexual intercourse. Due to the severity of the pain, patients usually present to emergency departments or other urgent care settings [6]. The right ovary is most commonly affected, possibly because the rectosigmoid colon protects the left ovary from the effects of abdominal trauma. In a series of 244 cases of ovarian cysts, 63 percent were right-sided [7].

The incidence of ruptured ovarian cysts is uncertain. Hospital admission rates with a diagnosis of a benign ovarian cyst provide some information for calculating an incidence. However, these rates are an overestimate, because they also include admission for other complications of ovarian cysts (eg, hemorrhage, torsion). Some data suggest that 4 percent of women will be admitted to the hospital for an ovarian cyst by age 65 years [5, 8]. In England and Wales, over a two-year period in the 1980s, the admission rate for an ovarian cyst was 67 women admitted per 100,000 women in the national populations; the rate was slightly higher in the United States at 131 per 100,000 women [9].

The aim of this study can help the surgeon to differentiate between acute appendicitis and ruptured ovarian cyst by symptoms, signs and investigations before operations or conservative treatments as if ruptured ovarian cyst is less than five centimeters in size can be treated conservatively.

MATERIAL AND METHOD

A total of 236 patients included in this study, it was carried out in Albaag Hospital, Mosul, Iraq; from the period of 1st January 2017 to 1st January 2018. The data obtained from case sheets of the patients including symptoms, signs and investigations

In this study comparison done between acute appendicitis and ruptured ovarian cyst in their symptoms, signs, and investigations for twenty items, fifteen of them was identical including starting of pain at right iliac fossa, right lower abdomen, epigastric area, duration of pain one day, two days, three days or more. Radiation of pain to all abdomen and back. Loss appetite, fever, menstrual irregularity, rebound tenderness, abdominal distension, dizziness and nausea. The other five items that are non-identical were radiation of pain to right iliac fossa, right lower abdomen, general urine examination, white blood cells count and ultrasound of abdomen.

STATISTICAL ANALYSIS

Analysis of our data done using the software program: SPSS 21 (Statistical Package for Social Sciences). Numeric data were represented by the mean ± standard error, while the categorical data represented by numbers and percentages. Independent t-test was used to study the difference between two. For the study of the association between categorical data, the Chi-Square test used. The significant level considered when the P value < 0.05 [10].

RESULTS

236 patients were subjected to this study. 196 of them were having cute appendicitis, 40 of them were having ruptured ovarian cyst, four of the forty women were having hemorrhagic ruptured ovarian cyst.

In the current study there was no significant difference in site of pain, duration of pain, rebound tenderness, abdominal distension. In the other hand poor appetite, fever, and abnormal WBC, were significantly higher in appendicitis compared to ovarian cyst. Irregular menstrual cycle, nausea and vomiting, abnormal GUE (general urine examination) and abnormal US findings, were significantly higher in ovarian cyst compared to appendicitis, as illustrated in table 1.

Table 1: comparison between patients with appendicitis and ovarian cyst

Items	Appendicitis	Ovarian cyst	p-value
Site pain			
RIF	119 (62.6%)	19 (47.5%)	0.113
RLA	25 (13.2%)	10 (25.0%)	
EPG	52 (27.4%)	11 (27.5%)	

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Duration			
One day	151 (79.5%)	25 (62.5%)	0.123
Two days	28 (14.7%)	8 (20.0%)	
≥ 3 days	17 (8.9%)	7 (17.5%)	
Radiation of pain			
RIF	59 (81.9%)	10 (45.5%)	NA
RLA	5 (6.9%)	9 (40.9%)	
EPG	0 (0.0%)	0 (0.0%)	
All abdomen	7 (9.7%)	2 (9.1%)	
Back	1 (1.4%)	1 (4.5%)	
Appetite			
Poor	181 (92.3%)	32 (80.0%)	0.016
Good	15 (7.7%)	8 (20.0%)	
Fever	174 (88.8%)	30 (75.0%)	0.020
Menstrual Irregularities			
Irregular	5 (2.8%)	4 (10.8%)	0.026
Regular	174 (97.2%)	33 (89.2%)	
Rebounded tenderness	168 (85.7%)	34 (85.0%)	0.907
Abdominal distention	18 (9.2%)	7 (17.5%)	0.119
Nausea and vomiting	23 (11.7%)	10 (25.0%)	0.028
Abnormal GUE	65 (33.2%)	26 (65.0%)	<0.001
Abnormal WBC	158 (80.6%)	10 (25.0%)	<0.001
Abnormal abdominal US	28 (14.3%)	27 (67.5%)	<0.001

RIF: right iliac fossa, RLA: right lower abdomen, EPG: epigastric pain., NA: not applicable

GUE: general urine examination

DISCUSSION

Acute appendicitis remain difficult diagnosis, the best approach to include some clinical score, even if ultrasound of abdomen or computerized axial tomography or both used, computerized axial tomography or ultrasound allows to obtain additional information in equivocal case. Observation and repeated clinical examination led to good clinical outcome, whereas the false negative evaluation carries the potential of higher perforation rates, however most complicated and perforated acute appendicitis are associated with longer delays before medical consultation, except for a few reports of negative findings no appendectomy below 10% [11]. Perforation can lead to sepsis and occurs in 17% to 32% of patients with acute appendicitis [12].

The status of appendix at the time of operation was obtained from the operative protocols and the pathology reports, it was classified as uncomplicated (inflamed, gangrenous without perforations), complicated (perforation, abscess, perforation) and normal unlike previous reports recent reviews have found no link between the frequency of perforation and misdiagnosis [13].

In the current study the majority of patients with appendicitis had one duration of pain (79.5%) while, 81.9% right iliac fossa pain, 92.3% had poor appetite, 88.8% presented with fever, 85.7% had rebound tenderness, 11.7% had nausea and vomiting, there were similarities with a retrospective analysis of 324 patients who had appendectomy for acute appendicitis, during the period January 2002 to December 2004, the similarities were abdominal pain (100%), and Generalized and localized abdominal tenderness were present in 62.0% and 19.4% of patients, while other symptoms were lower than reported by our study; only 29.3% presenting within 24 h of onset of symptoms, vomiting (57.4%) and anorexia (49.0%). respectively. Pyrexia was noted in 41.0%. Localized and generalized peritonitis were present in 26.4% and 14.0%, respectively [14].

In the current study all patients with rapture ovarian cyst had abdominal pain with half of the patients had right iliac fossa pain, with 62.5% had one day pain duration, 80.0% had poor appetite, 75.0% had fever, 89.2% had irregular menstrual cycles, 85.0% had rebound tenderness, 17.5% had abdominal tenderness, 25.0% had nausea, and 67.5% had abnormal US findings, in a study done in Qatar 81 women with ovarian or paraovarian cyst, The most common presenting complaint was lower abdominal pain in 51 (63%) women. An ovarian cyst was discovered as an incidental finding in 13 (16%) women where ultrasound was performed, Subfertility was a presenting complaint in 5 (6.2%), abnormal uterine bleeding in 3 (3.7%), dysmenorrhea in 4 (4.9%) and it was discovered as an incidental finding during a surgical procedure like caesarean section and laparotomy in 5 (6.2%) women [15].

CONCLUSION

We found that poor appetite, fever, abnormal WBC, predict the diagnosis of acute appendicitis, while irregular menstrual cycle, nausea, abnormal GUE, and US findings suggestive of rapture ovarian cyst.

Conflict of Interest: None

Ethical Clearance: Informed written consent was obtained from all the participants in the study, and the study and all its procedure were done in accordance with the Helsinki Declaration of 1975, as revised in 2000. Approved by the Albaag hospital, department of surgery.

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