

Right lower quadrant pain in females

Is it appendicitis or gynecological?

Eric I. Archibong, FRCOG, Mamdoh Eskandar, FRCS(C), Adekunle A. Sobande, FRCOG, Oluwole G. Ajao, FRCS.

ABSTRACT

Objective: To determine if a gynecological consultation is needed for patients who are labeled to have acute appendicitis.

Method: A retrospective study carried out in Assir Central Hospital, Abha, Kingdom of Saudi Arabia. Fifteen female patients who were clinically diagnosed and operated upon for acute appendicitis were discovered intra-operatively to have unrelated gynecological lesions, are presented.

Results: Histopathological reports on the removed appendices revealed 80% "normal" and 20% "mildly inflamed". Seven (46.7%) of the patients had right ovarian cysts (one of them, bilateral); 4 (26.7%), corpus luteum

cysts, and 4 had bilateral salpingitis, bilateral pyosalpinx, right ovarian cyst with bilateral salpingitis and ruptured right tubal pregnancy each. The majority (60%) of the women were in the 20-30-year-age bracket.

Conclusion: The need for gynecological review of female patients of childbearing age presenting with lower abdominal pain is stressed. Ultrasonography is an important adjunct in improving diagnostic accuracy in such cases.

Keywords: Gynecological lesion, acute appendicitis, diagnostic accuracy.

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Right-sided lower abdominal pain in adult females continues to pose a diagnostic challenge to most clinicians. Even though McBurney published his paper on appendicitis a little over 110 years ago,¹ there is still no gold standard for the diagnosis of this condition, particularly in adult females in whom a gynecological condition can constitute a differential. In a study of acute appendicitis in females, Abu-Eshy et al,² have shown that the diagnostic accuracy for histopathologically proven acute appendicitis in females is 74%. Other surveys have revealed that in women of childbearing age, pelvic problems mimic appendicitis, leading to an unnecessary appendectomy in 35-46% of cases.^{3,4} In Assir Central Hospital (ACH) 4,708 appendices were removed over a period of 6 years, January 1987 to

June 1993,⁵ and 366 of appendices were removed in females in a 3-year period from 1988 to 1991.² The purpose of this study was to review cases admitted to ACH by the general surgeons and operated on as cases of "acute appendicitis" but were found intra-operatively to have purely gynecological lesions. None of the cases had any input from the gynecologists. The defects in the diagnostic procedures are discussed with a view to finding potential sources of improving diagnostic accuracy.

Methods. The charts of all female patients who underwent surgery at ACH for acute appendicitis (from January 1995 to December 1999) and who were discovered to have intra-operatively

From the Department of Obstetrics and Gynecology (Archibong), Abha Maternity Hospital, Departments of Obstetric and Gynecology (Eskandar, Sobande) and General Surgery (Ajao), College of Medicine, King Khalid University, Abha, Kingdom of Saudi Arabia.

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Address correspondence and reprint request to: Dr. M. Eskandar, Assistant Professor, Consultant Obstetrics and Gynecology, Department of Obstetrics and Gynecology and Reproductive Medicine, King Khalid University, College of Medicine, PO Box 641, Abha, Kingdom of Saudi Arabia. Tel. +966 (7) 2284635. Fax. +966 (7) 2257570. E-mail: mamdoheskandar@hotmail.com

gynecological problems were reviewed. Data was collected on: age of the patient, menstrual history, presenting symptoms, physical findings, total white blood cell count, hemoglobin level and operative findings. The histopathological diagnoses were correlated also with the clinical diagnoses. All the cases were clinically diagnosed pre operatively as acute appendicitis. The diagnosis of acute appendicitis was based primarily on the clinical findings. None of the patients was evaluated preoperatively by any gynecologist and none had pre-operative ultrasonographic scanning carried out. Cases confirmed clinically or by ultrasonography as being gynecological, were excluded from the study. Also excluded, were confirmed gynecological cases which, had been reviewed preoperatively by a gynecologist. All the patients were clinically diagnosed as having acute appendicitis and at surgery appendectomy was performed in each case.

Results. During the 5-year period only 15 subjects met the criteria for inclusion in the study. Three patients (20%) were below the age of 20 years, 9 (60%) were between 20 and 30 years old and 3 (20%) were above 30 years. The average age of the

patients was 25.4 years (**Table 1**). The removed appendices were histologically "normal" in 12 cases (80%) and "mildly inflamed" in 3 cases (20%). Seven (46.7%) of the 15 patients had right-sided ovarian cyst (one case, bilateral); 4 (26.7%) had corpus luteum cysts and 4 (26.6%) patients had bilateral salpingitis, bilateral pyosalpinx, ruptured right tubal ectopic pregnancy, and right ovarian cyst with bilateral salpingitis. None of the patients volunteered any significant gynecological complaint pre-operatively. The patient with ectopic pregnancy was nursing a 4-month old baby; and had an intrauterine contraceptive device (IUCD) in situ. She had had irregular vaginal spotting for 8 days prior to the day of surgery. Four women had pains each at the right iliac fossa about mid cycle. This part of the history was obtained from the patients only after surgery. Results of all the laboratory investigations such as hemogram were non-specific and of no diagnostic significance. Only 3 patients (20%) needed any surgical interference on their gynecological problems: 2 had hemostatic stitches applied to stop bleeding from ruptured ovarian cysts, and one had a salpingectomy carried out for ruptured right tubal ectopic pregnancy.

Table 1 - Demographic and laboratory data of patients diagnosed as acute appendicitis.

Age (Years)	LMP (Days)	Gynecology Symptoms	State of Appendix	WBC x 10 ⁹ /L	Hemoglobin (g/dl)	Final Diagnosis
24	18	None	Normal	7.4	12.4	Ruptured right ovarian cyst
25	Nursing a baby	None. Had IUCD	Normal	13.4	11.6	Right tubal pregnancy
20	14	None	Normal	15.9	11.4	Bilateral salpingitis
22	21	None	Mildly inflamed	8.0	12.8	Right ovarian cyst
23	Not known	None	Normal	10.3	13.2	Right ovarian cyst + bilateral salpingitis
23	Not known	None	Normal	12.2	10.2	Bilateral ovarian cyst
55	Not known	None	Mildly inflamed	10.7	15.7	Ruptured right ovarian cyst
14	16	None	Normal	4.6	14.5	Right ovarian cyst
15	14	None	Normal	10.5	12.9	Right ovarian cyst
45	14	None	Mildly inflamed	14.9	10.9	Hemorrhagic right corpus luteum
18	20	None	Normal	7.9	16.2	Ruptured right corpus luteum
35	29	None	Normal	6.0	13.0	Bilateral pyosalpinx
22	7	None	Normal	8.4	13.0	Right ovarian cyst
20	22	None	Normal	7.5	13.9	Right corpus luteum
20	Irregular Menstrual bleeding	None	Normal	4.7	14.7	Hemorrhagic right corpus luteum
LMP - last menstrual period; IUCD - intrauterine contraceptive device; WBC - white blood cell count						

Discussion. Despite various sophisticated measures aimed at the diagnosis of acute appendicitis,⁶⁻⁸ clinical evaluation still remains an invaluable diagnostic tool. The study has brought into focus, the need to be aware of gynecological conditions as differential diagnoses of acute appendicitis, particularly in females of active reproductive age (20-30 years). Sixty percent of the patients in the present series fell within this age group.

When females are involved, basic gynecological aspects of the history such as the last menstrual period, the regularity of menstrual cycle and abnormal vaginal bleeding and discharge, are very essential. The patient with right tubal ectopic pregnancy gave a history of irregular vaginal spotting for 8 days, prior to the day of surgery. This part of the history was missed pre-operatively. Four patients presented with pains at the right iliac fossa about mid cycle, which could have suggested ovulatory pains. Mittelschmerz is a condition characterized by a dull pressure or aching sensation during mid cycle in either the right or left lower quadrant, secondary to ovulation, distention of the ovarian capsule or mild bleeding associated with the process of ovulation. Most females with regular 28 days menstrual cycle will experience this pain about day 14 of their cycle. These relevant data in the history were overlooked because of the surgical bias towards the clinical impression of acute appendicitis. When the diagnosis of acute appendicitis was made, gynecological consultation was not considered. This may be the result of cultural background in which women in our environment are squeamish about gynecological examination.²

Makanjuola et al.⁹ have demonstrated that in patients seen with non-classical symptoms of appendicitis, standard ultrasonography showed a sensitivity, specificity and overall accuracy of 89%, 96% and 91% in the diagnosis of appendicitis. Their negative appendectomy rate was 7%. The additional usefulness of ultrasound in detecting female pelvic pathology is not in doubt. Barnhart et al.¹⁰ diagnosed 82.9% of ectopic pregnancies by transvaginal ultrasound. They further revealed that, in the presence of a significant level of quantitative serum human chorionic gonadotrophin (HCG), the diagnosis of ectopic pregnancy using transvaginal ultrasound has a sensitivity of 100% and a specificity of 99.9%. None of the patients in our series was subjected to ultrasonographic or pelvic examination. These two examinations are complementary in establishing a more accurate diagnosis especially with the service of an experienced obstetric sonographer. Routine laparoscopy is also a recognized diagnostic approach for suspected appendicitis but most general surgeons rely solely on clinical judgment.

The ovarian cysts, which were found at laparotomy, did not require any surgical interference. The 2 patients who had hemostatic stitches applied to bleeding ovarian cysts probably had their cysts ruptured as a result of surgical manipulations. However, hemorrhagic corpus luteum with substantial hemoperitoneum sometimes occurs with clear clinical indications for surgical intervention. Twisted right ovarian cyst and ruptured right corpus luteum often mimic acute appendicitis. In general, none of the 15 patients needed to be subjected to surgery if only appropriate history was taken and a gynecological consultation made.

It has now been well established that appendicitis can be treated or at least controlled with antibiotics.¹¹⁻¹³ This approach creates time for a closer assessment of the situation and for a better diagnostic acumen especially in females presenting with pain in the right iliac fossa.

In conclusion, this paper emphasizes the need for gynecological consultation for women with lower abdominal pain labeled as acute appendicitis. When there is a right lower abdominal quadrant pain in a female of childbearing age, a gynecological evaluation is mandatory. With meticulous clinical evaluation and modern imaging techniques, the frequency at which gynecological conditions can be misdiagnosed as acute appendicitis should be reduced to a minimum. This helps to avoid unnecessary appendectomy. The scar of appendectomy is not without problem; it can serve as a nidus for intestinal obstruction.^{14,15}

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