ORIGINAL RESEARCH PAPER
Volume - 9 | Issue - 9 | September - 2020 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ULTRASOUND EVALUATION OF GYNAECOLOGICAL CAUSES OF RIGHT ILIAC FOSSA PAIN.

Radiology

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ABSTRACT

Aim: To assess the role of USG in diagnosing the etiology of gynaecological causes of acute right lower quadrant pain and to suggest the mode of management.

Material And Methods: 50 patients were studied in the Post Graduate Department of Radio-diagnosis and Imaging, Government Medical College, Jammu over a period of one year. All female patients presenting with acute right lower quadrant pain were included in the study except; (i) who refused to give consent, and (ii) patients having non-gynecological cause for pain on USG. An adequate history was elicited, followed by a focused clinical examination and relevant ancillary investigations of every patient was done prior to USG. An attempt made to compare imaging findings with clinical and operative findings wherever surgery was done.

Results: A total of 50 female patients were included in study with 60% of them falling between 21-37 years age group (Range 15-50 years) who had undergone ultrasound for RIF pain. Hemorrhagic ovarian cysts (20%), mid cycle pain/ Mittleschmerz (20%), endometriosis (18%), ruptured ectopic pregnancy (18%), ovarian torsion (10%), etc. were few commonly seen pathologies.

Conclusion: USG is reliable first line investigation for evaluating gynecological causes of acute RIF pain. It is readily available, cheap and can easily distinguish gynecological causes from non-gynaecological causes and aid in further management.

KEYWORDS

Right iliac fossa pain, Gyanecological RIF pain, ruptured ectopic pregnancy, ovarian torsion, mid cycle pain

INTRODUCTION

Right iliac fossa (RIF) pain is one of the most common causes of patient's visit to the emergency department. Although numerous non-gynecological conditions are implicated for RIF pain, but distinguishing gynecological from non-gynecological causes becomes important in female patients and thus helping in adequate further management. Most common causes like hemorrhagic cysts and mid cycle pain may not require any further immediate intervention, however, causes like ruptured ectopic cysts and ovarian torsions require immediate surgical attention.

The aim of our study was to assess the role of USG evaluating gynecological causes of RIF pain and to suggest further management.

MATERIALS AND METHODS

This prospective study was carried out in the Post Graduate Department of Radio-diagnosis and Imaging, Government Medical College, Jammu over a period of one year. All female patients presenting with acute right lower quadrant pain were included in the study except; (i) who refused to give consent, and (ii) patients having non-gynecological cause for pain on USG. An adequate history was elicited, followed by a focused clinical examination and relevant ancillary investigations of every patient was done prior to USG. A brief account of the procedure was explained to the patient with the emphasis on reassuring them prior to the procedure. Informed and written consent was taken from the patients/attendants.

Ultrasound was performed with patient in supine position and using Samsung SonoAce R7 machine in the same setting with a curvilinear (3-5 MHz) and linear array multi frequency (7-10 MHz) transducer. An attempt was made to compare imaging findings with clinical and operative findings wherever surgery was done.

RESULTS

A total of 50 female patients were included in study with 60% of them falling between 21-37 years age group (Range 15-50 years) who had undergone ultrasound for RIF pain. Hemorrhagic ovarian cysts (20%), mid cycle pain/ Mittleschmerz (20%), endometriosis (18%), ruptured ectopic pregnancy (18%), ovarian torsion (10%), etc. were few commonly seen pathologies. Table 1. enumerates rest of the pathological conditions that were diagnosed in our study.

Table No 1: Various Pathologies Detected Are Tabulated.

S. No	Pathology	Frequency	Percentage (%)
1	Hemorrhagic Cyst	11	22%
2	Ovarian Torsion	6	12%
3	Ectopic Pregnancy ± Rupture	9	18%
4	Inflammatory TO lesions	5	10%
5	Mittelschmerz	10	20%
6	Endometriosis	8	16%
7	Ovarian Hyperstimulation	1	02%
	TOTAL	**50**	**100**

Hemorrhagic cyst: There were 11 cases of hemorrhagic cyst in our study. On USG these were seen as thin walled cysts with internal septations and fibrin strands giving a fish net appearence were seen in 9 cases (82%) and organized clots was seen in 5 cases (45%). All the cysts were devoid of any internal solid vascularity and residual normal ovary was well defined, however circumferential flow was seen in nearly 8 patients (73%).

***Mid cycle pain or Mittleschmerz*:** 20% of the females had mid cycle RIF pain due to ovulation. Sonographic findings in all these patients included features of ruptured follicle that was seen as a follicular cyst with crenated margins with fine internal echoes in 7 patients (70%) and minimal fluid in pouch of Douglas in 10 patients (100%).

Ectopic Pregnancy ± Rupture: 9 patients had sonographic features of ectopic pregnancy with features of rupture in 5 of them. All these patients had positive urine for pregnancy test with absence of gestational sac in endometrial cavity on ultrasound (100%). In addition to this ultrasound showed well defined gestational sac with yolk sac at sites other then endometrial cavity in 3 patients (33%), heterogeneous adnexal mass in 7 patients (78%), pelvic hematoma in 3 patients (33%) and hemoperitonum in 5 patients (56%).

***Endometriosis*:** There were 8 cases of endometriotic cyst which on USG showed multiloculated cystic area with homogenous ground glass echos and echogenic foci of calcification within the wall. Similar cysts were seen bilaterally in 7 of 8 patients (88%).

***Ovarian Torsion*:** In 5 out of 6 patients (83%) USG showed enlarged, edematous ovary with peripherally arranged cystic areas and minimal surrounding fluid. Other common findings were deviation of uterus (4

patients, 67%), twisted pedicle (3 patients, 50%), loss of normal stromal vascularity (3 patients, 50%) and calcification & echogenic component suggesting dermoid (1 patient, 17%). One of the patients showed large heterogeneous echogenicity cyst with none of the other features, diagnoses of intermittent torsion was established in her post-operatively.

***Inflammatory Tubo-Ovarian lesions*:** Ultrasound in these patients revealed complex thick walled predominantly cystic masses with internal echoes in 3 patients (60%) and dilated fallopian tube with internal incomplete septae & echoes in rest (40%). Associated intramuscular thick walled collection was seen in right iliacus muscle in one patient (20%) and thick walled pelvic collection with internal debris was seen in one patient (20%).

***Ovarian Hyperstimulation*:** One patient with history of ovarian stimulation therapy had enlarged 13-15 cm ovaries with multiple cysts and ascites.

DISCUSSION

Acute right iliac fossa (RIF) pain is a common presenting symptom and can be attributed to an elaborate list of differential diagnoses, including gynaecological causes in female population. Gynecological causes for RIF pain include a variety of entities that may be benign self-limiting or associated with high morbidity that requires urgent intervention. Prompt diagnosis of these is essential to minimize morbidity, which remains substantial if a complication occurs.

A total of 50 patients presenting with acute RIF pain were subjected to USG after making a detailed examination, seeing laboratory and clinical diagnosis.

Most common gynecological cause for acute RIF pain in our study group was hemorrhagic cysts. This is a benign condition, occurring due to hemorrhage in the functional ovarian cysts and most of these cysts resolve on 6-8 weeks follow up scans.(1) In the acute stage, a 'fishnet weave' pattern or lacelike reticular pattern is often seen. (2)

The pain associated with rupture of the dominant follicle during ovulation, occurring in the mid menstrual cycle, usually felt in the lower abdomen. It generally occurs on the same side of the ruptured follicle (3) and thus, the laterality of pain varies corresponding to the side of ovulation. Sometimes, the pain can be severe, associated with nausea, and mimic appendicitis if occurring on the right side. Correlation with menstrual cycle, spotting, and history of prior such episodes can help. (4)

Ectopic pregnancy is when blastocyst gets implanted at sites other than uterine endometrium and is major cause for pregnancy related maternal mortality (5). Absence of intrauterine gestaional sac with an adnexal lesion in females with positive urine for pregnancy test or raised beta hCG levels, is almost confirmatory of ectopic pregnancy. Pelvic hematomas and significant free fluid in peritoneal cavity in such patients points towards ruptured ectopic pregnancy and requires immediate intervention.

Endometriosis is also frequently encountered condition and accounts for 10–15% of all premenopausal women, however also is not rare in adolescents where it is usually associated with mullerian tract anomalies (6). MRI is preferred imaging modality for endometriosis, however using transvaginal probes in sonography can achieve sensitivities & specificities more than 90% for deep endometriosis (7). Pain in these patients is related to fresh bleeding and does not correlate with the severity of disease. Ultrasound can detect ovarian endometriomas and or other findings like retroflexed uterus, dilated fallopian tubes, nodular deposits in uterovesical region, rectouterine space, uterosacral ligaments, etc.

Ovarian torsion is also often a leading diagnostic consideration; ovarian torsion may occur in the absence of ovarian disease, usually in children and has been attributed to excessive mobility of the adnexa. Right sided torsions are more commonly seen than left (8) and often an important differential for RIF pain in females. In adults, there is usually a concurrent ovarian cyst or mass frequently the mature cystic teratoma (9). Sonographic features include a unilateral, uniformly enlarged ovary containing multiple small peripheral ovarian follicles measuring 8–12 mm in diameter, reflecting congestion of the ovary. This sign is specific but not very sensitive (10).

Other gynaecological causes in our study group were inflammatory tubo-ovarian lesions and ovarian hyper stimulation. The patients with inflammatory tubo-ovarian lesions had history of fever with leukocytosis and raised CRP levels, making the imaging diagnosis easy. Similarly diagnosis of hyper stimulation is easy with history of ovarian induction therapy.

In conclusion, USG has significant role in evaluation of right iliac fossa gynecological pathologies, supplementing and adding to clinical diagnosis and lab investigations. Study emphasizes the importance of undertaking an extended abdominal and pelvic sonographic study in female patients of reproductive age group who present with acute RIF pain, to evaluate the gynaecological causes.

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