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Research Article

**ANALYSIS OF PELVIC USG IN THE DIAGNOSIS OF
ADNEXAL TORSION**Dr Fozia Hussain¹, Dr Moazza Latif², Dr Vallail Shahbaz³¹S.M.B.B, Medical University, Larkana²Graduated from Wah Medical College**Article Received:** September 2020 **Accepted:** October 2020 **Published:** November 2020**Abstract:**

Introduction: Adnexal torsion is a gynecologic emergency caused by partial or complete twisting of the mesovarium. Early surgical intervention is needed to save the ovary. **Objectives:** The main objective of the study is to analyse the pelvic USG in the diagnosis of adnexal torsion. **Material and methods:** This descriptive study was conducted in S.M.B.B, Medical University, Larkana during January 2020 to June 2020. All female patients younger than 40 years of age who presented with acute pelvic pain with highly suspected ovarian torsion and for whom laparotomy were performed within less than 6 hours of the ultrasound assessment were included. **Results:** The average age of patients was 26.3 ± 7.8 years. Of cases with abdominal pain, 43 (13.3%) were confirmed as cases of ovarian torsion by surgery and other surgical diagnoses were appendicitis (24.8%), hemorrhagic cyst (22.9%), ectopic pregnancy (21.1%), and others (18.0%). The ultrasound correctly diagnosed 72.1% of ovarian torsion cases and missed 27.9% of these cases. **Conclusion:** It is concluded that in case of clinical doubtfulness to torsion, ovarian sonography is strongly recommended. Also, if volume of ovary was increased simultaneously, examination by using color Doppler is also necessary.

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INTRODUCTION:

Adnexal torsion is a gynecologic emergency caused by partial or complete twisting of the mesovarium. Early surgical intervention is needed to save the ovary. The diagnosis is most commonly a clinical one aided by sonography. However, because the clinical presentation of adnexal torsion can mimic other causes of acute abdominal pain, CT sometimes is performed in equivocal cases [1]. In addition, if the clinical presentation is unclear, CT may be the initial diagnostic imaging examination performed. Thus familiarity with the spectrum of CT characteristics of adnexal torsion is essential for prompt recognition of this potentially serious condition. Our review of the literature revealed descriptions of the CT characteristics of adnexal torsion in only a few small series of patients [2]. The goal of our study was to define the CT features associated with adnexal torsion and to correlate these features with the clinical, sonographic, surgical, and pathologic findings. To our knowledge, our series is the largest described in the literature [3].

Misdiagnosing ovarian torsion is now suggested as an important issue in clinical setting that is suggested to be related to the variety of its clinical manifestations. Clinically, this phenomenon can be manifested by severe pain in lower abdomen, occasionally with nausea and vomiting, however pain referring to the position of other organs such as kidneys and pelvic-related systems so clinical presentation of ovarian torsion is variable and often misleading. Also, physical examination is non-specific and peritoneal irritability may be present or absent [4].

In this regard, differential diagnosis of this disorder is wide and consists in multiple other causes of abdominal pain including other gynecological, gastrointestinal, and urinary tract diseases. Besides, if complete ovarian torsion is undiagnosed and untreated, it can lead to infertility, ovarian necrosis with peritonitis, loss of ovary, and death and thus delaying in its diagnosis may lead to life-threatening consequences [5]. Because of selecting the affected patients for emergent surgery, its timely and minute diagnosis is vital that remained challenging among specialists. Meanwhile, despite recent development of imaging techniques, medical imaging modalities remain controversial. Utility of conventional ultrasonography for diagnosis of ovarian torsion has been now questioned. This imaging procedure can

successfully detect adnexal lesions and ovarian enlargement [6].

Objectives

The main objective of the study is to analyse the pelvic USG in the diagnosis of adnexal torsion.

MATERIAL AND METHODS:

This descriptive study was conducted in S.M.B.B, Medical University, Larkana during January 2020 to June 2020. All female patients younger than 40 years of age who presented with acute pelvic pain with highly suspected ovarian torsion and for whom laparotomy were performed within less than 6 hours of the ultrasound assessment were included. The informed consent was obtained from patients. The main inclusion criteria included raising the possibility of ovarian torsion in terms of clinical signs and also agreement with the participation in the study. Patients underwent a transabdominal sonography (Aulision GE) using 2-5 MHZ probes by an ultrasound specialist. Benchmark of positive test was ovarian enlargement with no arterial or venous blood flow. The findings of sonography were compared with laparotomy findings. The data were collected by chart review for all patients. All baseline variables including demographics and clinical manifestations were recorded.

Statistical analysis

The data was collected and analysed by using SPSS version 19. All the values were expressed in mean and standard deviation.

RESULTS:

The average age of patients was 26.3 ± 7.8 years. Of cases with abdominal pain, 43 (13.3%) were confirmed as cases of ovarian torsion by surgery and other surgical diagnoses were appendicitis (24.8%), hemorrhagic cyst (22.9%), ectopic pregnancy (21.1%), and others (18.0%). The ultrasound correctly diagnosed 72.1% of ovarian torsion cases and missed 27.9% of these cases. However, one free subject (0.4%) was misclassified as ovarian torsion cases (false positive), there was a strong correlation between sonography and surgery with a kappa value of 84.0%. The sensitivity and specificity of sonography for diagnosing ovarian torsion were determined 72.1% and 99.6%, respectively. Also, sonography had a positive predictive value (PPV) of 96.9%, a negative predictive value (NPV) of 95.9%, and a total accuracy of 96.0% for detection of ovarian torsion.

Table 01: Presence of different sonographic markers in torsion

Variables	Negative	Positive	P-Value
Ovarian edema	20 (21.5)	4 (40.0)	0.003
Ovarian enlargement	10 (37.0)	8 (80.0)	0.03
Ovarian cyst or mass	11 (40.7)	6 (60.0)	0.3
Abnormal ovarian location	10 (0.0)	3 (30.0)	0.002
Abnormal ovarian blood flow	10 (0.0)	0 (0.0)	NA
Free fluid in pouch of Douglas	6 (22.2)	2 (20.0)	1
Fluid around the ovary	3 (3.0)	0 (0.0)	NA
Distended fallopian tube	30 (31.0)	0 (0.0)	NA

DISCUSSION:

Comparing our results with the previous reported findings confirm higher obtained diagnostic value of sonography compared with some studies and lower value compared with others in our survey. In a similar study by Mashiach and colleagues, sonography had diagnostic accuracy of 74.6% for ovarian torsion [7]. However, in a study by Graif *et al.* a 100% sonographic sensitivity and 93% specificity for space-occupying disease of the ovary were obtained with a positive predictive value of 88% for the diagnosis of ovarian torsion in both in childhood and adolescence [8].

Because of the variety of reported diagnostic performance for sonography in diagnosing ovarian torsion, it can be suggested that an ultrasound exam may be used to make a diagnosis in conjunction with clinical parameters; however, this will be most difficult in patients with ovarian torsion because of its non-specific symptoms. The only specific sonographic sign of torsion is demonstration of multiple follicles (8-12 mm in size) in the cortical portion of a unilaterally enlarged ovary. This multifollicular enlargement was attributed to transudation of fluid into the follicles as part of the congestion of the ovary from circulatory impairment. This feature has been detected by careful examination in up to 74% of torsion cases [9].

CONCLUSION:

It is concluded that in case of clinical doubtfulness to torsion, ovarian sonography is strongly recommended. Also, if volume of ovary was increased simultaneously, examination by using color Doppler is also necessary. In total, according to high specificity of sonography, in cases with increased volume of ovary and lack of flow, ovarian torsion is strongly considered as diagnosis and the patient should be candidate for surgical management.

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