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ECTOPIC PREGNANCY AND ITS DIAGNOSIS BY TRANSVAGINAL SCAN

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Abstract:
Objective: *To assess the worth of transvaginal sonography in the evaluation of women with assumed ectopic pregnancy (EP) which is considered a life-threatening condition in early pregnancy.*
Design: *It is a descriptive study.*
Place and Duration: *This study was carried out in the department of radiology of Nishtar hospital Multan, from February 2017 to August 2017.*
Patients and Methods: *During study, total 7155 successive females were presented to the radiology department. Out of these, one hundred (100) were detailed for non-probability convenience sampling. Pelvic ultrasound examination was performed on these selected patients. Transvaginal and transabdominal scans were also carried out simultaneously. Serum beta hCG levels of every patient were more than 1500 iu/ml.*
Results: *Ectopic pregnancy (EP) was confirmed by Ultrasound in 34 patients. EP was confirmed in 24 patients by Transvaginal sonography whereas 09(nine) patients were confirmed EP by transabdominal scan. Ultrasound diagnosis results were as follows. 16 patients were diagnosed with adnexal mass whereas ecogenic ring was found in10 patients. Intrauterine fluid was detected in 21 patients, extrauterine gestational sac was found in 04 patients and 01 patients was diagnosed with live embryo.*
Conclusion: *Well-timed diagnosis of ectopic pregnancy with the help of transvaginal sonography (TVS) and serum beta hCG is recommended for the women to decrease the mortality rate due to pregnancy related complications.*
Keywords: *Ectopic pregnancy, Transvaginal scan, Transabdominal scan.*

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INTRODUCTION:

In early pregnancies, miscarriages are the most common complications. They almost occur in 15-20 percent pregnancies. Implantation of a fertilized ovum outside the endometrial cavity is known as Ectopic pregnancy. It is life threatening complications of early pregnancies and occurs in almost 1.5 to 2 percent of pregnancies. When women complain about Abdominal pain, it should be a harbinger for the specialized treatment and referral to the required specialist is mandatory [1]. EP related occurrences have enhanced over the years. It almost ranged from 0.5 cases per hundred pregnancies. Today, it stands 2 cases per hundred pregnancies. According to reports presented by "The Centres for Disease Control and Prevention" (USA), EP case was once in 70 pregnancies. However, the ratio of EP cases in Pakistan alters as 1:112 __ 1:130 pregnancies [2].

Traditionally, transabdominal sonography induction in gynaecology has changed the trends in management of women with suspected ectopic pregnancy. The blend of a positive pregnancy test i.e. radio immunoassays of the serum beta subunit of human chorionic gonadotrophin (B-hCG) and the absence of an intrauterine gestational sac on TAS became normally established as a sign for laparoscopy. Kadar et al first recognised the non-specific nature of failing to visualize an intrauterine sac on TAS [3]. Having a high sensitivity (87- 99% percent) and a specificity (94-99.90 percent), Transvaginal scans have proved outstanding test for diagnosis in case of ectopic pregnancy. Management of ectopic pregnancy has been modernized over the time. TVS can be used in preliminary diagnostic stage, since it is an accurate, quick, feasible and have repetitive capabilities and no threat of radiations. The ability of transvaginal transducer to execute spectral Doppler and simultaneous colour studies makes it more significant [4]. Hence, it allows simple identification of the ectopic per trophoblastic flow. Advancement and Improvement in ultrasound equipment has decreased the mortality rate considerably. By utilising transabdominal sonography followed by transvaginal sonography with serum beta hCG correlation, physicians make decisions about the management of patients with ectopic pregnancy. Serum beta hCG level higher than 1500 miu/ml and the absence of intrauterine pregnancy by transvaginal sonography is presumptive confirmation of ectopic pregnancy [5]. In detection of Ectopic pregnancy, transvaginal sonography is a helpful too. It can be adopted in medical management of Ectopic Pregnancy. TVS, along with serum beta hCG, can be an effective tool in alleviating the financial burden on hospital as well as patients. It can prevent morbidity and maternal mortality rate in the patients related to ectopic pregnancy and other such complications.

PATIENTS AND METHODS:

This descriptive study was carried out in the department of radiology of Nishtar hospital Multan. Time span was from February 2017 to August 2017. Total 7155 successive females were presented to the radiology department. Out of these, one hundred (100) were detailed for non-probability convenience sampling. The criteria for inclusion in the study were those cases who have suspected features of early pregnancy loss such as vaginal bleeding, amenorrhea, a positive pregnancy test and abdominal pain. Those Females who were suffering from acute appendicitis were dropped. A questionnaire was prepared to record patients' details after getting informed consent. Response rate was noted as hundred percent. Every patient was undergone transvaginal sonography and transabdominal sonography at the same time. These tests were executed by local physicians at first, and then they were performed by consulting radiologist. Varying frequency probes i.e. 7.5 MHZ TVS and 3.5MHZ TAS were utilised with TVS and TAS respectively. All patients were undergone pregnancy tests too. Various parameters in relation to ectopic pregnancy i.e. free fluid, adenexal mass, extrauterine sac and ecogenic ring were also evaluated. After performing Laprotomy, ectopic pregnancy diagnosis was confirmed by histopathology. Relevant data was obtained and its analysis was carried out with the help of SPSS version 15.0.

RESULTS:

Out those 100 patients, 35.20 percent were aged from 20 to 35 years. 31 years was mean age of these patients. 34 percent were found to have direct positive sonographic results while two cases were observed to have indirect positive sonographic results of ectopic pregnancy. Early pregnancy was diagnosed in rest of 66 patients (24 percent), inevitable abortion (1 percent), incomplete abortion (21 percent), vesicular mole (1 percent) and complete abortion (19 percent) (Table I). Common signs with supposed ectopic pregnancy were vaginal bleeding (41.17 percent), lower abdominal pain (73.52 percent) and amenorrhea (100 percent). Various other symptoms were cervical excitation (11.7 percent) and tenderness (23.52 percent). All the patients were having either one or more than one symptoms. By using TVS, assessment of various sonographic results was carried out as demonstrated in Table II. Out of 34 EP, 30(88.23 percent) patients were related to tubal ectopic pregnancies, 2 cases (5.88 percent) were assumed EP as no adnexal mass, 1 case (2.94%) was an abdominal pregnancy and 1 (2.94 percent) was a cornual pregnancy. Intact ectopic pregnancies were 20 (62.5 percent)

whereas 12 (37.50 percent) were related to ruptured ectopic pregnancies. TAS has less accuracy in detection of ectopic pregnancy as compared to TVS.

Table – I: Distribution of ectopic pregnancy among study participants (100)

Diagnosis	Number	Percentage
Ectopic Pregnancy	34	34
Early Pregnancy	24	24
Incomplete Abortion	21	21
Complete Abortion	19	19
Inevitable Abortion	1	1
Vesicular Mole	1	1

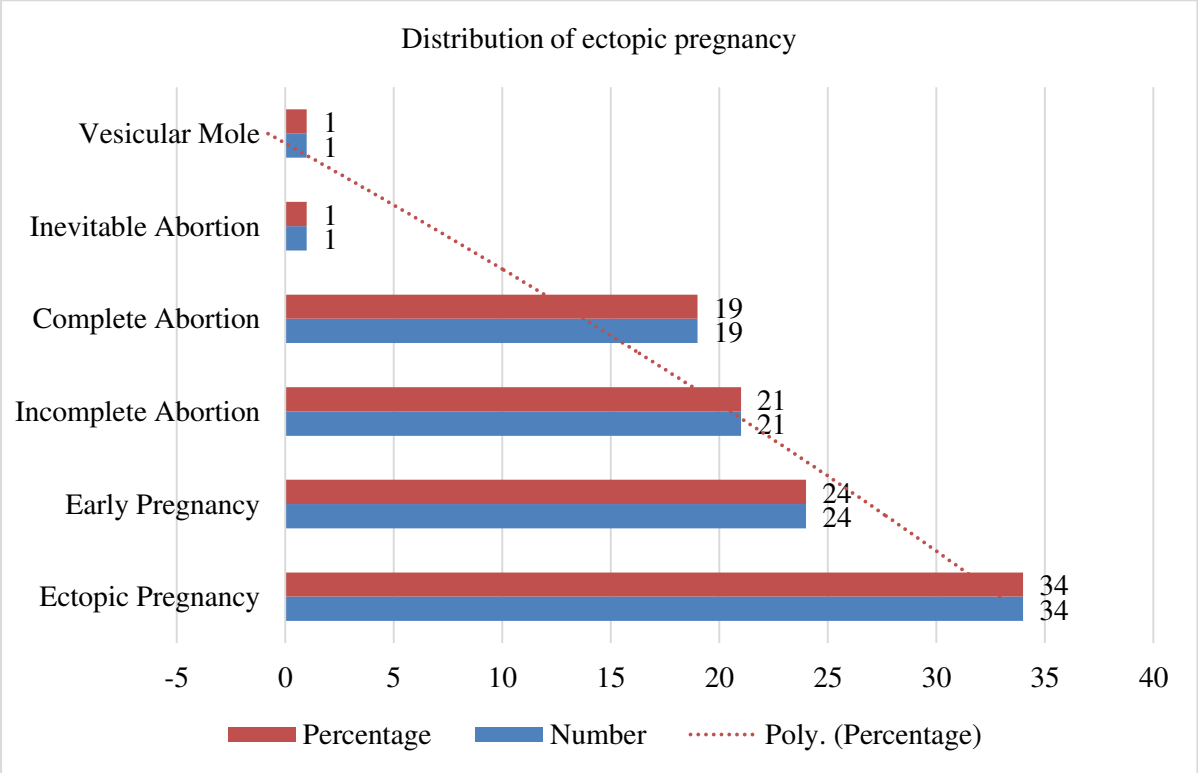
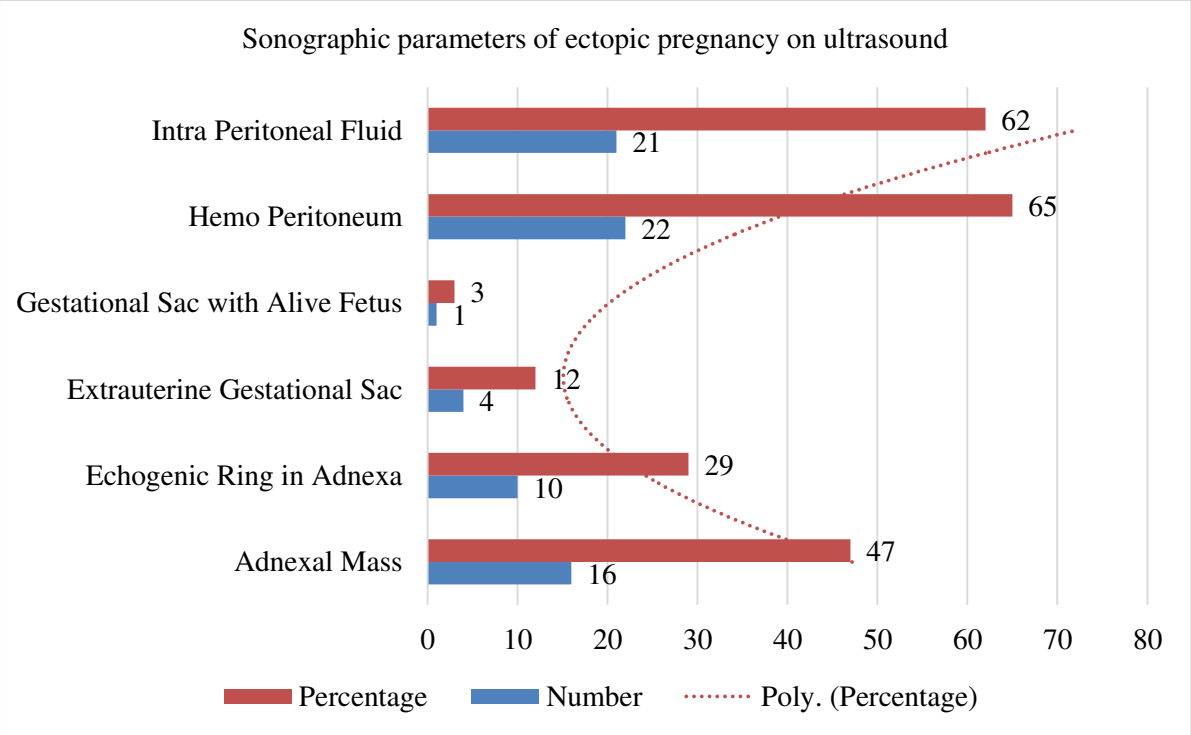


Table – II: Sonographic parameters of ectopic pregnancy on ultrasound (34)

Ultrasound Finding	Number	Percentage
Adnexal Mass	16	47
Echogenic Ring in Adnexa	10	29
Extrauterine Gestational Sac	4	12
Gestational Sac with Alive Fetus	1	3
Hemo Peritoneum	22	65
Intra Peritoneal Fluid	21	62



DISCUSSION:

In developing countries like Pakistan, issues like maternal morbidity and mortality are on the rise especially when family doctors demonstrate lack of awareness to suspect ectopic pregnancy when a woman suffers from indescribable abdominal pain [6]. Unsatisfactory medical care is the root cause of 65 percent deaths and most rampant reason is failure to suspect an ectopic pregnancy. Symptoms related to ectopic pregnancy are non- specific most of the times and thus failure of diagnosis is seen in almost 70 percent of the patients [7]. Combination of trio i.e. adnexal mass, pain and bleeding is found in 45 percent of cases. A number of gynaecological and non-obstetrical problems can be seen in related clinical scenario. Hence, to identify vaginal bleeding and pelvic pain in females; ultrasonography has been vastly utilised [8]. Additionally, availability of relevant data, physical examination, improvement in a highly sophisticated and sensitive serum pregnancy test for ectopic gestations and accessibility of high resolution transvaginal sonography, ectopic pregnancies are being diagnosed at earlier stages [9]. In the present study, we assessed the efficiency of both TAS and TVS and correlation existing between them to diagnose ectopic pregnancy. transvaginal sonography presented single obvious diagnosis in 34 patients of EP. The most recurring sign was abdominal pain (73.52 percent). Vaginal bleeding was second most found symptom in 41.17 percent of cases [10]. Abdominal tenderness (23.5 percent) and cervical excitation (11.7 percent) were most consistent physical signs. As per previous conducted study, abdominal pain was found to be in 97 percent of their cases, adnexal tenderness in 54 percent of cases, abdominal tenderness in 91 percent of cases and vaginal bleeding in 79 percent of the patients [11]. Another study has revealed abdominal pain (83.60 percent), amenorrhea (77.50 percent) and irregular vaginal bleeding (73.7%) patients of ectopic pregnancy. Symptoms are frequently non-specific and 70 percent of cases lack diagnosis. This study proved that Ectopic pregnancy (EP) was confirmed by Ultrasound in 34 women. Correspondingly, another study has found ectopic pregnancy in 39 percent of cases with vaginal bleeding and abdominal pain. No other risk was found in these patients [11]. It is pertinent to note that radiologists and doctors must realize that no combination of test results can consistently rule out ectopic pregnancy. Nowadays, ectopic pregnancy diagnosis is found to be based on positive visualization of an adnexal mass. Initial TVS examination provides visualisation in 75 percent of EP related cases [12]. A study was conducted in the year 1994. According to it, evaluation of efficacy of pelvic sonography was executed in 1427 cases as a screening test for ectopic pregnancy (EP). TAS was performed initially which followed by TVS for the verification of characterization of adnexal mass and viability of intrauterine pregnancy. Diagnosis in 81 percent of cases was confirmed by the use of Ultrasound, without the help of beta hCG [13]. The sensitivity of screening sonography for EP was 99 percent whereas specificity was recorded as 84

percent. In the same way, 34 patients were diagnosed as ectopic in our study in which 10 (29.71 percent) had positive echogenic ring and 16 (47 percent) possessed positive adenexal mass. Similarly, TVS and TAS were performed on 100 patients [14]. We observed that TVS was more helpful and convenient in 32 cases (94.11 percent) in comparison to TAS in 28 percent. Our study was compared to that of Naseem I, in which he reported that TVS can considerably ameliorate the diagnostic accuracy in suspected EP cases. Likewise, in another conducted study it was indicated that before the surgery TVS should reduce number of superfluous laparoscopies which were based on false positive results. TVS provided diagnosis of 90.90 percent of ectopic pregnancy [15]. By carrying out both scans at the same time, we made comparisons of the result of TVS and TAS and efficacy of TVS and TAS for diagnosis of ectopic pregnancy. It was noted in another study that TVS may provide more exact, preliminary and unequivocal EP diagnosis in the fallopian tube than TAS scans [16]. In early identification of ectopic pregnancy, combination of Ultrasound and serum BhCG is the modality of choice. Since it does not need any prior preparation i.e. full blabber, it is dubbed as non-invasive method. It has the ability of diagnostic confirmation of EP the moment it is suspected [17]. As TVS is user dependent having an inadequate field of vision, bowls can make the field murky occasionally. In spite of its certain limitations, Transvaginal sonography (TVS) has the capability of earlier diagnosis of EP and thus can avoid maternal mortality and morbidity rate [18]. Whenever EP is suspected, expert opinion of both gynaecologist and radiologist is recommended.

CONCLUSION:

Well-timed diagnosis of ectopic pregnancy with the help of transvaginal sonography (TVS) and serum beta hCG is recommended for the women to decrease the mortality rate due to pregnancy related complications.

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