ROLE OF TRANSVAGINAL SONOGRAPHY IN DIAGNOSIS OF ECTOPIC PREGNANCY

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SUMMARY

Ectopic pregnancy is a disaster of reproduction. Endovaginal sonography can identify a live tubal ectopic pregnancy before it ruptures and causes haemoperitoneum and thus helps in reducing the maternal morbidity and mortality. We at K.E.M. Hospital studied 44 cases of ectopic pregnancy, over one year from February 1993 to January 1994, to know the diagnostic accuracy of transvaginal sonography. The overall diagnostic accuracy of transvaginal sonography in patients with ectopic pregnancy was found to be 87.1%, whereas the diagnostic accuracy in patients with ruptured ectopic pregnancy was 92.8%.

INTRODUCTION

Ultrasonography is a technology in which knowledge is rapidly being advanced by engineers and utilized by clinicians, thus changing the frontiers of knowledge and improving the quality of life for both mother and foetus.

Dr. Timor - Tritsch and Rottem 1988 demonstrated that with use of an improved vaginal probe, as never before, the earlier stages of human development may be visualized. (Timor Tritsch & Rottem 1988).

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The use of a relatively high frequency transvaginal probe through the vaginal vault for pelvic organ imaging was the product of some basic knowledge in the physics of ultrasound and problem of facing a diagnostic dilemma in obese patients, suffering from pelvic pathology.

The pictures with vaginal probe are amazingly sharp and a live tubal ectopic pregnancy can be diagnosed accurately before it ruptures or before tubal abortion occurs.

Clinical spectrum of the ectopic pregnancy varies widely. Many times cases

present in altogether atypical fashion, hence a careful history, thorough clinical examination alongwith a transvaginal scan can improve the diagnostic accuracy and thus help in preventing the delay in diagnosis and its morbid consequences.

MATERIAL AND METHOD

We at K.E.M. Hospital studied 44 cases of ectopic pregnancies over the period of one year from February 1993 to January 1994. Age of the patients ranged from 19 years to 35 years. Ectopic pregnancy was confirmed on history, clinical examination, urine pregnancy test positivity, colpopuncture and ultrasonography. Final diagnosis was made after exploratory laparotomy and histopathology.

Transvaginal sonography was performed with Siemens fully computerized USG machine with a transvaginal probe of 6.5 mHz frequency. Absence of visualization of an intrauterine pregnancy (IUP), with noncystic adnexal mass or free fluid in the pouch of Douglas were the criteria used to diagnose ectopic pregnancy on transvaginal scan.

RESULTS

Of the 44 cases of ectopic pregnancy that were studied, 13 (29.5%) were primigravidae and the remaining 31 (70.5%) were multigravidae. Six patients were infertile and were undergoing investigations. In 3 patients there was previous history of ectopic pregnancy. 36 patients (81.81%) were admitted as emergency cases. 19 patients had ruptured ectopic pregnancies, of which 5 were admitted in a state of shock. History and clinical examination findings were suggestive of ruptured ectopic pregnancy. Urine pregnancy test was positive in all 5 cases and colpopuncture showed presence of haemoperitoneum. Immediate exploration was carried out without performing ultrasonography. Exploration and histopathology confirmed diagnosis of ruptured ectopic gestation. Ovarian, abdominal or cervical ectopic pregnancies were not encountered in our study. There were 13 cases of unruptured and 12 of chronic ectopic pregnancies. Clinically, ruptured and unruptured ectopic pregnancies were diagnosed accurately correlating the history, findings on examination, urine pregnancy test and colpopuncture, as shown in Table I.

However chronic ectopic pregnancy was clinically suspected in only 8 out of 13 cases (61.5%) and thus clinical diag-

Table I

Role of Clinical Diagnosis of UPT and Colpopuncture in Ectopic Pregnancy

	Diagnosed clinically	UPT	Colpopuncture
Ruptured ectopic	19 (100%)	+ ve (100%)	+ ve (100%)
Unruptured ectopic	12 (93%)	+ ve (100%)	- ve in all
Chronic ectopic	8 (61.5%)	5 +ve (38.4%)	- ve in all

nosis was missed in 5 cases, as shown in Table I.

Laparoscopy was performed in 10 out of 12 cases of chronic ectopic pregnancies and exploratory laparotomy was done after confirming the diagnosis by laparoscopy.

39 patients were subjected to transvaginal ultrasonography, and as a customary transabdominal scan was performed before transvaginal scan. The diagnostic accuracy of transvaginal sonography in cases of ectopic pregnancies is shown in Table II. Free fluid in the pouch of Douglas was diagnosed accurately in all cases of ruptured ectopic pregnancies. However, definitive diagnosis of ruptured ectopic pregnancy was obtained in 78.57% of the cases. In one case of ruptured ectopic pregnancy, diagnosis was ? paralytic ileus on ultrasonography, with 2nd differential diagnosis of ruptured ectopic pregnancy.

In cases of unruptured ectopic gestations, definitive diagnosis of ectopic was given in 8 out of 13 cases (i.e. 61.53%) and 1st differential diagnosis of ectopic pregnancy was given in 1 case and 2nd differential diagnosis of ectopic was given in 3 cases (23.07%) and in one case possibility of ectopic was not considered.

Comparatively more number of cases of chronic ectopic pregnancy were missed by transvaginal sonography. Definitive diagnosis was given in 3 cases (25%), 1st differential diagnosis of ectopic in 3 cases (25%), and 2nd differential diagnosis of ectopic in 2 cases (16.66%) and diagnosis was missed in 4 cases (33.33%).

The differential diagnosis of ectopic pregnancy, given by transvaginal scan is shown in Table III. Pelvic inflammatory disease was the commonest (27.2%) differential diagnosis.

Thus the diagnostic accuracy of transvaginal sonography in cases of ectopic pregnancy was found to be 87.1% in our study. In cases of ruptured ectopic pregnancies, the diagnostic accuracy was found to be 92.8%.

DISCUSSION

Ectopic pregnancy is associated with high incidence of maternal morbidity and mortality and hence the need for better assessment of the adnexae in patients with

Table II

Diagnostic accuracy of transvaginal sonography

	Definitive Diagnosis	? Ectopic Diagnosis		Missed Diagnosis
		1st D/D Ectopic	2nd D/D Ectopic	
Ruptured ectopic (14)	11 (78.57%)	2 (14.3%)	1 (7.14%)	nil
Unruptured ectopic (13)	8 (61.53%)	1 (7.69%)	3 (23.07%)	1 (7.69%)
Chronic ectopic (12)	3 (25%)	3 (25%)	2 (16.66%)	4 (33.33%)

Table III

Differential diagnosis of ectopic pregnancy on transvaginal sonography

	Ruptured	Unruptured	Chronic
PID (without TO mass)	-	-	3 (25%)
TO Mass	-	2 (15.4%)	2 (16.6%)
? Fibroid Uterus	-	1 (7.7%)	-
? Ovarian Cyst	-	1 (7.7%)	-
? Broad Ligament Haematoma	-	-	1 (8.3%)
? Paralytic Ileus	1 (7.4%)	-	-

suspected ectopic pregnancy (Atarsh et al 1987). With the advent of transvaginal sonography pelvic pathology is diagnosed accurately, since a relatively high frequency transvaginal probe gives amazingly sharp pictures (Nyberg et al 1987). The value of transvaginal sonography in assessment of patients with ectopic pregnancies has been widely studied (Mahony et al 1985, Pederson 1979).

The diagnostic accuracy in our study was found to be 87.1%. In patients with chronic ectopic pregnancy, the diagnostic accuracy, was comparatively lower, clinically as well as radiologically (66.6%), because of the atypical presentations and the silent from of the disease. Free fluid in the pouch of Douglas was diagnosed in all the cases of ruptured ectopic pregnancies and the diagnostic accuracy was found to be 92.8%. The better diagnostic accuracy in patients with ruptured ectopic pregnancy was because of the better visualisation of the fallopian tubes, because of the free fluid which gave a better tissue interface.

Deshefsky et al (1986) from Canada reported diagnostic accuracy of endovaginal scan in cases of ectopic pregnancies around 82.25%. Romero and Kadar (1988) found diagnostic accuracy of 83%, in ectopic pregnancy, while Patni and Nagpal (1992) found the overall diagnostic accuracy in patients with ectopic pregnancies to be 90%.

CONCLUSION

Thus, with the advent of transvaginal sonography, the diagnosis and management of patients with ectopic pregnancy has improved significantly. However, a detailed history, thorough clinical examination and above all a suspicion of ectopic pregnancy cannot be substituted by newer diagnostic procedures.

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