

HIGHLY SENSITIVE DIAGNOSIS OF EMERGENCY OBSTETRIC-GYNECOLOGIC DISORDERS USING REAL-TIME ULTRASOUND

(ultrasonographic diagnosis/obstetric and gynecologic emergency)

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(Received February 5, 1988/Accepted April 15, 1988)

Real-time ultrasonographic examinations were performed on 47 with obstetric and gynecologic emergencies at Hirata Municipal Hospital, Japan, from May '84 to September '86. In 45 (sensitivity=95.7%), the ultrasonography presented conclusive evidence to make a diagnosis, but in 2 with pelvic inflammatory disease and endometrial cyst, the correct findings of intrapelvic abnormal pathogenic changes were not depicted. Thus, real-time ultrasound is a pertinent diagnostic tool which can be used to make a correct diagnosis in various obstetric and gynecologic emergencies.

Patients with acute complaints of abdominal pain or genital bleeding are often seen in the Obstetrics and Gynecology clinic and the methods of examination and proper treatment have to be instantaneously determined. Ultrasonic instruments greatly facilitate determination of visceral pathogenic changes in abdominal and pelvic cavity, non-invasively, and cost-effectively (1). We report herein our experiences of ultrasonographic examinations in obstetric and gynecologic emergencies.

PATIENTS AND METHODS

Forty-seven Japanese women with acute chief complaints were admitted to the Department of Obstetrics and Gynecology at Hirata Municipal Hospital from April '84 to September '86. Using the full bladder technique (1), real-time ultrasonographic examinations were performed by one examiner (T.H.). Examinations such as bimanual and rectal, Douglas punctation, biochemical and hematological analysis, CT scan, exploratory laparotomy, were also done, as required.

The apparatus used was an Aloka SSD-256 (3.5 MHz).

RESULTS

The clinical diagnoses of 47 emergency cases are shown in Table 1. The most frequent of the emergency case was pelvic inflammatory disease (PID) (19 out of 47 cases; 40.4%), the 2nd ovarian tumor (14 out of 47 cases; 29.8%), and the 3rd, abortion (7 out of 47 cases; 14.9%).

Table 1. Clinical diagnosis of emergency case

Clinical Diagnosis	
pelvic inflammatory disease	19
ovarian tumor	14
abortion	7
retention of placenta	2
ectopic pregnancy	1
abrasion of placenta	1
hemosalpinx	1
maternal hydronephrosis in pregnancy	1
adhesion of myoma uteri	1
total	47

In 45 of the 47 (sensitivity=95.7%) ultrasonography provided useful and/or definite information to make an accurate diagnosis of the emergency cases. In those with PID, bilateral tumor formation and fluid collection in Douglas pouch were evident (Fig. 1). In the case of rupture of an ovarian cyst, cystic mass adjacent to the uterus and intraperitoneal fluid collection were

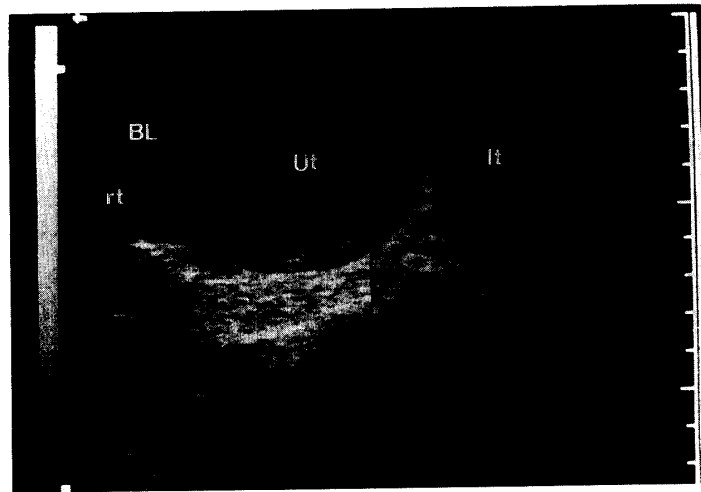


Fig. 1 Transverse view of bilateral pyosalpinx. lt; left tube, rt; right tube, Ut ; uterus, BL; bladder.

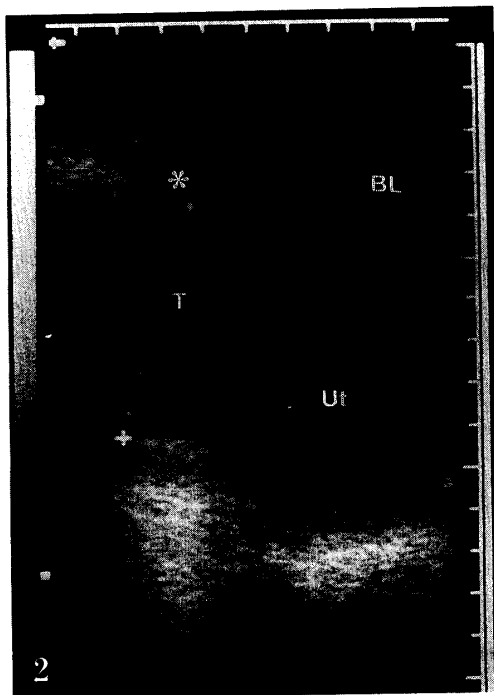


Fig. 2 Longitudinal scan of the rupture of endometrial cyst (T). Intraperitoneal fluid collection (*) was evident. Ut; uterus, BL; Bladder.

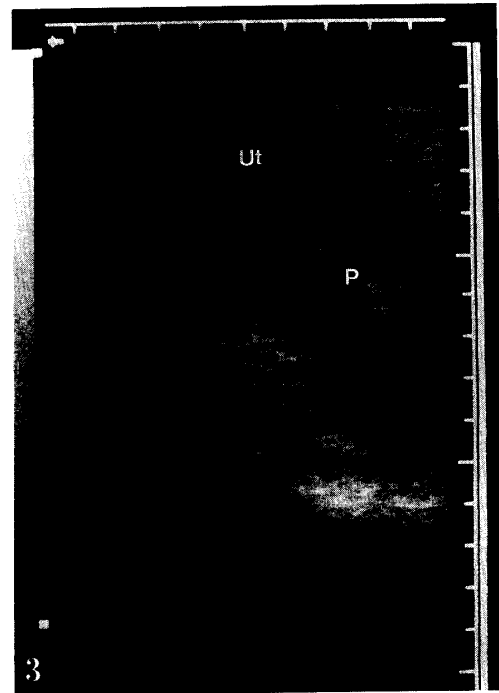


Fig. 3 Longitudinal view Ultrasonogram of retention of placenta (P). Ut; uterus.

recognized (Fig. 2). In cases of retention of the placenta, excessive genital bleeding may occur at puerperium. Ultrasonography clearly reveals the placenta in uterine cavity (Fig. 3). In one patient with an abscess in Douglas pouch, the ultrasonographic findings indicated an ovarian cyst, and another bilateral endometrial cysts were evident. Here the diagnosis by ultrasound was bilateral pyosalpinx.

DISCUSSION

In emergency cases requiring an immediate diagnosis and treatment, one of the most reliable and rapid methods is to make use of ultrasonic equipment (2). However, the limitations also have to be considered. The resolution of ultrasonography is disturbed by dense materials such as metallic objects, bone, calcium deposits, and barium because of a too potent reflection of the sound beam. In case of an open wound, ultrasound can not be used. Obesity, a hyperactive bowel and an empty urinary bladder are also contraindications for use of ultrasound examination (3). Various applications of ultrasound in emergency cases were reported in detail by Kossoff et al. (2). They emphasized the significance of ultrasound as a first-aid device. Shea & Agahababian (3) reported that the definitive diagnosis was made by ultrasound in 18 cases out of 43 patients (40.9%). In our study, ultrasound provided pertinent and/or definite information in 45 out of 47 patients (95.7%). This result was partially attributed to development of a high-resolution ultrasonic apparatus, well-compeled information on features of the ultrasonic presentation of various intrapelvic pathogenic changes, and experience of the sonographer.

Many authors reported that the ultrasonographic appearances of ovarian cyst and pelvic abscess showed a close resemblance (4-13). Torsion or rupture of ovarian cysts showed a similar ultrasonographic and clinical findings to those of acute PID, including abscess. In case of ovarian torsion, an unusually thick wall or mixed low level internal echo corresponding to organized hematoma was clearly recognized, and fluid collections in cul-de-sac could not be detected in major cases (14). On the other hand, ovarian tumor complicated with rupture presented as a pelvic mass with a well-defined far wall and fluid collection in the cul-de-sac (13). Fleischer et al. (6) reported that the

tubo-ovarian abscess might be distinguished from other cystic tumors because of the characteristic fusiform shape, and peritoneal abscess might be differentiated due to the position in cul-de-sac which was commonly lower than the adnexae. Berland et al. (12) stated that fluid collection was typical finding in cases of tubo-ovarian abscess. We failed to detect pelvic mass in 2 cases of PID and endometrial cyst, using ultrasound. Taylor et al. (15) reported that the ultrasonically correct diagnostic rate of pelvic abscess was 93%, and the rate was 94.7% (18 out of 19 cases) in our study.

CONCLUSION

Real-time ultrasonographic examinations were performed on 47 with obstetric and gynecologic emergencies and conclusive evidences to make an accurate diagnosis were obtained in 45 of 47 cases (sensitivity=95.7%). Therefore, the real-time ultrasound is a pertinent tool for making a correct diagnosis in various obstetric and gynecologic emergencies.

ACKNOWLEDGEMENTS

We thank M. Ohara for advice on the manuscript.

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