

Endovaginal ultrasound in patients at risk for repeated abortion

G. FADDA - L. FIORI - P. ARE - G. AMBROSINI

Summary: Transvaginal echography was used to examine 78 asymptomatic patients at their first ultrasound examination, at risk for repeated abortion in the first trimester of pregnancy. The purpose of this study was to evidenciate, in the initial stages of pregnancy, reliable echographical evidence that can be used as a prognostic value on the future course of pregnancy.

The normal sequential appearance of the yolk sac, of the embryo and of the fetal heart activity have proved to be reassuring criteria on the course of pregnancy in 87% of the cases. Non-echographic visualization of the yolk sac has been associated in 48% of the cases to short-term abortion, whereas an abnormally low embryonic growth rate represents a risk-factor for medium-term abortion in this group of patients.

Key words: Transvaginal echography; Repeated abortion.

INTRODUCTION

Ultrasound examination using a high-frequency vaginal probe is a technique that has recently been introduced in obstetrics. Its use during the first trimester of pregnancy permits the obtaining of images of higher quality and finer definition compared to conventional techniques in at least 2 out of 3 cases (¹).

The possibility of focussing closely on the structure, by using these high-frequency probes at their best, anticipates diagnostic and prognostic values of pre-

gnancy by at least one-week, especially in the initial phase when reproductive failure is most frequent (²). Taking into consideration the fact that incidence of abortion in 24% (³) of women with previous reproductive failure, compared to the 5% in those patients with previously favourable reproductive results, showing that the majority of abortions occur in the initial stages of pregnancy, it is evident that transvaginal echography represents the most reliable method of giving diagnostic and prognostic values on the current course of pregnancy.

Using the transvaginal echography we examined a series of patients at risk for repeated abortion, in order to evidenciate echographical aspects that can predict the outcome of those pregnancies where no clinical symptoms of threatened abortion are present.

University of Sassari
School of Medicine
Department of Obstetrics and Gynecology

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MATERIALS AND METHODS

Seventy-eight patients were examined in this study at the 5th week of pregnancy, verified echographically, who had previous obstetrical history of two or more abortions during the first trimester. The age range was between 23 and 36 years with a medium age of 26.

The occurrence of previous spontaneous abortion was comprised between a minimum of 2 to maximum of 4 with a medium of 2.3. The following causes of abortion were excluded: anatomical defects of the Muller duct, genetic abnormalities of the couple, infections, hormonal deficits, metabolic diseases. All patients were asymptomatic at the time of ultrasound examination.

Echography was performed weekly on every patient starting from the 4th to the 13th week of gestation by using a 5Mhz vaginal probe attached to a Toshiba Sonolayer 100.

The following signs, in chronological order, were considered prognostically favourable:

- Primary yolk sac (5th).
- Primary yolk sac and embryo heart activity (6th week).
- CRL growth not less than the 10^o percentile (the following weeks).

RESULTS

Of the 78 patients, 56 (72%) had a favourable pregnancy outcome; in the normally evolving pregnancies we recognized a chronological order in the appearance of absolutely normal embryo structures (Table 1), a reassuring sign for the remaining period of pregnancy: the yolk sac was visualized during the course of the 5th week in 50 of 56 cases (89%) and in all the patients (100%) at the 7th week. There were no cases of CRL lower than the 10th percentile. The incidence of spontaneous abortions was 28% (22/78), with a higher

Table 2. — *Period and frequency of embryonal structures appearance in the interruption of pregnancies.*

	5 ^a sett.	6 ^a sett.	7 ^a sett.
Embryonal structures visualized			
Yolk sac only	9/22 (41%)	—	—
Embryo + FHA + yolk sac	—	9/17 (53%)	—
Embryo + FHA + without yolk sac	—	3/17 (17.6%)	—
Embryo without FHA and yolk sac	—	5/17 (29.4%)	—

occurrence during the initial stages of pregnancy (Table 2).

The yolk sac appeared during the 5th week of gestation in only 9 (41%) out of the 22 cases of abortion. Echographical examination at the 6th week revealed 5 anembryonic pregnancies; of the remaining 17 cases, 9 carried an embryo with heart activity and yolk sac present; 3 revealed embryos with heart activity but no yolk sac and 5 carried an embryo with neither heart activity or yolk sac. The latter 8 cases, where no yolk sac was present, aborted a few weeks after, between the 8th and 11th week. Three of these cases had a CRL lower than the 10th percentile.

DISCUSSION

According to various authors^(4, 5), transvaginal visualization of the yolk sac in the metrorrhagia caused by threatened abortion during the first trimester represents a favourable prognostic value in pregnancy outcome, especially in the initial stages when the embryo and heart activity are still not evident. In fact, the yolk sac is

Table 1. — *Period and frequency of embryonal structures appearance in the normal evolving pregnancies.*

	5 ^a sett.	6 ^a sett.	7 ^a sett.
Yolk sac	50/56 (89%)	56/56 (100%)	—
Embryo + FHA	—	48/57 (84%)	56/56 (100%)

visualized with a vaginal probe in 98% of the normal pregnancies and its appearance indicates the 5th week of gestational age⁽⁶⁾. On the other hand, its visualization is reduced to 40-50%, varying from case to case, during bleeding in threatened abortion^(4,7). In our study the percentage of visualization was greatly reduced (41%) in those cases that led to abortion; in the cases of brief term abortions, no yolk sac visualization was possible.

In the 9 out of 66 (13%) cases where embryo, heart activity and yolk sac were visualized, the abortion was reported, regardless of favourable prognostic values. In 3 of these cases the CRL was lower than the 10th percentile, presupposing a precocious growth defect that leads these embryos to abortion.

CONCLUSION

In these patients at risk for repeated abortion, once we exclude the more frequent traditional causes, the rate of abortion remains high, especially in the initial stages of pregnancy. Weekly transvaginal echographic examination can be useful in the early evaluation of negative prognostic values, such as the absence of the yolk sac, frequently associated (59%) with brief-term interruption of pregnancy. The sequential visualization (yolk sac, embryo, heart activity) of embryonic structures between the 5th and 7th week immediately verifies the embryos conditions, although

in some cases (13.6%) pregnancy outcome may be negative even if these values are present. From the facts stated above, a CRL lower than normal can represent a negative prognostic criteria.

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Address reprint requests to:
G. FADDA

Istituto di Ginecologia ed Ostetricia
Viale S. Pietro, 12
07100 Sassari