

Abortive Retroperitoneal Ectopic Pregnancy Followed Up by Ultrasound: A Case Report

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Research

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Abstract

Background: Ectopic pregnancy can be life-threatening. Most of ectopic pregnancy located in the fallopian tube. But retroperitoneal ectopic pregnancies are extremely rare.

Results: We report a 29-year-old Chinese woman with amenorrhea for 50 days presented to emergency department for abdominal pain. Her serum β -hCG level was 1675mIU/ml.

Transvaginal sonography showed irregular anechoic area in uterine cavity without pregnancy sac echo. And nothing wrong was found in bilateral adnexa. Abdominal ultrasound showed a mixed echo region behind the pancreas. The clinical diagnosis was retroperitoneal ectopic pregnancy. The patient's vital signs remained stable with the mass size continue decreased . Because of the huge surgery risk, the mass was followed up by ultrasound closely.

Conclusions: 5 months after bleeding, the fourth ultrasound follow-up examination showed the mass disappeared completely and serum β -hCG level was normal .

Background

Ectopic pregnancy is the implantation of a fertilized egg outside the uterine cavity which can be life-threatening. About 97% of ectopic pregnancy located in the fallopian tube. Only 1% of ectopic pregnancies are abdominal, among these, retroperitoneal ectopic pregnancies (REP) are extremely rare[1]. Huang et al calculated there are only 26 cases of retroperitoneal ectopic pregnancies during the past decades had been reported[2]. REP has a greater risk of rupture, surgery and methotrexate injection are the choises of treatment[2–5].

Methods

We report the case of an early trimester REP which was abortive. The patient's vital signs remained stable with the mass size of ectopic pregnancy continue decreased. The risk of surgery is huge, the mass was followed up by ultrasound closely.

Results

A 29-year-old Chinese woman (gravida 2, para 1) with amenorrhea for 50 days presented to emergency department for abdominal pain. Her serum β -hCG level was 1675mIU/ml. Transvaginal sonography showed irregular anechoic area (2.5cm \times 1.5cm \times 0.8 cm) in uterine cavity without clear pregnancy sac echo (Fig. 1). And nothing wrong was found in the bilateral adnexa. Abdominal ultrasound examination revealed a mixed echo region (4.2cm \times 3.3 cm) behind the pancreas, between inferior vena cava and aortaventralis with regular shape and clear boundary. There were two anechoic areas (1.5cm \times 1.2 cm and 1.4cm \times 0.8 cm) inside with posterior echo enhancement. We observed that there was a nonecho lesion (0.4 cm) in the bigger anechoic area like a yolk sac. Color Doppler flow imaging (CDFI) showed a few blood flow signals around the mixed echo (Fig. 2). Abdominal computed tomography (CT) scan

showed a round mixed density image (4.0cm × 3.0 cm) behind the pancreas (Fig. 3). The clinical preliminary diagnosis was retroperitoneal ectopic pregnancy.

Amenorrhea for 53 days, the patient suffers from vaginal haemorrhage on the way to the superior hospital. Bleeding day 1, contrast-enhanced CT revealed a slightly high-density image (3.9cm × 3.6 cm) with obscure boundary at posterior to the head of the pancreas and anterior to the inferior vena cava. The CT value was 70HU without enhancement. CT suggested there was a retroperitoneal ectopic pregnancy. The serum β -hCG level was 420.5 mIU/ml. The clinical diagnosis was abortive retroperitoneal ectopic pregnancy. Due to the decrease of the mass size and the HCG level, patient's vital signs remained stable, the risk of surgery is huge, at the end, the mass was followed up by ultrasound closely.

Vaginal bleeding stopped spontaneously 2 days later. 7 days after bleeding, the serum β -hCG level was 61.4 mIU/ml. The first ultrasound follow-up examination showed the echo of the mass (3.7cm × 3.5 cm) behind the pancreas changed. Two nonecho areas inside disappeared and the interior was filled with flocculent hypoecho (Fig. 4). Transvaginal ultrasound showed the absence of intrauterine effusion.

49 days after bleeding, the patient's the serum β -hCG level was close to normal (< 0.1 mIU/ml). The second ultrasound follow-up examination showed there is an increase of cystic components in the internal flocculent hypoecho. And the size of mix echo mass was 3.0cm × 2.7 cm.

3 months after bleeding, the third ultrasound follow-up examination showed the position of the mass (1.7cm × 1.5 cm) was close to the back of the pancreatic body with more homogeneous and lower echo (Fig. 5). CDFI showed that the peripheral blood flow signal disappeared.

5 months after bleeding, the fourth ultrasound follow-up examination showed the mass posterior to the pancreas disappeared completely (Fig. 6).

Discussion

Ectopic pregnancy should be closely combined with the patient's history of menopause and the blood (urine) HCG. Meanwhile, it can be diagnosed by ultrasound showed that there was no pregnancy sac in the uterus, embryo and primitive cardiac tube pulsation were found outside the uterus. This patient has a history of menopause with HCG positive. No pregnancy sac in the uterus was detected in the uterus the first time, there was nothing wrong in the bilateral adnexa. A mixed echogenic mass was seen behind the pancreatic body. Abdominal ultrasound showed the yolk sac - like anechoic region inside, which provided an important information for the diagnosis of ectopic pregnancy. Transvaginal ultrasound showed nonecho area in the uterine cavity, which was considered to be a phantom pregnancy bursa. During the treatment, the serum β -hCG level continuously decreased, the mass volume gradually decreased, the internal echo changed, and the ultrasound showed no blood flow inside, all of which supported the abortion of retroperitoneal ectopic pregnancy.

Most of ectopic pregnancy located in the fallopian tube, others like cervical canal, cesarean scar, ovary and abdominal ectopic pregnancy have been reported. Retroperitoneal ectopic pregnancies are extremely rare. REP is difficult to diagnose, while delays can lead to higher morbidity and mortality[6–9]. Most ectopic pregnancies have a history of ectopic tubal pregnancy or ectopic tubal surgery and in vitro fertilization[10]. However, this patient had no such history. The cause of retroperitoneal ectopic pregnancy is still unclear. Some scholars have shown that it may be caused by the following reasons 1) active embryonic villi may enter the retroperitoneum after fallopian tube injured or ruptured and invaded blood vessels and causing hematoma 2) the fertilized egg travels through the lymphatic system to the retroperitoneal space, similar to the lymphatic metastasis of malignant tumors 3) a fistula is formed between the end of the fallopian tube and the retroperitoneum after salpingectomy, so that the uterus is directly identical to the retroperitoneum[2, 10, 11]. The diagnosis of retroperitoneal ectopic pregnancy should be differentiated from diseases such as retroperitoneal mass and traumatic hematoma. The most important point of differentiation is that retroperitoneal ectopic pregnancy is supported by a history of menopause and a positive blood (urine) HCG test.

In terms of treatment, early abdominal ectopic pregnancy takes exploratory laparotomy mostly. In some cases, laparoscopic surgery was performed to reduce bleeding and hospital stay compared to conventional surgery [5, 12, 13]. Compared with other ectopic pregnancies, retroperitoneal ectopic pregnancies are more difficult to operate. Injuries to the attached organs of the pregnancy are also more common. Some researches reported methotrexate injection can effectively reduce bleeding and protect future fertility[2, 5, 14]. This case was found earlier. The pregnancy sac was located in retroperitoneal, the anatomy is really complex. The cystic structure similar to the yolk sac can help to differentiate. The patient's vital signs were stable during the treatment, the serum β -hCG levels and mass volume declined gradually, while cystic components increased. All above is the tendency to spontaneous abortion, so observation was used.

Conclusions

Therefore, ultrasound plays an important role in the diagnosis of retroperitoneal ectopic pregnancy. Timely detection is helpful to the early diagnosis and is of great significance to the treatment of patients.

Abbreviations

REP: retroperitoneal ectopic pregnancies; CDFI: color Doppler flow imaging; CT: computed tomography

Declarations

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Availability of data and materials

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Authors' contributions

All authors have contributed significantly to this paper. TY, LY and YX analyzed and interpreted the patient data and other cases. YJ revised the manuscript. All authors contributed to interpretation of the data, and read and approved the final manuscript.

Competing interests

The authors declare that they have no competing interests.

Consent for publication

Consent for publication was provided by the parents, whom we thank for the help.

Ethics approval and consent to participate

The Institutional Review Boards of the Peking Union Medical College Hospital (PUMCH) approved this study.

Data sharing and supplemental materials

Data sharing not applicable to this article as no datasets were generated or analyzed during the current study. There are no supplemental materials

associated with this article.

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Figures

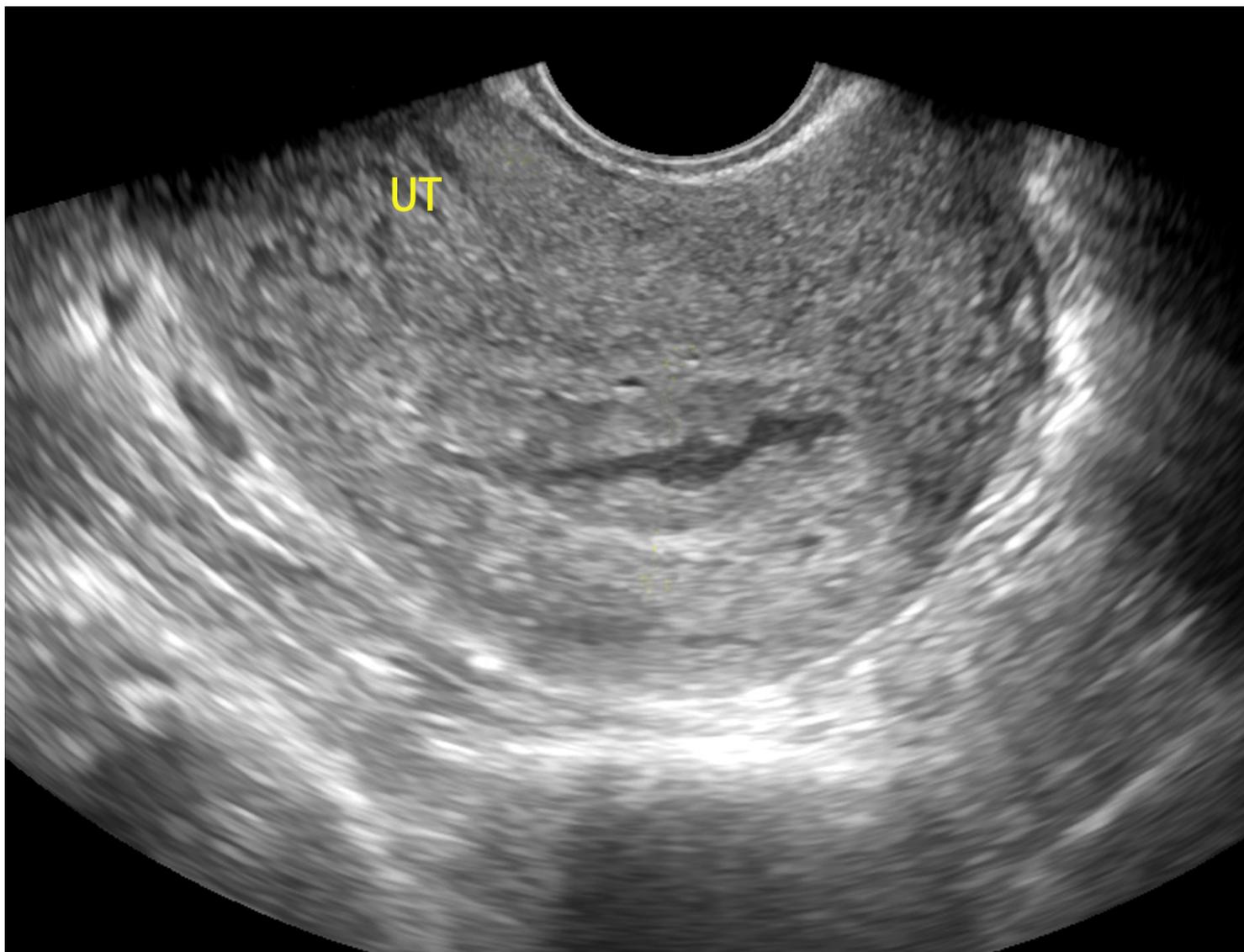


Figure 1

Amenorrhea for 50 days, transvaginal sonography showed irregular anechoic area in uterine cavity without clear pregnancy sac echo. UT= uterus

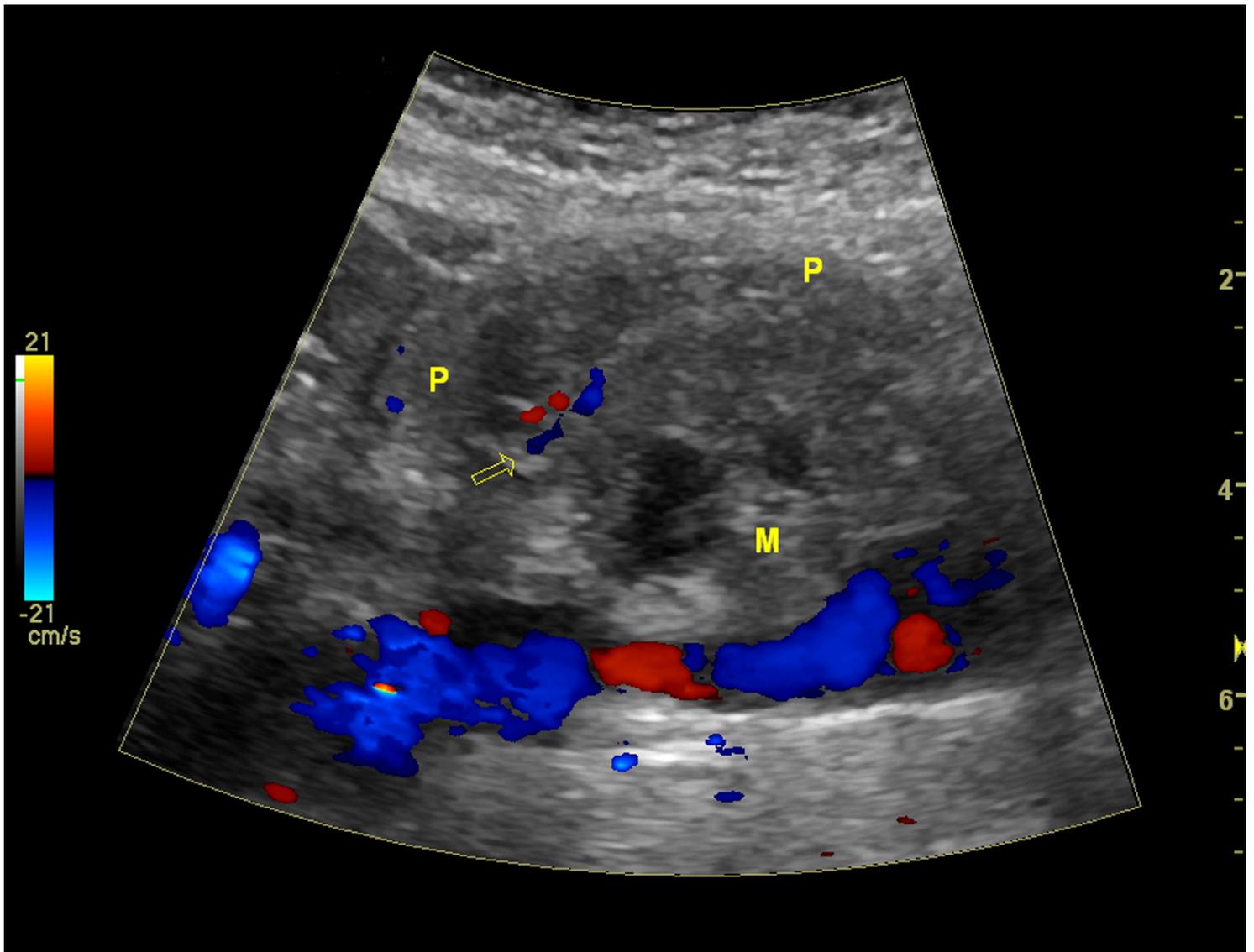


Figure 2

Amenorrhea for 50 days, abdominal ultrasound examination revealed the mass behind the pancreas. CDFI showed a few blood flow signals around the mixed echo (arrow). P= pancreas M= mass

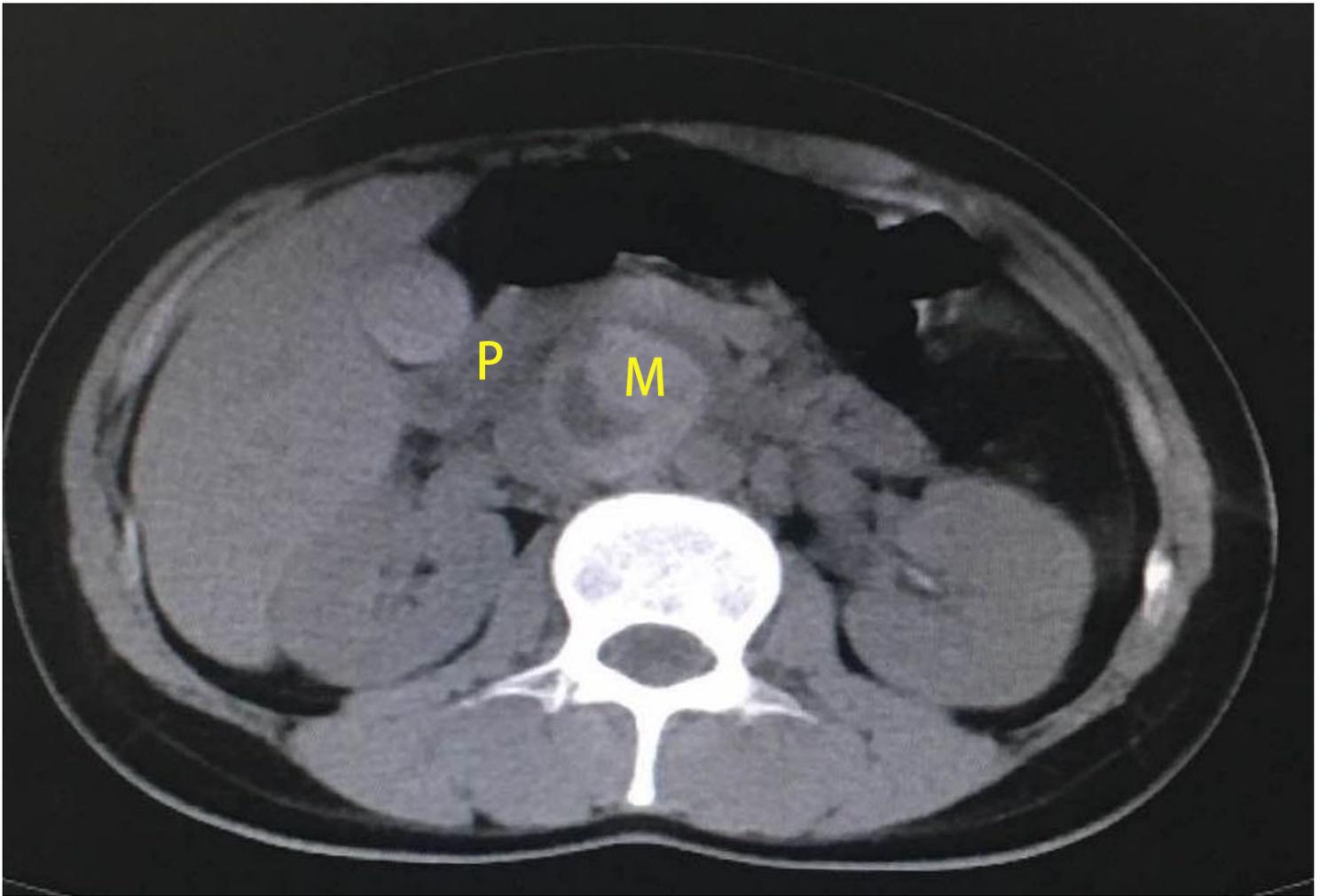


Figure 3

Amenorrhea for 50 days, CT showed a round mixed density image behind the pancreas. P= pancreas M= mass

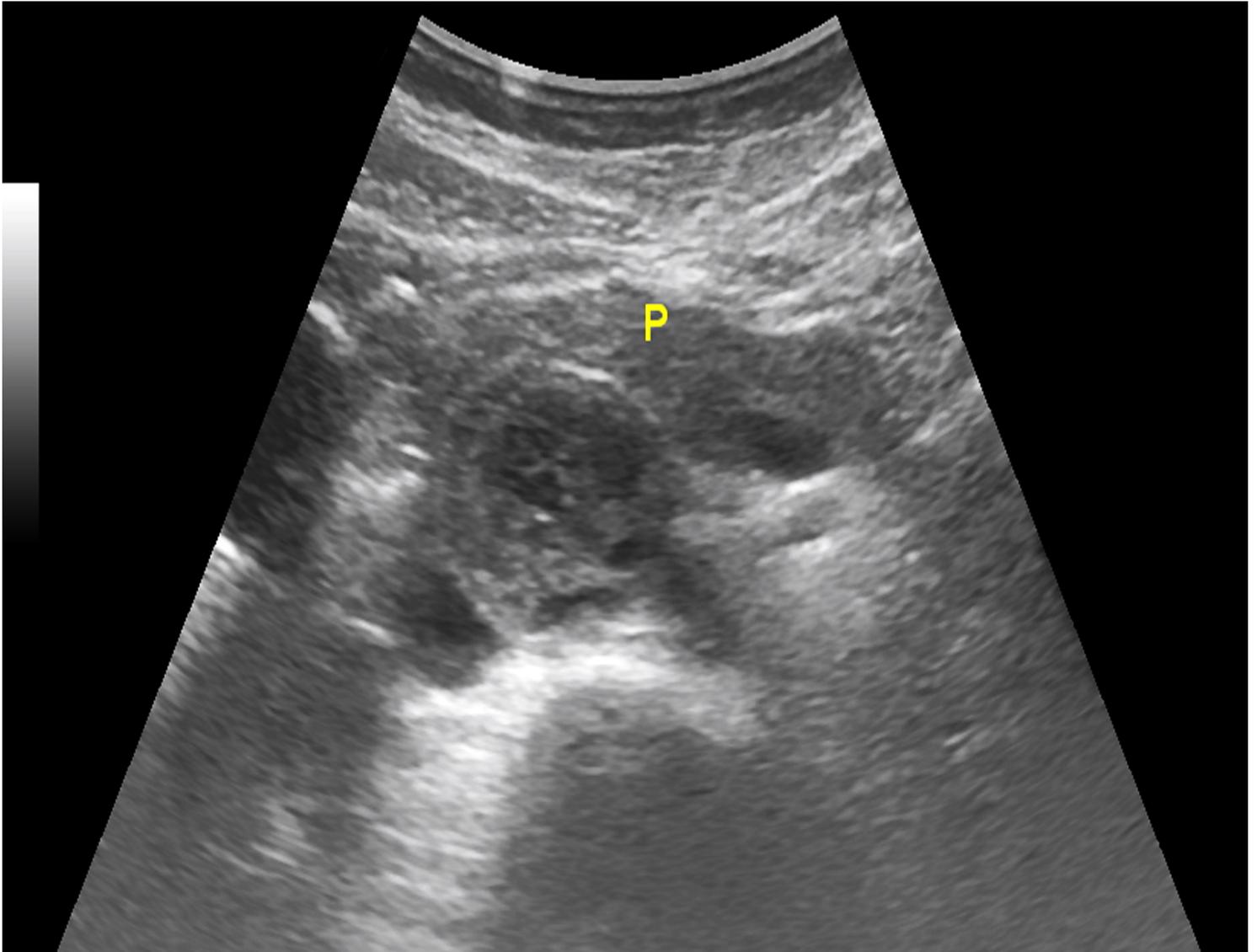


Figure 4

7 days after bleeding, the first ultrasound follow-up examination showed two nonecho areas inside the mass with behind pancreas disappeared and the interior was filled with flocculent hypoecho. P= pancreas M= mass

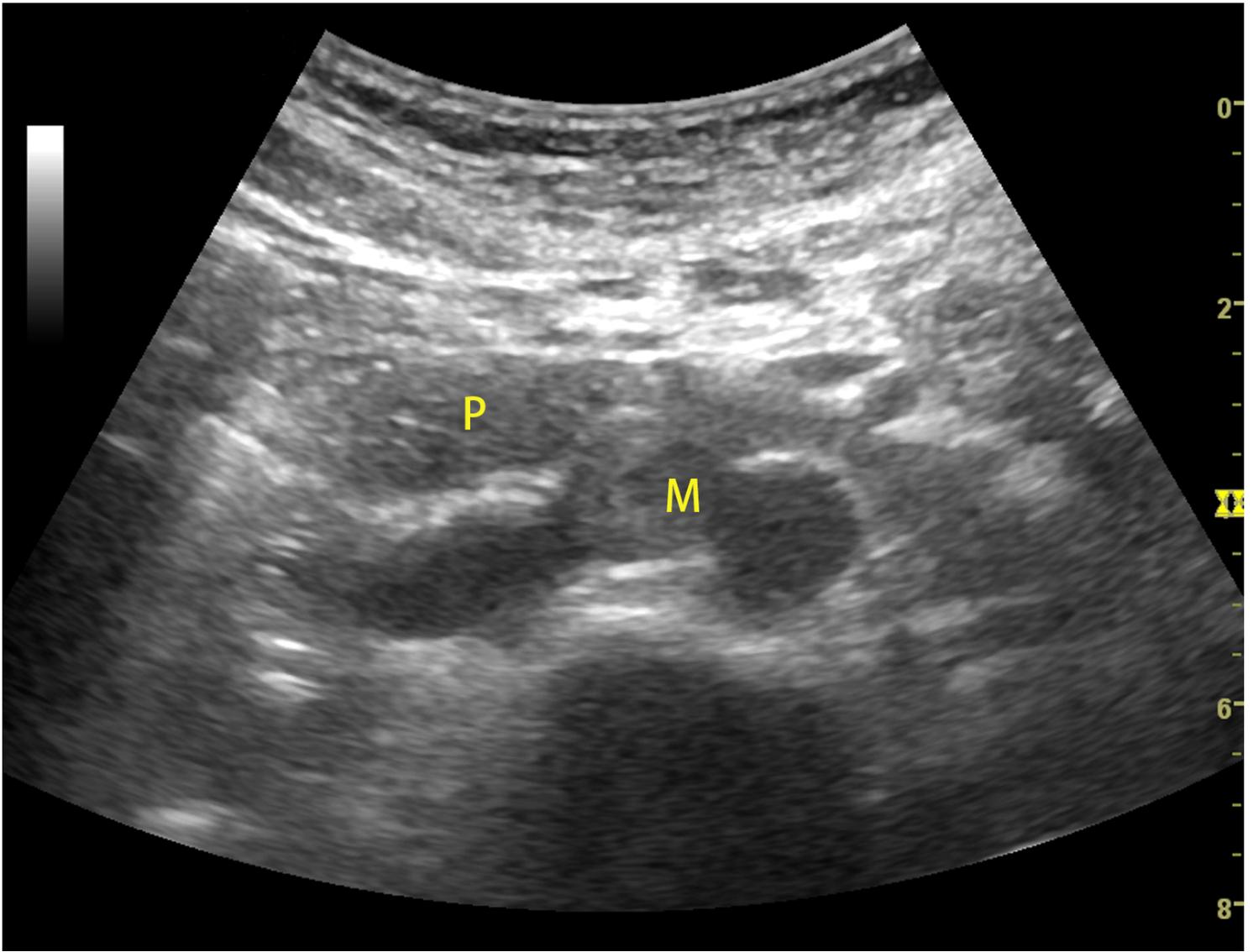


Figure 5

3 months after bleeding, the third ultrasound follow-up examination showed the position of the smaller mass was close to the back of the pancreatic body with more homogeneous and lower echo. P= pancreas M= mass



Figure 6

5 months after bleeding, the fourth ultrasound follow-up examination showed the mass posterior to the pancreas disappeared completely. P= pancreas M= mass