นิพนธ์ต้นฉบับ

Transvaginal sonography in gestational trophoblastic disease

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Hydatidiform moles are not only a common obstetric problem in Asian countries, but they also pose a major threat during the first year of follow-up. Serum β-hcG seems to be invaluable in detecting the malignant potential of these moles. However, standard abdominal sonography does not offer much diagnostic value, especially of invasive moles or choriocarcinoma. In our series, persistent trophoblastic disease diagnosed in our oncology clinic during the follow-up period was studied; transvaginosography was performed and the results presented, which is pathognomonic for the diagnosis of invasive moles, is described and its future role as part of investigation is discussed.

Key word : Transvaginal sonography, gestational trophoblastic disease.

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นอกจากครรภ์ไข่ปลาอุกจะเป็นภาวะแทรกซ้อนทางสูติศาสตร์ที่พบบ่อย การติดตามผู้ป่วยในปีแรกมีความสำคัญเพราะร้อยละ 15-20 มีโอกาสที่เปลี่ยนแปลงไปเป็นมะเร็งได้ การตรวจด้วยฮอร์โมน β-hCG มีความสำคัญที่สุดเพราะช่วยค้นพบโรคดังกล่าวก่อนที่จะมีอาการหรืออาการแสดงทางคลินิก การตรวจด้วยคลื่นเสียงความถี่สูงช่วยวินิจฉัยภาวะ Invasive moles หรือ Choriocarcinoma ได้ ส่วนการตรวจด้วยวิธีอื่น เช่น Magnetic resonance imaging แม้ว่าจะแม่นยำกว่า แต่มีข้อเสียคือราคาแพง การใช้คลื่นเสียงความถี่สูงทางช่องคลอดเพื่อวินิจฉัยโรคมีข้อดี คือ เห็นภาพชัดเจนกว่าการตรวจทางหน้าท้อง เนื่องจากหัวตรวจอยู่ใกล้ชิดกับมดลูก เนื่องจากยังไม่เคยมีรายงานการศึกษาด้วยการตรวจทางช่องคลอดมาก่อน ผู้วิจัยจึงขอเสนอผลการตรวจผู้ป่วยและแสดงภาพ "Coin lesion" ที่เห็นได้ชัดเจนจากการตรวจทางช่องคลอด เชื่อว่าจะมีประโยชน์ในการติดตามผู้ป่วยครรภ์ไข่ปลาอุกโดยเฉพาะที่ระดับของฮอร์โมน β-hcG ไม่ลดลงตามปกติ และค้นหารอยโรคในกล้ามเนื้อมดลูกได้

Patients with gestational trophoblastic disease are frequently seen in Asian countries and remain challenging in terms of clinical approach.[1,2] Most hydatidiform moles regress in nearly all cases (80%), but the rest eventually develop into malignancies, i.e. invasive moles or choriocarcinoma.[3,4] Serum /β-hcG is an invaluable, universally accepted standard tumor marker. It is used not only in diagnosing malignant changes, but also in monitoring the clinical course during follow-up.[5] The other investigation currently being utilized to establish diagnosis includes pelvic ultrasonography, angiography, computerized tomography or magnetic resonance imaging.[6] However in clinical practice, inaccuracies, technique difficulties and costs are major disadvantages of those techniques Incomparison, transvaginosonography is of there technique easy, convenient, less time-consuming and requires only standard expertise in ultrasonographic maneuvers.

This is the first report of cases with persistent trophoblastic diseases seen at the Trophoblastic Clinic, Chulalongkorn Hospital.

Material and Method

Following treatment of hydatidiform mole cases with suction curettage or D/C (in some undiagnosed cases), patients entered the Trophoblastic Clinic for careful follow-up and monitoring of serum /β-hCG titers. Standard pelvic sonography was performed to evaluate all cases with rising or persistent serum β-hcG titers during the period 1987-1990. Beginning in May 1989, we introduced transvaginosonography, using transducer, type 8538 with 7 mHz (Bruel Kjaer Type 1846) for evaluation of all cases diagnosed as having persistent trophoblastic disease and who had persistent or rising /β-hcG titers. Patients, with bladders having been emptied, were put into the lithotomy position; the scans were performed in the longitudinal and transverse positions. The anatomic midline representing the endometrial echo was identified and detailed myometrial textures were recorded.[4] Then both adnexae were scanned for ovarian images. There were 12 cases whose trophoblastic diseases became persistent, and diagnosed sonographic-ally. All except the first one received chemotherapy for malignancy control and were subsequently in remission more than six months. Four underwent operation for their life-threatening condition and histologic confirmation was obtained.

Result

Table 1. Selected characteristics and sonographic results of 12 patients.

No.	Age	Gravida	Complaint	Time	Sonographic results
1.	47	G6P4	Persistent bleeding	10 days	Retained moles
2.	22	G3P1	Heavy bleeding	6 wks	Invasive moles
3.	33	G2P1	Shock	8 wks	Invasive moles
4.	23	G2P1	Respiratory distress	1 yr	Choriocarcinoma
5.	24	G1P0	No	8 wks	Invasive moles
6.	19	G2P1	No	6 wks	Invasive moles
7.	23	G2P1	No	10 wks	Invasive moles
8.	29	G2P0	No	10 wks	No lesion
9.	28	G1P0	No	8 wks	No lesion
10.	23	G3P1	Spotting (7 days)	10 wks	No lesion
11.	26	G1P0	No	7 wks	No lesion
12.	27	G1P0	Spotting (10 days)	8 mos	No lesion

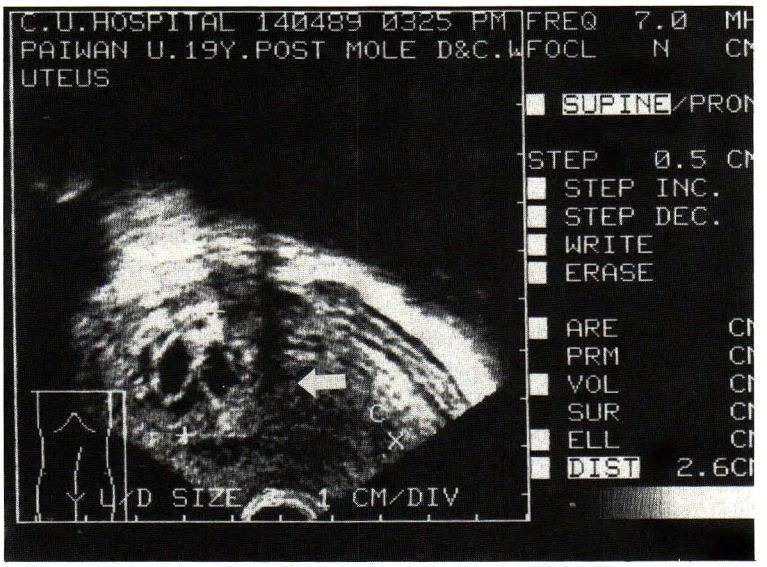

Figure 1a. Endovaginal sonography showing coin lesion at uterine fundus.

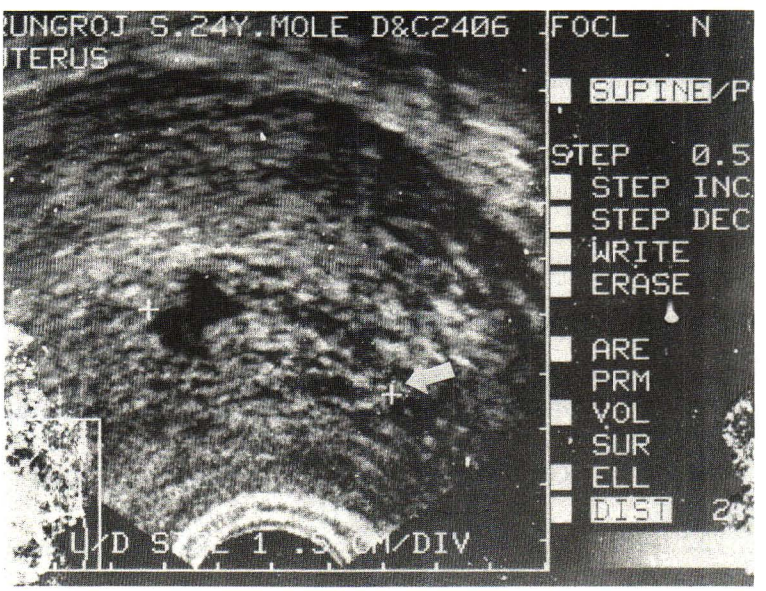

Figure 1b. This is another image showing a typical coin lesion.

This image shows a longitudinal scan of the uterus. A linear thin echo indicating the endometrium and the cavity is empty, without residual moles. Note the cystic cavitation with heterogeneous echo (arrow), which is compatible with coin lesion. Total abdominal hysterectomy was performed the lesion proved to be invasive moles. Also note the distance of the lesion to the serosal surface of the myometrium (patient no.3).

A solitary tumor nodule, hyperechoic, with a well-defined border, homogeneous, 5 cm in size was observed. Total abdominal hysterectomy was performed and the lesion proved to be choriocarcinoma with central tumor necrosis. The patient had three successive courses of actinomycin D, but showed no response in terms of β-hcG titer. After surgery and additional chemotherapy, she is now in remission (Patient no.4).

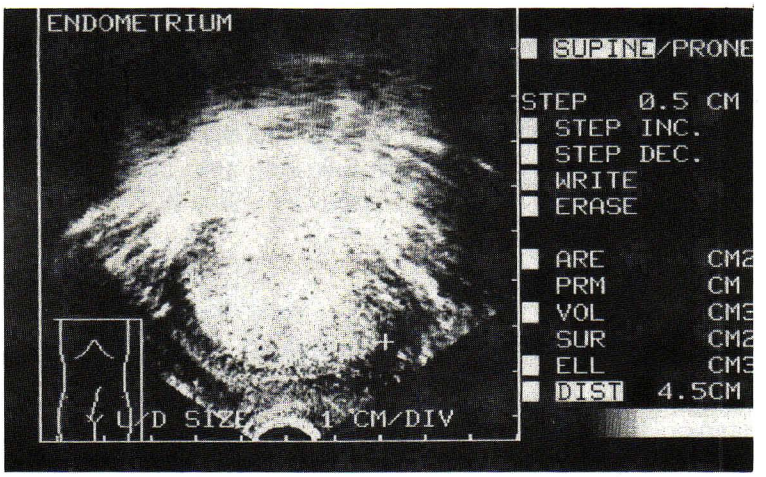

Figure 2. Endovaginal sonography showing choriocarcinoma nodule anterior uterine wall.

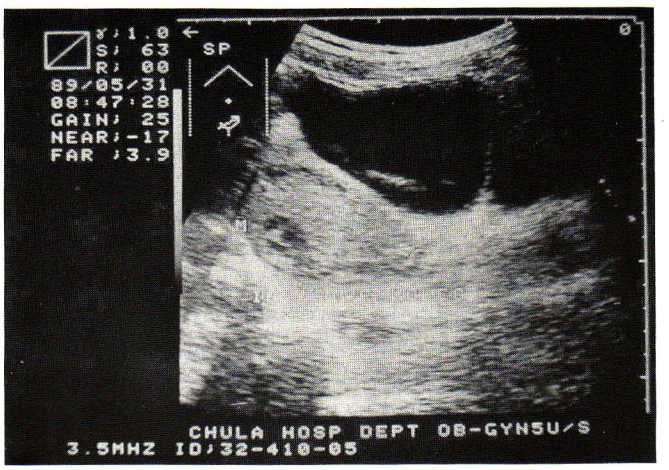

Figure 3. Pelvic sonography showing coin lesion.

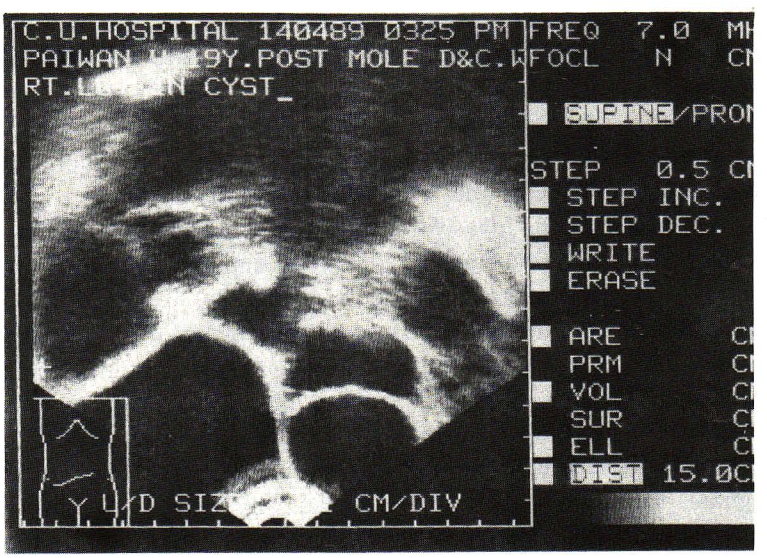

Figure 4. Endovaginal sonography showing right thecalutein cyst.

Compared with Fig.1, the pelvic sonography of patient no.6 showed a typical coin lesion.

Patient no.10 demonstrated right the calutein cyst. In this case, there was evidence of rising β-hCG titer during follow-up at 10 weeks after evacuation of hydatidiform moles. There was no demonstrated lesion in the myometrium.

In this study, we selected only those patients who had persistent or rising β-hcG titers during follow-up after molar abortion. Summary data are shown in table 2.

Table 2. The transvaginosonographic diagnosis of 12 cases of persistent trophoblastic disease.

Sonographic diagnosis	No.	Pathology confirmed*
Choriocarcinoma	1	1
Retained molar tissue	1	1
Invasive moles	5	3
No lesion	5	0

*Surgical specimen for histopathologic study obtained from total abdominal hysterectomy.

Discussion

Following the surgical evacuation of hydatidform moles, serum β-hCG was used as a tumor marker for monitoring the disease until its level declined to normal (less than 5IU/L) or, when the titers were not regressing, detection of malignant change in a period averaging eight weeks following molar evacuation, plateau or rising titer. Traditionally diagnostic curettage should be done to rule out evidence from retained moles so that persistent trophoblastic disease could be diagnosed by a rising serum β-hCG titer.[7] In the past, in a small number of cases, we could demonstrate lesions compatible with invasive moles by pelvic ultrasonography. Pelvic angiography is even more difficult to perform and a certain level of morbidity is unavoidable because of the invasive nature of the operation. Thus, transvaginosonography in combination with serum β-hCG titer measurement will be of unquestionable value with regard to the greater amount of information gained from the evaluation of cases diagnosed as having persistent trophoblastic diseases. After extensive review, we found no other data concerning the role of transvaginosonography in malignant trophoblastic disease. The findings of cystic cavitation as a result of destructive myometrial tissue imaging and increased blood flow in venous channels surrounding the lesion were compatible with coin lesion. Even though we could confirm the diagnosis by histopathologic study in only four out of 12 cases, the four lesions demonstrated by transvaginal sonography were diagnosed correctly. Since these malignant trophoblastic diseases are highly responsive to chemotherapy, surgical treatment should be reserved only for cases with a life-treatening condition or refractory to chemotherapeutic treatment.[8] Thus, it is not possible to test the diagnostic accuracy of sonographic evaluation against the pathologic study of surgical specimens as a "golden standard". However, we are confident that lesions demonstrated in the endometrial cavity and the myometrium could be correctly diagnosed as retained moles and invasive moles or choriocarcinoma, respectively. This diagnostic method is convenient and easy to perform, which makes it superior to other forms of investigation.

Finally, we suggest that transvaginosonography should be included in the investigation schemes for cases with persistent trophoblastic disease, so that more information concerning abnormal anatomic lesions could be obtained. Further study is now being undertaken to correlate data concerning the lesions depicted by sonography and their response to chemotherapy, so that the natural course of these lesions can be studied and a more appropriate treatment plan may be chosen.

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