

## CASE REPORT

# Imperforate hymen with hematocolpometra combined with elevated Ca125

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**Abstract:** In the present case, ultrasound examination ruled out the presence of hematosalpinx or other gynecological tumors. This was of great importance to the surgical intervention, especially for avoiding laparotomy. Dilatation of the vagina and uterus, due to imperforate hymen with retrograde menstruation should be considered in the differential diagnosis of abdominal pain in premenarchal girls (Fig. 2, Ref. 15). Full Text (Free, PDF) [www.bmj.sk](http://www.bmj.sk).

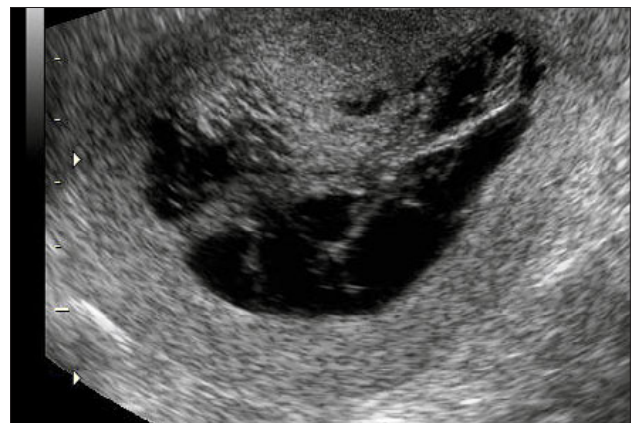
**Key words:** imperforate hymen, hematocolpometra, elevated Ca125, gynecological tumors, ultrasound examination.

An imperforate hymen is one of the main conditions where secretions and menstrual products may accumulate in reproductive system. The imperforate hymen is a rarely observed gynecologic abnormality, which is caused by pathologic changes of the embryologic reaction of urogenital sinus and Mullerian ducts (1, 2). Prior to menarche, the imperforate hymen can only be diagnosed by a thorough gynecologic examination, because the patient is usually asymptomatic, although an infantile hydrocolpometra may develop if uterine and vaginal secretions are stimulated by maternal estrogen production (3). Following menarche, this congenital abnormality will cause symptoms and may be identified as hematocolpos, hematometra or hematosalpinx (4).

Serum Ca125 is considered a tumor marker, which is most extensively used in ovarian cancer screening (5). Although Ca125 is elevated (>35 U/ml) in more than 80% of patients with epithelial ovarian cancer, it has only 25 % sensitivity for an early stage disease. Ca125 does not seem to play a notable role in the early detection of a malignant gynecologic tumor and is not specific for ovarian carcinoma because it can be elevated in many benign conditions such as endometriosis, uterine fibroid, pelvic inflammatory disease, ascites or pleural effusion (7).

The following report illustrates a case of clinically suspected hematocolpometra with the preoperative finding of blood accumulated in the uterus confirmed by ultrasound examination.

A 15-year old girl, who has not attained menarche, presented to the Department of Obstetrics and Gynecology of the University of Athens (Alexandra Hospital) with a 48-hour history of



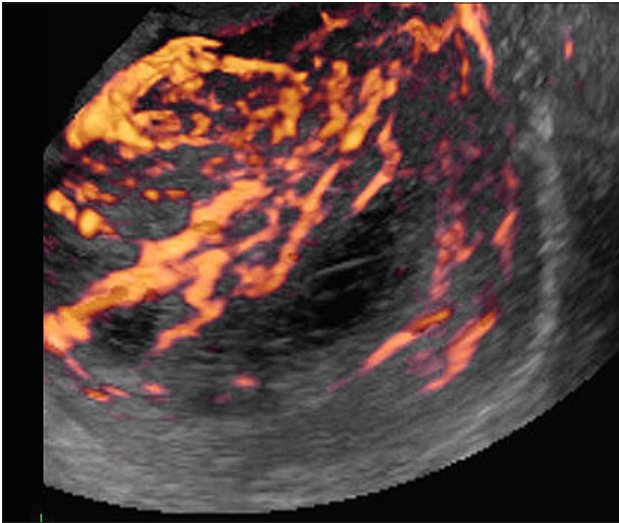
**Fig. 1.** Sonographic appearance of an enlarge vagina and endometrial cavity filled by blood and clots.

constant lower abdominal pain. She also noted urinary frequency and dysuria. Secondary sex characteristics were well developed. The patients stated that she had never been sexually active and reported no vaginal discharge. Her medical history was unremarkable and she took no medications. Examination of the abdomen revealed tenderness of the left lower quadrant and suprapubic region on palpation with rebound. Examination of the perineum revealed an intact, closed hymen. Rectal examination demonstrated a bulging, bluish mass in the upper portion of the pelvis extending to the rectum. Differential diagnosis of hematocolpos, hematometra or hematosalpinx could not be made. Bimanual examination and sonographic evaluation was requested.

An ultrasound examination demonstrated a dilatation of the vagina, an enlarged endometrial cavity filled with echogenic material (blood) and low-amplitude echoes associated with sonolucent fluid-filled areas (Fig. 1). Power Doppler sonography revealed vascularization with complex branching pattern (Fig. 2).

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**Fig. 2. Vacularization of a blood filled endometrial cavity revealed by Power Doppler sonography.**

Laboratory tests showed an elevated WBC ( $15000/\text{mm}^3$ ) and also an increased Ca125 (70 U/ml). An intravenous pyelogram did not reveal a disorder of the genito-urinary tract. These findings were suggestive of hematocolpometra. The patient underwent of hymenectomy under general anesthesia. A gush of  $1500 \text{ cm}^3$  of chocolate-colored fluid was noted from the dilated vagina. The patient was discharged on the fourth postoperative day without complications. On the 7 day of follow-up, the patient reported that her symptoms resolved and serum Ca125 decreased to normal level ( $<35 \text{ U/ml}$ ).

## Discussion

An imperforate hymen is usually not associated with other congenital abnormalities, although cases of uterine and vaginal duplication in unilateral renal agenesis with hematocolpometra have been reported (4, 9). In some cases, a definitive preoperative diagnosis of the level of occlusion can not be detected by clinical methods alone. Ultrasound studies are of significant diagnostic value.

Ultrasonography is useful and noninvasive tool for examining the occluded genital tract (8). It can identify different blood filled portions of the occluded genital tract and can differentiate hematometra or hematocolpos. The imperforate hymen is the most frequent congenital disorder of the female genital tract with retained menstrual blood in the vagina, and in some cases, in the upper part of the genital organs and presents as primary amenorea (10).

Hematometra is usually described as an echo free mass within a distended uterus (11). The obstruction of uterine drainage is the primary abnormality, and in the pediatric and premenstrual age groups, this is due to congenital anomalies of the reproductive system. Except the imperforate hymen, other causes include a transverse vaginal septum and vaginal atresia (3). In older women, the obstruction is usually acquired and occurs at the level of cervix (12).

Hematocolpos in the adult has also been reported. The urinary tract obstruction can develop from the effect of the mass. Initial symptoms may be on the urethra (13). In adults, hematocolpos resulting from a complete vaginal occlusion has been reported in an uncomplicated postmenopausal vaginal atrophy, vaginal fibromyomas, inflammatory lesions with labial synachiae, and as a consequence of radiotherapy for cervix carcinoma or packing of the vagina with salt (13).

Hematocolpometra, secondary to an imperforate hymen, generally presents at puberty when symptoms arise from the retention of menstrual blood or from bladder outlet obstruction secondary to compression of the urethra. Sonograms show the vagina as an echo tree tubular structure with a bulging posterior fornix and a sono lucent blood-filled uterus.

It is suggested that in between the cycles the blood is accumulated in the easily distensible vagina whereas the uterine distension is likely to be apparent during days of bleeding only coinciding with the days of lower abdominal discomfort. The progression of the condition may lead to filling up of the fallopian tubes (14). An attempt should be made to assess the associated hematosalpinx, a rare complication, which is associated with poor prognosis.

The presence of pelvic mass in a patient suggests the possibility of a gynecological malignancy. However, an increasing number of non-neoplastic causes of elevated Ca125 have been reported. In patients seen at a tertiary center, Ca125 was associated with non-malignant causes in 13 %. Although higher Ca125 levels were more strongly associated with gynecological malignancies, none Ca125 level occurred exclusively with gynecological cancers. In patients with serum Ca125  $>65 \text{ U/ml}$ , a subspecialty consultation should be considered before proceeding to surgery (15).

In our case, an ultrasound examination ruled out the presence of hematosalpinx or other gynecological tumor. This was of great importance for the surgical intervention, especially avoiding laparotomy. A dilatation of the vagina and uterus, due to the imperforate hymen with retrograde menstruation should be considered in the differential diagnosis of abdominal pain in premenarchal girls.

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