Learning Objectives: To discuss the scan technique, patient positioning, and anatomic consideration for adrenal sonography in adult patients; and to demonstrate the sonographic appearance of the normal adrenal gland. To illustrate the sonographic findings of various pathologies of the adrenal glands with CT, MR, and pathologic correlation.

Background: Unlike in children, adrenal glands are most challenging structures to evaluate on sonography in adults. Because the adrenal glands are located deeply in the abdomen, 2.5 MHz low frequency transducer is often adequate. On sonography, the adrenal gland is less echogenic than the surrounding perirenal fat, and the medulla is evident as a highly echogenic central linear structure.

Imaging Findings or Procedure Details: Sonography of the adrenal glands in adult patients. I. Scan technique, patient positioning, and anatomic consideration for adrenal sonography. II. Sonographic Appearance of normal adrenal glands in adult patients. III. Various pathology of adrenal glands: sonographic findings with CT, MR, and pathologic correlation. IV. Potential role of contrast-enhanced sonography for adrenal lesion.

Conclusion: Although its capability has been overlooked, sonography can be a useful screening tool for adrenal masses in adult patients. An awareness of scanning tips with proper patient positioning and an understanding of sonographic peri-adrenal anatomy illustrated in this exhibit are essential for radiologists to perform adrenal sonography.

GOP / Gynaecology

US Findings of Uterine and Ovarian Malignant Mixed Mesodermal Tumors

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Purpose: To describe the uterine and ovarian ultrasonographic (US) findings of malignant mixed mesodermal tumors (MMMTs), rare gynecologic tumors which typically present in elderly postmenopausal women.

Material & Methods: The US findings of pathologically proven uterine (n = 12) and ovarian (n = 4) MMMTs were retrospectively analyzed in terms of the size, location, shape, echogenicity, vascularity, local invasion, distant metastasis, etc.

Results: Of 12 uterine tumors, 4 were in the uterine fundus, 3 in the body, 4 in both, and 1 in the cervix. Ten cases showed myometrial invasion, and five showed distended endometrial cavity. Ovarian and lymph node metastases were found in three cases, ovarian involvement in two, and later lung metastasis in two. Bulky polyloid mass projecting into the uterine cavity was the most common US findings (n = 8). Of four ovarian tumors, two were in the left ovary, one in both, and one in the right. Uterine surface involvement was present in one case, peritoneal seeding in one, and distant metastasis in two. Uterine or ovarian MMMTs (mean diameter of 5.2 cm, range: 2.7-14.3 cm) appeared as large irregular heterogeneously hypoechoic (n = 6), isoechoic (n = 6) or hyperechoic (n = 2) masses with necrotic/hemorrhagic portions (n = 5) and increased blood flow signals (n = 10).

Conclusion: Familiarity with the US findings of uterine and ovarian MMMT may facilitate the diagnosis and differential diagnosis from other gynecologic tumors.

Endometrial Thickness in Different Cutoff Points for Predicting Abnormal Endometrium in Vietnamese Women with Postmenopausal Bleeding

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Purpose: To determine the optimal cutoff points for endometrial thickness (ET) in the diagnosis of abnormal endometrium in postmenopausal Vietnamese women with postmenopausal bleeding.

Methods: A total of 100 postmenopausal women with postmenopausal bleeding were prospectively enrolled. ET was measured using transvaginal ultrasound. The sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and accuracy of ET were calculated.

Results: The mean ET was 6.8 mm. The optimal cutoff points for ET were: 5.0 mm for predicting endometrial atrophy (sensitivity = 80.9%, specificity = 94.9%, PPV = 88.9%, NPV = 90.3%, accuracy = 92.6%); 7.0 mm for predicting hyperplasia (sensitivity = 72.2%, specificity = 94.9%, PPV = 88.9%, NPV = 90.3%, accuracy = 92.6%); and 8.0 mm for predicting endometrial carcinoma (sensitivity = 60.0%, specificity = 98.4%, PPV = 91.7%, NPV = 92.6%, accuracy = 94.9%).

Conclusion: The optimal cutoff points for ET in postmenopausal Vietnamese women with postmenopausal bleeding are 5.0 mm for predicting endometrial atrophy, 7.0 mm for predicting hyperplasia, and 8.0 mm for predicting endometrial carcinoma.
Hemoperitoneum Secondary to Rupture of a Uterine Fibromyoma and Hemorrhagic Cyst
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Purpose: Introduction: the most common cause of gynaecological hemoperitoneum is ruptured ectopic pregnancy. Other causes include rupture of ovarian cyst or uterine fibromyoma. We present a case with rupture from two gynaecological lesions.

Material & Methods: Case report: A 53-year-old Chinese female complained of lower abdominal pain, giddiness, cold sweat, diarrhoea and nausea. UPT was negative. Portable ultrasound scan revealed a 4.3 x 3.2 x 5 cm left subserous hypoechogenic mass Fluid+ was noted in the pelvis. A repeat scan in the ultrasound department demonstrated a 4.5 x 3.7 x 3.5 cm heterogeneous mass arising from the left fundus. Although its features were not typical, the impression was that of a pedunculated fibromyoma. A solid cystic mass of 2.8 x 2.2 x 2.5 cm noted in the left adnexal region may represent a hemorrhagic or dermoid cyst. Echogenic fluid+ was noted in the pelvis and upper abdomen. CT scan noted a well-defined ovoid 3.8 x 3.4 cm enhancing mass in the left hemipelvis. A non-enhancing component that broke the otherwise smooth outline of the mass may represent the rupture of a portion of the lesion.

Results: Laparotomy was performed. Intraoperatively, there was a 5-cm ruptured bleeding pedunculated fibromyoma; a 5-cm left ovarian bleeding hemorrhagic cyst and hemoperitoneum in the pelvis and upper abdomen.

Conclusion: Rupture from more than one pelvic mass would need to be considered in women with massive hemoperitoneum.

In Echo Pattern Classification of Ovarian Masses of JSUM 2000, the Probability of Malignant and Borderline Malignant Tumors is Shown as Percentage
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Purpose: The echo pattern of ovarian masses was classified into six types in EPCOM of JSUM 2000; probability of malignant and borderline malignant tumors (PMBMT) of type 1, 2 and 3 were below 3%; type 4, about 30%; type 5, about 70%; type 6, about 30%. In this study, the ultrasound equipment used were all transabdominal machines using 3.5-5.0 MHz, from 1988 to 1992, containing 22% of malignant and borderline malignant (MBM) cases.

Material & Methods: After that, the transvaginal sonography became popular and more precise image by 5.7-5.5 MHz transvaginal could be visualized. So, from 1997 to 2000, about 228 cases of ultrasonogram with a mixture of abdominal and vaginal images were analyzed retrospectively using these EPCOM and the result was presented at JSUM 2001. The results were: PMBMT of type 1, 2, and 0%; type 3, 2%; type 4, 3%; type 5, 70%; type 6, 30%.

Results: To stabilize the probability of each echo pattern, we added the newly collected 166 transvaginal sonograms partially with transabdominal sonograms from 2008. The total 594 cases with MBM rate of 28% were analyzed and the results were: PMBMT of type 1, 0%; type 2, 6%; type 3, 1%; type 4, 5%; type 5, 67%; and type 6, 30%.