VP66.10
A pilot study on the differential diagnosis of uterine leiomyoma subtype and sarcoma by contrast-enhanced ultrasound

Y. Zhu, K. Yuan, D. Lin, W. Liu, Y. Huang, Z. Xu

Medical Ultrasonics, Seventh Affiliated Hospital, Sun Yat-Sen University, Shenzhen, Guangdong, China

Objectives: To explore the value of contrast-enhanced ultrasound (CEUS) in the differential diagnosis of leiomyoma subtypes and sarcomas.

Methods: To collect the cases of uterine leiomyoma or suspected sarcoma of uterine mass found by preoperative ultrasound examination, and to observe perfusion of the pelvic organs by bolus injecting contrast agent (Sonovue, Bracco France) through the middle elbow vein with a dose of 2.4 ml. According to the location of the focus, the imaging data of CEUS were collected by abdominal or vaginal ultrasound and stored. The perfusion features in lesions were analysed by two experienced sonologists. The sensitivity, specificity, PPV and NPV of CEUS features for leiomyoma subtypes (common, hypervascular or cellular, degenerative) and sarcomas according to the pathological results were compared.

Results: From January 2019 to March 2020, 30 cases with 36 uterine lesions (maximum diameters 67mm ± 23mm) with pathological results were included in this study. There were 13 common myomas, 17 myomas with cellularity or hypervascularity, 6 common myomas with local or entire hyaline degeneration and 2 uterine. The features of CEUS for the three leiomyoma subtypes and sarcoma were: from peripheral-ring to tree-branching enhancement for common myoma, feather-like higher enhancement with clear boundary for cellular or hypervascular myoma, local or entire hypo-perfusion for degenerative myoma, and uneven high enhancement without regular border associated with large areas of non-enhancement for sarcoma. The sensitivities were 100%, 94.1%, 83.3% and 100% ($P<0.05$). The specificities were 95.6%, 94.7%, 93.3% and 100% ($P>0.05$). The PPV were 92.9%, 94.1%, 71.4% and 100% ($P<0.05$). The NPV were 100%, 94.7%, 96.6% and 100%, respectively ($P>0.05$).

Conclusions: For the characteristic enhancement features, CEUS can accurately distinguish uterine leiomyoma from uterine sarcoma, and help to identify the subtypes of myoma by evaluating the blood supply and distribution in the lesion.

VP66.11
Clinical and ultrasound characteristics of ovarian carcinosarcomas

F. Ciccarone[1], A. Biscione[1], C. Codecà[1], C. Ettore[2], D. Fischerová[3], L. Savelli[4], L. Valentin[5], R. Fruscio[6,7], V. Chiappa[8], D. Franchi[9], D. Timmerman[10,11], P. Sladkevicius[5], L. Jokubkiene[5], W. Froyman[10,11], G. Scambia[1,12], A.C. Testa[1,12]

[1]*Dipartimento Scienze della Salute della Donna, del Bambino e di Sanità Pubblica, Fondazione Policlinico Universitario Agostino Gemelli, IRCSS, Rome, Italy;* [2]*Dipartimento di Scienze Mediche e Chirurgiche, Sezione di Ostetricia e Ginecologia. AOU Policlinico G. Rodolico, Università di Catania, Catania, Italy;* [3]*Department of Obstetrics and Gynecology, First Faculty of Medicine, Charles University, Prague, Czechia;* [4]*Department of Obstetrics and Gynecology, S. Orsola-Malpighi Hospital, University of Bologna, Bologna, Italy;* [5]*Department of Obstetrics and Gynecology, Lund University, Skåne University Hospital, Malmö, Sweden;* [6]*Bicocca, Department of Medicine and Surgery, San Gerardo Hospital, Monza, Italy;* [7]*Clinic of Obstetrics and Gynecology, University of Milano, Milan, Italy;* [8]*Department of Gynecologic Oncology, IRCCS National Cancer Institute, Milan, Italy;* [9]*Gynecologic Oncology Unit, Division of Gynecology, IEO, European Institute of Oncology, IRCCS, Milan, Italy;* [10]*Department of Development and Regeneration, KU Leuven, Leuven, Belgium;* [11]*Department of Obstetrics and Gynecology, University Hospitals Leuven, Leuven, Belgium;* [12]*Dipartimento Scienze della Vita e Sanità Pubblica, Università Cattolica del Sacro Cuore, Rome, Italy*

Objectives: To describe clinical and ultrasound features of ovarian carcinosarcomas (OCS).

Methods: This is a multicentre retrospective study. From the International Ovarian Tumor Analysis (IOTA) database we identified 24 patients with histological diagnosis of OCS, who had undergone preoperative ultrasound examination by an experienced ultrasound examiner between 2000 and 2020. Another 64 patients with the same histology were identified from the databases of the Departments of gynecological oncology in the participating centres. All tumours were described using IOTA terminology. In addition, two authors reviewed all available ultrasound images and described them using pattern recognition.

Results: Median age of the 88 patients was 67 (range 33-91) years, and 81/88 (92%) were postmenopausal. 66/88 (75%) were symptomatic and the most common complaint was pain (50/88, 56.8%). Most patients were FIGO Stage III/IV (64/88, 72.7%). On ultrasound, the median diameter of the lesion was 100 mm (range 18-260). Bilateral lesions were observed in 45 (51.1%) patients. The vast majority of tumours were described as solid (64/88, 72.7%) and multilocular-solid (21/88, 23.8%). Irregular margins were reported in 85/88 (96.6%) cases. Moderate or rich vascularisation was found in 74/88 (84 %) cases.

Retrospective analysis of available ultrasound images using pattern recognition documented that many tumours appeared as a solid mass with irregular margins and cystic areas or a multilocular-solid mass with irregular margins.

Conclusions: Ovarian carcinosarcomas were usually detected at advanced stage, in symptomatic and postmenopausal women. The typical ultrasound image was a large irregular solid tumour with cystic areas. A multilocular-solid morphology was also observed. Most OCS manifested moderate or rich vascularisation.

VP66.12
Ultrasound-guided biopsy: feasibility in a "non-oncologic centre"

F. Buonomo[1], C.F. De Almeida[1], S. Bussolaro[2], D. Mordeglia[2], F. Romano[1], G. Ricci[2,1]

[1]*Institute for Maternal and Child Health, IRCCS 'Burlo Garofolo', Trieste, Italy;* [2]*University of Trieste, Trieste, Italy*

Objectives: This study demonstrates that ultrasound-guided biopsy is a safe procedure that gives suitable samples for histopathology and immunohistochemistry tests.

Methods: Between August 2017 and Maj 2020 at Gynecological Department of the University of Trieste-IRCCS Burlo Garofolo, minimally invasive ultrasound tru-cut biopsy was performed in 24 patients. Indications were poor healthy status or primary inoperable disease, suspicious recurrence or metastasis of gynecological or non-gynecological malignancy.

Results: 25 biopsies were obtained on 25 patients. An adequate sample was obtained in 24/25 (100%) biopsies (in one case, a very small endometrial cancer recurrence: positive at biopsy punch, negative at tru-cut). The final histology was in agreement in all patients 24/25 (96.9%) but one. Histopathological examinations showed 2 benign lesion and 23 malignant tumours: 1 (4%) benign lesion in a patient with a history of cervical cancer, 24 (92%) malignant gynecological lesions and 1 (4%) non-gynecological malignant tumour. Among the malignant lesions, there were 18/24 (75%) primary tumours, 5/24 (20.8%) recurrent tumours, and 1/24

(4.2%) metastases from non-genital cancer. Final histology was not in agreement with the results from transvaginal ultrasound-guided biopsy in 1 of 25 patients (4%); in particular, benign disease at transvaginal ultrasound-guided biopsy was malignant at final histology (one cases of small recurrence of an endometrial cancer). No major complications were reported.

Conclusions: Ultrasound guided tru-cut biopsy has showed a low rate of complications and it is adoptable as a standard diagnostic procedure due to the higher success rates not only in gynecologic oncology centre. Nevertheless it requires ultrasound expertise with manual skill and knowledge of the pelvic and abdominal anatomy. It allows to broadening the spectrum of interventions offered also in patients otherwise not always surgically investigable.

VP66.13

Preoperative assessment of myometrial and cervical invasion in endometrial cancer by transvaginal sonography versus magnetic resonance imaging

F. Buonomo[1], G. Fabiola[2], C.F. De Almeida[1], F. Romano[1], G. Ricci[1,3]

[1]*Institute for Maternal and Child Health, IRCCS 'Burlo Garofolo', Trieste, Italy;* [2]*Biostatistic Unit, Department of Medical, Surgical and Health Sciences, University of Trieste, Trieste, Italy;* [3]*University of Trieste, Trieste, Italy*

Objectives: The aim is to compare the accuracy of 2D-TVUS and MRI, in the evaluation of the tumour local extension, myometrial and cervical invasion.

Methods: From October 2013 to May 2020 we recruited retrospectively 136 women. A preoperative TVUS in 136 and RMI in 122 were made to define myometrial and cervical infiltration in comparison to histological results

Results: in our 136 cases, myometrial infiltration was 50% or more in 79 women (58%) and no or less than 50% in 57 (42%).The depth of myometrial invasion was correctly assessed by US in 70 patients and was misclassified in 15 patients. Transvaginal sonography overestimated 15 (11%) and underestimated 8 (5.8%) patients. Overall, TVS diagnostic accuracy, sensitivity, specificity, PPV, and NPV values for myometrial invasion were 83%, 89.7%, 73.7%, 82.4% and 84%, respectively. Magnetic resonance imaging could correctly predict the depth of any myometrial invasion in 98 (80.3%) patients. Of the 122, 24 (19.6%) patients were misclassified on MRI. Myometrial invasion was overestimated in 11 (9%) cases and underestimated in 13 (10.6%) cases. MRI correctly detected 57 (81.4%) of 70 patients with deep myometrial invasion. Overall, diagnostic accuracy, sensitivity, specificity, PPV, and NPV values for myometrial invasion were 80.3%, 81.4%, 78.8%, 83.8% and 75.9%, respectively. Regarding the parameter "myometrial infiltration neoplastic more or less than 50%", ultrasound demonstrates better sensitivity than MRI (SE: 89.7% vs. 81.4%) while specificity results equivalent (SP: 73.3% vs. 78.8%).

Conclusions: TVUS has a role as a first imaging technique in order to suspect the myometrial invasion and cervical involvement in women affected by endometrial cancer, especially in low-risk cases. TVUS is cheap, repeatable and not harmful.

VP66.14

Ultrasound-guided interventional techniques in gynecology: our experience of eight years

M.D. Rodriguez, M. Martin Esquilas, M. Belloso, T. Costas, I. Ibars

Gynecology and Obstetrics, CAUSA, Salamanca, Spain

Objectives: Pelvic mass is a common diagnosis in our department. An accurate diagnose needs anatomopathological diagnosis. Biopsy material may be obtained using a minimally invasive technique guided by ultrasound. We describe the experience in our hospital.

Methods: Descriptive retrospective study of ultrasound-guided interventional techniques performed in causa gynecology service from 2012 to 2020.

Results: 40 procedures have been performed. 16 cNB, 10 FNAC, 10 FNAC + cNB and 4 evacuations drainages. Mean patients age was 58.63 years old (19,5 SD). Local anesthesia was used in the 75% of patients. In 29 patients the access point was transabdominal, while in 11 patients the route was transvaginal. Regarding ultrasound diagnoses, 30% of patients had a solid pelvic mass, 10% had a solid mass associated with ascites, 5% had a cyst mass, 5% had a cystic mass associated with ascites, 10% had carcinomatosis peritoneal, 10% had ecomixed mass, 7.5% had ecomixed mass associated with ascites, 10% had only ascites, 7.5% had a pelvic abscess and 5% had other ultrasound diagnoses. Technical success was possible in 97.5% of cases; only in one patient there was a failed drainage. Obtaining enough material for study was possible in 80%. The other 20% were diagnostic paracentesis with not enough sample for immunohistochemistry. There were not any important complications; only 11 patients suffered light pain in the puncture site and 5 patients developed superficial hematoma.

Conclusions: Use of ultrasound-guided interventional techniques is a useful tool in the field of gynecology. They are safe techniques with very low complication rate. Pathological diagnosis can be achieve with minimal aggressiveness and without radiation for the patient. Although technique is operator-dependent, gyne and obstetric professional use to performance other ultrasound-guide interventions such as amniocentesis, which improves their learning curve.

VP66.15

Ultrasound features of borderline tumours at a tertiary centre

R. Mendes Silva[1], P. Ambrósio[2], A. Lacerda[2], M.D. Bernardo[2], R. Mira[2]

[1]*Obstetrics, Gynecology and Reproductive Medicine, Hospital de Santa Maria/CHULN, Lisbon, Portugal;* [2]*Gynecology, Maternidade Alfredo da Costa/CHLC, Lisbon, Portugal*

Objectives: To assess ultrasound features of borderline ovarian tumours (BOT) treated at our centre.

Methods: Retrospective observational study at a Portuguese gynecologic oncology unit, of a series of BOT during nine years (2011–2020). All cases were diagnosed at our unit. Data was retrieved from printed and digital clinical records, regarding clinical and sonographic features of BOT. All known women submitted to surgery at our centre with a histological diagnosis of BOT were included.

Results: We identified 20 women with a postoperative diagnosis of BOT median age was 59.5 (32–80) years and most women (65%) were postmenopausal. Carcinogen antigen 125 (CA-125) level was normal in 50% and raised (>200 U/mL) in 20% of women. Out of the 20 BOT, there were 11 (55%) mucinous and 9 (45%) serous. Regarding the ultrasound features, the majority was multilocular-solid (35%), followed by multilocular cystic (40%), unilocular-solid (20%) and solid (5%) tumours. The median maximal diameter of the lesion was 142 (30–340) mm and two cases were bilateral. Solid component was identified in 60% of our sample, mainly due to the presence of papillae (n = 10/12). Vascularisation of the lesions was assessed in 14 cases, being mostly classified as colour score 2 (35%), followed by colour score 3 (30%). There was only one case classified as colour score 1. Three (15%) multilocular cystic lesions only presented benign sonographic features, 10 (50%) were suggestive of a malign tumour and the remaining were inconclusive, according to IOTA Simple Rules.

Conclusions: Sonographic diagnosis of BOT is always a challenge but, in line with the available data, nearly all of our cases presented sonographic suspicious features of malignancy.