Date: 21 December 2017

Sources Searched: Embase, Medline

Preoperative Diagnosis of Leiomyosarcoma

1. Magnetic Resonance Imaging Grading System for Preoperative Diagnosis of Leiomyomas and Uterine Smooth Muscle Tumors

Author(s): Suzuki Y.; Wada S.; Nakajima A.; Fukushi Y.; Hayashi M.; Matsuda T.; Sato C.; Fujino T.; Asano R.; Sakurai Y.; Noguchi H.; Shinohara T.

Source: Journal of Minimally Invasive Gynecology; 2017

Publication Date: 2017

Publication Type(s): Article In Press

Abstract: Study Objective: To evaluate a new magnetic resonance imaging (MRI) grading system for preoperative differentiation between benign and variant-type uterine leiomyomas including smooth muscle tumors of uncertain malignant potential (STUMPs). Design: Retrospective analysis (Canadian Task Force classification III). Setting: Teaching hospital (Teine Keijinkai Hospital). Patients: Three-hundred thirteen patient medical records were retrospectively reviewed if treated for uterine myomas and diagnosed with variant type leiomyomas or STUMPs (n = 27) or benign, typical leiomyomas (n = 286) and treated between January 2012 and December 2014. Intervention: Uterine myoma classifications using MRI findings according to a 5-grade system (grades I-V) based on 3 elements. Measurements and Main Results: Uterine myoma MRI classifications were based on 3 elements: T2-weighted imaging (high or low), diffusion-weighted imaging (high or low), and apparent diffusion coefficient values (high or low; apparent diffusion coefficient -3 mm2/sec was considered low). Grades I to II were designated as typical or benign leiomyomas, grade III as degenerated leiomyomas, and grades IV to V as variant type leiomyomas or STUMPs. Accuracy levels were 98.9%, 100%, 94.3%, 58.8%, and 41.9% for grades I through V lesions, respectively. The grades were divided into 2 groups to discriminate benign leiomyomas and STUMPs (grades I-III were considered negative and grades IV-V positive). Grades IV to V scored 85.2% for sensitivity, 91.3% for specificity, 47.9% positive predictive value, 98.5% negative predictive value, a 9.745 positive likelihood ratio, and a .162 negative likelihood ratio. Conclusion: This novel MRI grading system for uterine myomas may be beneficial in differentiating benign leiomyomas from STUMPs or variant type leiomyomas and could be a future effective presurgical assessment tool.Copyright © 2017 American Association of Gynecologic Laparoscopists.

Database: EMBASE

2. A Multicentre Retrospective Review of Clinical Characteristics of Uterine Sarcoma.

Author(s): Wais, Marta; Tepperman, Elissa; Bernardini, Marcus Q; Gien, Lilian T; Jimenez, Waldo; Murji, Ally

Abstract:OBJECTIVEProfessional societies have recently urged gynaecologists to counsel patients about the risks of encountering uterine sarcoma at fibroid surgery especially when morcellation is used. Our objective was to learn the preoperative and postoperative characteristics of patients with uterine sarcoma to better counsel patients undergoing surgery for presumably benign fibroids.METHODSThis is a multicentre, retrospective cohort study. Three academic tertiary cancer centres in Southern Ontario over a 13-year period (2001-2014). Patients diagnosed with leiomyosarcoma or endometrial stromal sarcoma were included after identification using pathology databases. A retrospective chart review was conducted to determine clinical characteristics and survival data.RESULTSThe study included 302 patients with uterine sarcomas (221 leiomyosarcomas, 81 endometrial stromal sarcomas). Mean age at diagnosis was 55 years, and 59% were postmenopausal. Sarcoma diagnosis was made following endometrial sampling (25%), hysterectomy (69% laparotomy, 2.7% laparoscopic/vaginal), and myomectomy (3.3%). Of all the patients who underwent endometrial sampling, 65% were diagnosed with a uterine sarcoma in this manner. A general gynaecologist performed the primary surgical procedure in 166 of 302 patients (55%). Tumour disruption at the time of primary surgery occurred in 57 of 295 patients (19%): subtotal hysterectomy (21), myomectomy (10), dissection of adherent tumour (17), and morcellation (9). Morcellation, to facilitate a minimally invasive approach, was performed with scalpel (2 at laparotomy, 5 vaginally) and with a laparoscopic electro-mechanical morcellator (2). At a median follow-up of 2.9 years, there was no significant difference in survival for stage I and II patients with tumour disruption (n = 32) compared with those without tumour disruption (n = 143), regardless of sarcoma type (P = 0.6).CONCLUSIONThe majority of patients with uterine sarcomas were postmenopausal. Many can be diagnosed preoperatively with endometrial sampling. Forty-one percent of patients with uterine sarcomas had a high preoperative index of suspicion, resulting in intervention by an oncologist. Morcellation with laparoscopic electro-mechanical morcellator was rare.

Database: Medline

3. Characterization and Preoperative Risk Analysis of Leiomyosarcomas at a High-Volume Tertiary Care Center.

Author(s): Peters, Ann; Sadecky, Amanda M; Winger, Daniel G; Guido, Richard S; Lee, Ted T M; Mansuria, Suketu M; Donnellan, Nicole M

Available at International journal of gynecological cancer : official journal of the International Gynecological Cancer Society - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology)

Abstract:INTRODUCTIONUterine morcellation in minimally invasive surgery has recently come under scrutiny because of inadvertent dissemination of malignant tissue, including leiomyosarcomas commonly mistaken for fibroids. Identification of preoperative risk factors is crucial to ensure that oncologic care is delivered when suspicion for malignancy is high, while offering minimally invasive hysterectomies to the remaining patients.OBJECTIVESThe aim of this study was to characterize risk factors for uterine leiomyosarcomas by reviewing preoperative, intraoperative, and postoperative data with an emphasis on the presence of concurrent fibroids.METHODSA retrospective case-control study of women undergoing hysterectomy with pathologic diagnosis of uterine leiomyosarcoma at a tertiary care center between January 2005 and April 2014.RESULTSThirty-one women were identified with leiomyosarcoma and matched to 124 controls. Cases with leiomyosarcoma were more likely to have undergone menopause and to present with larger uteri (19- vs 9-week sized), with the most common presenting complaint being a pelvic mass (35.5% vs 8.9%). Controls were ten times more likely to have undergone a tubal ligation (30.6% vs 3.2%). Endometrial sampling detected malignancy preoperatively in only 50% of cases. Leiomyosarcomas were more commonly present when pelvic masses were identified in addition to fibroids on preoperative imaging. Most leiomyosarcoma cases (77.4%) were performed by oncologists via an abdominal approach (83.9%), with only 2 of 31 leiomyosarcomas being morcellated. Comparative analysis of preoperative imaging and postoperative pathology showed that in patients with leiomyosarcoma, fibroids were misdiagnosed 58.1% of the time, and leiomyosarcomas arose directly from fibroids in only 6.5% of cases.CONCLUSIONSLeiomyosarcoma risk factors include older age/postmenopausal status, enlarged uteri of greater than 10 weeks, and lack of previous tubal ligation. Preoperative testing failed to definitively identify leiomyosarcomas, although the presence of synchronous pelvic masses in fibroid uteri should raise clinical suspicion. Given the difficulty of preoperative identification, future efforts should focus on the development of safer minimally invasive techniques for uterine morcellation.

Database: Medline

4. Uterine leiomyosarcoma: a review of recent advances in molecular biology, clinical management and outcome.

Author(s): Cui, R R; Wright, J D; Hou, J Y

Source: BJOG : an international journal of obstetrics and gynaecology; Jun 2017; vol. 124 (no. 7); p. 1028-1037

Publication Date: Jun 2017

Publication Type(s): Journal Article Review

PubMedID: 28128524

Available at BJOG : an international journal of obstetrics and gynaecology - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract: Uterine leiomyosarcoma (LMS) are rare but aggressive tumours with poor clinical outcomes regardless of stage. Most tumours are identified by histopathology at time of surgery, and pre-operative diagnosis remains a clinical challenge. Management of early-stage LMS relies on surgical resection. Cytotoxic chemotherapy remains the mainstay of therapy for advanced-stage, recurrent or metastatic LMS, and includes single or combination doxorubicin-, ifosfamide- or gemcitabine-based regimens. Recent interest in genetic biomarkers led to developments of targeted therapies for LMS, although more research is needed to understand the molecular complexities underlying LMS to guide the development of novel treatment strategies.TWEETABLE ABSTRACTThe diagnosis and treatment of uterine LMS is challenging. Novel biomarkers offer hope for future therapies.

Database: Medline

5. Magnetic resonance imaging features of uterine sarcoma and mimickers

Author(s): Barral M.; Place V.; Dautry R.; Bendavid S.; Foucher R.; Guerrache Y.; Soyer P.; Cornelis F.

Source: Abdominal Radiology; Jun 2017; vol. 42 (no. 6); p. 1762-1772

Publication Date: Jun 2017

Publication Type(s): Review

PubMedID: 28246921

Abstract: Uterine myometrial tumors are predominantly benign conditions that affect one-third of women and represent the main indication for hysterectomy. Preoperative imaging is of utmost importance for characterization and for precise mapping of myometrial tumors to best guide therapeutic strategy. New minimally invasive therapeutic strategies including morcellation, myolysis, uterine artery embolization and image-guided radiofrequency or focused ultrasound ablation have been developed for the treatment of uterine leiomyoma. However, preoperative differentiation between atypical leiomyomas and leiomyosarcomas is critical on imaging as uterine sarcoma requires a specific surgical technique to prevent dissemination. A single, rapidly growing uterine tumor, associated with endometrial thickening and ascites, in post-menopausal women is suspicious of uterine endometrial stromal sarcoma and carcinosarcoma. Suggestive magnetic resonance imaging features have been described, but overlap in imaging appearance between uterine leiomyosarcomas and cellular leiomyomas makes it challenging to ascertain the diagnosis. This review aims to illustrate the imaging features of uterine sarcomas and potential mimickers to make the reader more familiar with this serious condition which needs special consideration.Copyright © 2017, Springer Science+Business Media New York.

Database: EMBASE

6. Prognostic significance of preoperative ¹⁸F-FDG PET/CT in uterine leiomyosarcoma.

Author(s): Park, Jeong Yeol; Lee, Jeong Won; Lee, Hyun Ju; Lee, Jong Jin; Moon, Seung Hwan; Kang, Seo Young; Cheon, Gi Jeong; Chung, Hyun Hoon

Available at Journal of gynecologic oncology - from Europe PubMed Central - Open Access

Available at Journal of gynecologic oncology - from Free Medical Journals . com

Abstract:OBJECTIVEUterine leiomyosarcoma (LMS) is a rare and aggressive disease with poor outcome. Due to its rarity and conflict of data, investigation on finding prognostic factor is challenging. The aim of the study was to investigate the prognostic significance of preoperative ¹⁸F-fluorodeoxyglucose (¹⁸F-FDG) positron emission tomography/computed tomography (PET/CT) in uterine LMS.METHODSThis was a retrospective observational cohort study in 3 tertiary referral hospitals. We retrospectively evaluated data from patients with pathologically proven uterine LMS who underwent preoperative ¹⁸F-FDG PET/CT scans at 3 institutions. The prognostic implication of PET/CT parameters and other clinico-pathological parameters on disease-free survival (DFS) and overall survival (OS) was evaluated.RESULTSClinico-patholgical data were reviewed for 19 eligible patients. In the group overall, median DFS and OS were 12 and 20 months, respectively. As for the recurrence, large tumor size, and high tumor maximum standardized uptake value (SUVmax) were demonstrated as risk factors of recurrence. As for the OS, high tumor SUVmax was demonstrated as the unique risk factor. There were significant differences in tumor size, mitotic count, SUVmax, and DFS between patients with and without recurrence. Also, there were significant differences in tumor size, SUVmax, DFS, and OS between 2 subgroups stratified by cut-off SUVmax.CONCLUSIONSUVmax at preoperative ¹⁸F-FDG PET/CT was associated with worse outcome in patients with uterine LMS. In the preoperative setting, SUVmax can be a valuable non-invasive prognostic marker. Additionally, SUVmax can help identify highly aggressive uterine LMS and may help in adjusting standard treatment toward an individualized, risk-adapted treatment.

Database: Medline

7. Uterine leiomyosarcoma: Epidemiology, contemporary treatment strategies and the impact of uterine morcellation.

Author(s): Ricci, Stephanie; Stone, Rebecca L; Fader, Amanda N

Abstract: Leiomyosarcoma, a rare tumor subtype, accounts for 1% of all uterine malignancies, but contributes to a significant proportion of uterine cancer deaths. Surgery is considered the mainstay of treatment for all soft tissue sarcomas, including uterine variants. However, uterine leiomyosarcoma is challenging to diagnose preoperatively and can mimic the appearance of benign uterine leiomyomas. Recently, concerns have grown in this regard, as surgeons have utilized uterine morcellation and myomectomy procedures unknowingly in the setting of occult uterine sarcoma. Because of aggressive tumor biology and relative chemotherapy and radiotherapy resistance, efficacious therapies to achieve prolonged survival or cure in those with both early and advanced-stage uterine leiomyosarcoma have been elusive. The strongest determinant of survival remains stage at diagnosis, though prediction models may provide a more accurate prognosis. Given the aggressive nature of this sarcoma subtype, novel early detection strategies and targeted therapies are the focus of several recently published and ongoing studies. While gemcitabine/docetaxel and doxorubicin remain the most active regimens in the treatment of advanced or recurrent disease, currently available cytotoxic regimens remain inadequate, with 5-year disease-specific survival of <30%. Pazopanib, trabectedin and olaratumab, are FDA-approved, targeted therapies with activity in uterine and other leiomyosarcomas, while aromatase inhibitors and immunotherapies are under active investigation. This review provides a critical appraisal of the literature regarding the contemporary surgical and medical management of uterine leiomyosarcoma, the role of targeted therapies, and the implications of uterine morcellation on gynecologic surgical practice.

Database: Medline

8. Is Laparoscopic Power Morcellation of Fibroids a Cardinal Sin in 2017?

Author(s): Allahbadia G.N.

Source: Journal of Obstetrics and Gynecology of India; Feb 2017; vol. 67 (no. 1)

Publication Date: Feb 2017

Publication Type(s): Editorial

Available at Journal of Obstetrics and Gynecology of India - from SpringerLink

Abstract: The diagnosis of an unsuspected leiomyosarcoma after hysterectomy for the treatment of a presumed benign leiomyoma is a rare but highly clinically significant event. In order to facilitate removal of large uterine specimens using a minimally invasive surgical approach, morcellation with extraction in pieces is often performed. In the event of unsuspected malignancy, this may result in abdominal dispersion of the tumor and contribute to poorer survival. Modern surgical innovations always work toward improving minimally invasive strategies. Laparoscopy, rooted in practices for years, supplanted laparotomy for many indications. For extraction of large uteri, morcellation is currently the only way to externalize surgical specimens (myomas, uteri), without increasing the skin opening while allowing to reduce postoperative complications when compared to laparotomy. However, in 2014, the Food and Drug Administration warned against the use of uterine morcellation because of an oncological risk. Some practicing academicians have challenged this recommendation. The incidence of uterine sarcomas is still poorly identified and preoperative diagnostic facilities remain inadequate. The small number of retrospective studies currently available do not reinforce any recommendation. The evaluation of morcellation devices and the improvement of preoperative diagnostic modalities (Imaging, preoperative Biopsy) are being improvised continually so as to minimize the oncological risks. Even during conventional myomectomy, tissue spillage occurs during resection of leiomyoma(s). Adverse oncologic outcomes of tissue morcellation should be mitigated through improved patient selection, preoperative investigations, and novel techniques that minimize tissue dispersion. Preoperative endometrial biopsy and cervical assessment to avoid morcellation of potentially detectable malignant and premalignant conditions is recommended.Copyright © 2017, Federation of Obstetric & Gynecological Societies of India.

Database: EMBASE

9. The Role of Endometrial Biopsy in the Preoperative Detection of Uterine Leiomyosarcoma.

Author(s): Hinchcliff, Emily M; Esselen, Katharine M; Watkins, Jaclyn C; Oduyebo, Titilope; Rauh-Hain, J Alejandro; Del Carmen, Marcela G; Quade, Bradley J; Muto, Michael G

Source: Journal of minimally invasive gynecology; 2016; vol. 23 (no. 4); p. 567-572

Publication Date: 2016

Publication Type(s): Journal Article

PubMedID: 26851414

Abstract:STUDY OBJECTIVETo assess the sensitivity of preoperative endometrial biopsy in detection of uterine leiomyosarcoma (ULMS).STUDY DESIGNRetrospective analysis of a prospectively collected database (Canadian Task Force III).SETTINGTwo academic tertiary referral centers.PATIENTSAll cases of ULMS treated at participating institutions between January 2005 and August 2012 were identified following IRB approval.INTERVENTIONSAbstracted data included demographics, preoperative evaluation, presenting symptom, surgical management, pathology and clinical outcomes. Chi-square tests were used for statistical analysis.MEASUREMENTS AND MAIN RESULTS329 cases were identified, of which 152 cases had complete pathologic data available for review. Sixty-eight (45%) of 152 patients had endometrial sampling prior to surgery. Patients with postmenopausal bleeding were significantly more likely to be biopsied preoperatively (51.6% vs 9.5%, p = <.0001). Of those

sampled, 43 (63%) underwent endometrial pipelle biopsies and 25 (37%) had dilation and curettage. Endometrial sampling was significantly more likely to detect a concern for malignancy in patients who presented with postmenopausal bleeding (72.7% vs 32.3%, p = 0.002), however it was less likely to detect malignancy in patients with abnormal premenopausal bleeding (31.8% vs 64.3%, p = .02), compared to other presenting symptoms. Overall, 51.5% of patients with ULMS on final pathology had preoperative endometrial biopsies in which leiomyosarcoma or atypical spindle cell proliferation were diagnosed, whereas 35.5% of the pre-operative biopsies identified ULMS specifically.CONCLUSIONSThe sensitivity of an endometrial biopsy to detect ULMS is low, illustrating the difficulty of diagnosing ULMS preoperatively. As expected, the probability that an endometrial biopsy will detect ULMS or a related worrisome pathological finding is higher for patients with post-menopausal bleeding. Thus, benign endometrial biopsy results, particularly in pre-menopausal patients, should be interpreted with caution if there is suspicion for leiomyosarcoma. However, a positive or suspicious result can play an important role in the subsequent management of patients with ULMS, even if the absolute numbers of affected patients are small.

Database: Medline

10. Risk of occult uterine sarcoma in presumed uterine fibroids

Author(s): Cui R.R.; Wright J.D.

Source: Clinical Obstetrics and Gynecology; 2016; vol. 59 (no. 1); p. 103-118

Publication Date: 2016

Publication Type(s): Article

PubMedID: 26645385

Available at Clinical Obstetrics and Gynecology - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology)

Abstract: Symptomatic fibroids are a common indication for hysterectomy or myomectomy. Although rare, unexpected gynecologic malignancies in presumed fibroids have been documented. In cases where tissue retrieval is performed through morcellation, there is increasing concern that intra-abdominal dispersion of occult uterine malignancies may lead to peritoneal dissemination and worse outcomes. We examined the available literature to determine the prevalence of all uterine cancers in women undergoing hysterectomy or myomectomyforbenign uterine disease, with attention to the risk of morcellating occult uterine sarcomas.We also reviewed the available tools for preoperative discrimination between benign and malignant uterine disease.Copyright © 2016 Wolters Kluwer Health, Inc. All rights reserved.

Database: EMBASE

11. Preoperative evaluation of women with uterine leiomyosarcoma in Norway in 2000-2012

Author(s): Skorstad M.; Lieng M.

Source: Journal of Minimally Invasive Gynecology; 2016; vol. 23 (no. 7)

Publication Date: 2016

Publication Type(s): Conference Abstract

Abstract: Study Objective: The objective was to evaluate the use of available preoperative diagnostic tools in women with verified uterine leiomyosarcomas (LMS). The goal was to investigate the results of the preoperative tests and ability to suspect LMS. Design: Retrospective cohort study. Setting: Nationwide study with data from 34 Norwegian hospitals. Patients: The included patients were all women with histopathologically verified uterine LMS in Norway in the period 2000-2012. The collected information was obtained from the Norwegian Cancer Registry and from the patients' medical records. Intervention: N/A Measurements and Main Results: A total of 212 women were diagnosed with LMS in Norway in 2000-2012. In 209/212 medical records, diagnostic examinations were described and the results available. Preoperatively, Transvaginal ultrasonography (TVUS) were performed in 99.5% (208/209), and MRI and/or CT was performed in 115 women (55.0%). A malignant condition was suspected in 21.6% (45/208) of the TVU examinations, in 81.8% (45/55) of the MRI images, and in 63.4% (64/101) of the CT images. Conclusion: Diagnostic tools refrained from suspecting malignancy prior to surgery in more than 50% of women suffering from LMS. These women were surgically treated as having benign fibroids. MRI examination is recommended in cases where malignancy is suspected. (Table Presented).

Database: EMBASE

12. Preoperative evaluation in women with uterine leiomyosarcoma. A nationwide cohort study.

Author(s): Skorstad, Mette; Kent, Andrew; Lieng, Marit

Source: Acta obstetricia et gynecologica Scandinavica; Nov 2016; vol. 95 (no. 11); p. 1228-1234

Publication Date: Nov 2016

Publication Type(s): Journal Article

PubMedID: 27564388

Available at Acta obstetricia et gynecologica Scandinavica - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract:INTRODUCTIONThe goal of this study was to assess the sensitivity of different preoperative diagnostic tools used in women with uterine leiomyosarcomas.MATERIAL AND METHODSRetrospective cohort study of all women with verified uterine leiomyosarcoma in Norway in the period 2000 to 2012. Data were collected from the Cancer Registry of Norway and medical records.RESULTSThere were 212 women diagnosed with uterine leiomyosarcoma in the 13-year period. Histopathological examinations by fractional curettage or endometrial biopsies verified malignancy in 55/142 (38.7%). MRI suggested malignancy in 45/55 (81%) of the examinations. CT evaluations indicated suspected malignancy in 64/107 women (59.8%). Biomarkers had low sensitivity for leiomyosarcoma, but suggested more advanced stage disease when high values were detected. Stage IV disease was present in 53.1% versus 25.5% (p = 0.01) of women with CA 125 values above 35 kU/L, compared with women with normal CA 125 values. In 115/212 (54.2%), leiomyosarcoma was only diagnosed postoperatively by histopathological examination of the removed specimen.CONCLUSIONSPreoperative diagnostic modalities appear to have low sensitivity for differentiating leiomyosarcoma from fibroids. In Norway, approximately 54% of uterine leiomyosarcoma are unidentified before surgery. MRI evaluation was the imaging modality with the greatest sensitivity in identifying leiomyosarcoma preoperatively.

13. Characterization and preoperative risk stratification of leiomyosarcoma at a high-volume tertiary care center

Author(s): Peters A.; Sadecky A.M.; Guido R.; Lee T.; Mansuria S.; Donnellan N.M.; Winger D.

Abstract:OBJECTIVES: Here we sought to describe patient characteristics, preoperative presentation and evaluation, as well as intra- and postoperative outcomes in cases of leiomyosarcoma as compared to women without leiomyosarcoma undergoing hysterectomy at a single institution. MATERIALS AND METHODS: From January 2005 to April 2014, a retrospective case-control study of patients undergoing hysterectomy for leiomyosarcoma versus temporally matched controls was performed. RESULTS: A total of 31 cases of leiomyosarcoma were compared with 124 hysterectomy controls at Magee-Womens Hospital. The majority of leiomyosarcomas were in postmenopausal women (60% vs. 32.8%; p=0.05) with a mean age of 55.2 who were less likely to have undergone bilateral tubal ligation (3.2% vs. 30.6%, p=0.002). Preoperative exam showed uterine enlargement (19 vs. 9 weeks, p <0.001) in concordance with a primary presenting complaint of a pelvic mass in 35% of patients with leiomyosarcoma vs. 8.9% of the controls (p=0.001). Women with leiomyosarcoma tended to be less likely to present with abnormal bleeding (32.3% vs 51.6%; p=0.054) or prolapse (0% vs. 18.5%; p=0.008). LDH was not significantly different between the groups (p=0.473). Half of all patients had endometrial sampling performed, with 50.0% of the samples in the LMS group demonstrating malignancy compared to only 14.3% in controls (p<0.001). 48.4% of leiomyosarcoma cases underwent multiple imaging modalities preoperative with CT being utilized significantly more frequently than in controls (67.7% vs. 24.2%; p<0.001). There was no difference in the number of fibroids on preoperative imaging between the two groups (48.4% vs. 45.3%; p=0.837). Interestingly, while 82.9% of controls with preoperative fibroids on imaging were confirmed to also have fibroids on final pathology, this correlated in only 26.7% of leiomyosarcoma cases. Although leiomyosarcoma was rarely identified preoperatively, 77.4% of cases were performed by a gynecologic oncologist (p <0.001) with 83.9% of hysterectomies performed via an open rather than a minimally invasive approach (p<0.001). Intraoperative differences were noted in estimated blood loss (828 mL vs. 150 mL; p<0.001) and uterine weight (1833g vs. 234g; p<0.001), but not in time or complications. Morcellation occurred in 6.5% leiomyosarcomas vs. 19.5% controls (p=0.083). Survival at the end of the study was 91.5% in controls and 48.3% in leiomyosarcoma patients (p<0.001). CONCLUSION: Risk stratification suggests that leiomyosarcomas becomes more frequent in postmenopausal women presenting with a pelvic mass. We were unable to find other pre-operative indicators that reliably predict leiomyosarcoma. Comparison of preoperative imaging and specimen pathology suggests that uterine pathology in leiomyosarcoma cases may be misdiagnosed as benign fibroids preoperatively. Furthermore, endometrial sampling is benign in half of leiomyosarcoma cases and should not be reassuring in the correct clinical setting. Morcellation appears to be an overall rare event with the majority of leiomyosarcoma cases being performed via an open approach by an oncologic surgeon.

14. Differential diagnosis between uterine sarcoma and leiomyoma using preoperative clinical characteristics.

Author(s): Cho, Hye-yon; Kim, Kidong; Kim, Yong-Beom; No, Jae Hong

Source: The journal of obstetrics and gynaecology research; Mar 2016; vol. 42 (no. 3); p. 313-318

Publication Date: Mar 2016

Publication Type(s): Journal Article

PubMedID: 26695124

Available at The journal of obstetrics and gynaecology research - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract:AIMThe aim of this study was to identify the preoperative diagnostic findings suggestive of uterine sarcoma.METHODSWe retrospectively reviewed the medical records of 31 patients with pathologically confirmed uterine sarcoma including leiomyosarcoma, endometrial stromal sarcoma, and undifferentiated sarcoma, between 2003 and 2011. The cases were matched by age, year of procedure (plus or minus 1 year), and surgeon, to controls (1:3 ratio) selected from all the patients who underwent hysterectomy for uterine myoma during the same period.RESULTSUterine sarcomas had larger tumor size compared with leiomyoma on sonography (P = 0.006). There was no significant difference in the total number of masses found on ultrasonography (P = 0.066). On multivariate analysis increased neutrophil-to-lymphocyte ratio (NLR > 2.1), large tumor size (> 8.0 cm), and lower body mass index (BMI ≤ 20) were independent risk factors for uterine sarcoma (P = 0.014, 0.048, and 0.048, respectively). Sarcoma index was calculated by summing the number of risk factors. Higher sarcoma index was associated with increased risk of uterine sarcoma (0, 13.6%; 1, 21.7%; 2, 62.5%; 3, 100%).CONCLUSIONPreoperative NLR, tumor size, and BMI could be useful for the discrimination of sarcoma from leiomyoma of uterus.

Database: Medline

15. Risk Factors for Occult Uterine Sarcoma Among Women Undergoing Minimally Invasive Gynecologic Surgery.

Author(s): Oduyebo, Titilope; Hinchcliff, Emily; Meserve, Emily E; Seidman, Michael A; Quade, Bradley J; Rauh-Hain, J Alejandro; George, Suzanne; Nucci, Marisa R; del Carmen, Marcela G; Muto, Michael G

Source: Journal of minimally invasive gynecology; Jan 2016; vol. 23 (no. 1); p. 34-39

Publication Date: Jan 2016

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 26253281

Abstract:STUDY OBJECTIVETo determine factors that can identify a population at increased risk for uterine leiomyosarcoma. DESIGNRetrospective case-control study (Canadian Task Force classification II-2).SETTINGUniversity teaching hospitals.PATIENTSSeventy-two women who underwent minimally invasive gynecologic surgery for presumed leiomyoma. Patients diagnosed with leiomyosarcoma (cases) were matched with up to 4 controls on age, year of surgery, and surgeon specialty.INTERVENTIONCases were identified through the pathology database, and the diagnosis of leiomyosarcoma or leiomyoma was confirmed by gynecologic pathologists. The cumulative risk of leiomyosarcoma was calculated, and factors predictive of elevated risk for leiomyosarcoma were investigated using conditional logistic regression.MEASUREMENTS AND MAIN RESULTSFifteen patients with the diagnosis of inadvertently morcellated leiomyosarcoma were identified and matched with 57 controls. The cumulative risk of diagnosing uterine leiomyosarcoma on pathology after performing minimally invasive gynecologic surgery with morcellation was 0.19% (95%

confidence interval [CI], 0.06%-0.56%). The presence of a hematocrit value 7 cm may be associated with occult leiomyosarcoma; however, these criteria are not sufficiently discriminatory to allow for preoperative identification of patients with uterine sarcoma. Future large multicenter studies are needed to further investigate these findings and the discovery of innovative ways to detect uterine leiomyosarcoma are urgently needed.

Database: Medline

16. Uterine sarcomas: clinical presentation and MRI features.

Author(s): Santos, Pedro; Cunha, Teresa Margarida

Source: Diagnostic and interventional radiology (Ankara, Turkey); 2015; vol. 21 (no. 1); p. 4-9

Publication Date: 2015

Publication Type(s): Journal Article Review

PubMedID: 25347940

Available at Diagnostic and interventional radiology (Ankara, Turkey) - from Europe PubMed Central - Open Access

Available at Diagnostic and interventional radiology (Ankara, Turkey) - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract: Uterine sarcomas are a rare heterogeneous group of tumors of mesenchymal origin, accounting for approximately 8% of uterine malignancies. They comprise leiomyosarcoma, endometrial stromal sarcoma, undifferentiated endometrial sarcoma, and adenosarcoma. Compared with the more common endometrial carcinomas, uterine sarcomas behave more aggressively and are associated with a poorer prognosis. Due to their distinct clinical and biological behavior, the International Federation of Gynecology and Obstetrics introduced a new staging system for uterine sarcomas in 2009, categorizing uterine carcinosarcoma as a variant of endometrial carcinoma, rather than a pure sarcoma. Magnetic resonance imaging (MRI) has a developing role in the assessment of these malignancies. Features such as tumor localization, irregular or nodular margins, necrosis, rapid growth, intense contrast enhancement, and restriction at diffusion-weighted imaging can suggest the diagnosis and help differentiate from more common leiomyomas and endometrial carcinoma. MRI is therefore extremely useful in preoperative detection and staging and, consequently, in determination of appropriate management. This pictorial review aims to discuss the clinical features of uterine sarcomas, as well as their most common appearances and distinct characteristics in MRI.

Database: Medline

17. A comparative study of preoperative findings and outcomes in pre-menopausal and post-menopausal women with leiomyosarcoma

Author(s): Aoun J.; Theoharis E.; Tsafrir Z.; Baum S.; Buekers T.; Schiff L.

Abstract: Study Objective: To determine the preoperative findings and outcomes in pre-menopausal and post-menopausal women with leiomyosarcoma. Design: Retrospective cohort study. Setting: Academic affiliated Health System. Patients: All patients diagnosed with LMS between January 2004 and January 2015. Intervention: For comparison, women were divided into two groups according to their menopausal status, premenopausal (49%) and postmenopausal (51%). Measurements and Main Results: A total of 39 women with LMS were identified, with a mean age at diagnosis of 59 +/- 12 years. Around half of them were pre-menopausal. Enlarging uterine fibroids on imaging were more commonly found in pre-menopausal women compared to postmenopausal women, 75% vs 25%, respectively (p= .001). Preoperative imaging more frequently detected a suspicious mass in post-menopausal women (100% versus 61% in pre-menopausal women, p= .0039). Overall, half of samples taken from the uterus were diagnostic for LMS. Around a third of women with LMS were diagnosed preoperatively. The most common stages at diagnosis were stage 1 (51%) and stage 4 (35%). Among patients who underwent LNs assessment, 27% had positive lymph nodes. Of the 31 women who had removal of the adnexa, 5 women had metastasis to at least one adnexa (16%). Post-menopausal women were at a 209% increased hazard of dying compared to pre-menopausal women (p= .041). Conclusion: In this retrospective analysis of LMS identified over 11 years in a practice group spanning urban and suburban populations, we found evidence to support that LMS is a perimenopausal tumor that can be diagnosed preoperatively in 33% of cases. Imaging that details mass characteristics and serial growth plays an important role in diagnosis. A dichotomy in disease state exists at diagnosis.

18. Diagnostics and treatment for uterine leiomyosarcomas in Norway in the period 2000 to 2012

Author(s): Skorstad M.; Lieng M.; Kent A.

Abstract: Study Objective: To assess the rate of preoperatively unidentified uterine leiomyosarcomas (LMS) and explore which diagnostic tools were used in each case in order to debate whether or not today's examinations are sufficient enough to distinguish LMS from benign uterine myomas and allow minimal invasive surgery (MIS) procedures including tissue morcellation on presumed benign myomas. Design: Retrospective cohort study, nationwide cohort over a decade. Setting: Data from the Norwegian Cancer Registry. Patients: All women with diagnosed uterine LMS in Norway in the period 2000 to 2012. Intervention: Retrospectively collected information from nationwide registry data and from the patients' journals. Measurements and Main Results: A total of 221 women have been diagnosed with LMS during the study period. The study is not finished; it is expected to be complete in September 2015. We will report the ratio of LMS diagnosed before treatment vs. after. Furthermore, preoperative diagnostic tools used will be investigated as well as factors such as age, BMI, menopausal status, hormone replacement treatment and smoking status. Conclusion: Ongoing analyses. We will determine the rate of undiagnosed LMS prior to surgery, the rate of morcellated LMS, the value of different diagnostic tools and look for specific risk factors/similarities amongst

women with undiagnosed LMS. Based on the results, we will debate if the tissue morcellation restriction is exaggerated and the limitations of its use should be opened up for specific patient groups.

Database: EMBASE

19. The clinical and imaging finding of uterine sarcoma as predictors

Author(s): Moon H.; Roh A.M.I.

Source: International Journal of Gynecological Cancer; Oct 2015; vol. 25 (no. 9); p. 1114

Publication Date: Oct 2015

Publication Type(s): Conference Abstract

Available at International Journal of Gynecological Cancer - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology)

Abstract: Preoperative diagnosis of uterine sarcoma is very difficult. It is therefore important to perform surgery appropriately if the clinical findings and various examination findings indicate possible uterine sarcoma. We investigated various predictors of uterine sarcoma with clinical findings and Imaging findings of 8 patients. A retrospective study of 8 cases of uterine sarcoma treated in Ewha Womans University Hospital in Seoul, Korea between 2011 and 2015. We retrospectively analyzed the clinical findings, blood tests, imaging studies (ultrasonography, abdominopelvic CT scan and magnetic resonance imaging [MRI]). The median age was 50 years (38 to 61) without previous medical history of irradiation or prolonged drug exposition. There were 2 cases of leiomyosarcoma, 3 cases of malignant mixed Mullerian tumor and 3 cases of endometrial stromal sarcoma. The diagnosis was made postoperatively in 7 patients with hysterectomy in 3 cases and myomectomy in 4 cases. One patient were in FIGO stage I, and 1 in stage IV. Four patients had bleeding symptom and 6 patients had irregular margins, and degeneration of tumors, heterogeneous and high signal T1/T2 weighted imaging and intense contrast enhancement by MRI. It can suggest the diagnosis of uterine sarcoma. Additional hysterectomy was associated with salpingo-oohprectomy, and bilateral pelvic lymphadenectomy in all cases. Three of our 8 patients underwent adjuvant chemotherapy and recurrence was not occurred. There is no beneficial clinical findings in suspected uterine sarcoma cases. Even though there is abnormal uterine bleeding, only MRI is extremely useful in detection and consequently, in determination of appropriate management.

Database: EMBASE

20. A novel diagnostic molecular bioimaging tool to discriminate between uterine leiomyosarcoma versus leiomyoma

Author(s): Khater M.K.; El-Husseini H.; Diamond M.; Brakta S.; Shalaby S.M.; Al-Hendy A.

Abstract:OBJECTIVE: Uterine Leiomyosarcoma (LMS) is a highly aggressive malignant tumor developing in the smooth muscle layer of the uterus. LMS are associated with poor prognosis with 5-year overall survival rates ranging between 2-9%. FDArecently estimated that 1:352 women undergoing a surgery for benign leiomyomas (AKA: uterine fibroids) may have unsuspected Sarcoma. The FDA launched an alert discouraging the use of power morcellation for hysterectomy and myomectomy in women with uterine leiomyoma, for the potential risk of dissemination of occult uterine cancers. The attention to this matter also highlighted the need for better diagnostics for LMS. Unfortunately, LMS is not a disease that can be pre-operatively diagnosed with sufficient certainty and accuracy. The imaging characteristics are shared by the more common benign leiomyoma and potential serum biomarkers are not reliable. Developing a diagnostic tool for LMS is a high priority and would improve health care of women with suspicious myometrial mass. we wanted to identify a LMS specific promoter that can potentially drive a reporter gene to be expressed only in LMS cells (LMS-ON/Leiomyoma- OFF) DESIGN: Laboratory studies using human cells MATERIALS AND METHODS: We screened several modified adenoviruses encompassing various neoplasm-related promoters driving the expression of luciferase reporter gene The Adenovirus construct that showed highest expression potential in LMS, Ad-ANS-886, was selected for further evaluation. In-vitro, we transfected 3 cell types, which are SK-UT-1 (LMS), primary fibroid (1ry F) and myometrium (Myo F) cells with Ad-ANS-886 at multiplicity of infection (MOI) 1, 5. Luciferase transactivation was evaluated by both luciferase assay as well as xenogen camera imaging of cells 24 and 48 hours after transduction. Further in vivo evaluation of Ad-ANS-886 was performed by injecting adenovirus transfected LMS cells (5^6 cells/mouse) both subcutaneous (SC) and intrauterine (IU) in 6 weeks old female nude mice, followed by imaging the animals with Xenogen camera. Control animals were implanted with 1ryF cells. RESULTS: Ad-ANS-886 transfects LMS cells much more readily than benign or normal myometrial cells as evidenced by luciferase assay that showed 6-fold higher bioluminescence in LMS vs 1ryF, MyoF at MOI 5 with $p < 0.0001$. IVIS of LMS gave 100 fold higher total photon emission per second (TPE/S) compared to 1ryF , MyoF ($p < 0.0001$). In-vivo studies showed highly significant rise in TPE/S emission in LMS-based lesions vs 1ryF-related lesions at 48 hours post cell implantation both in SC as well as IU locations ($p<0.000001$). CONCLUSIONS: Ad-ANS-886 provides a potentially reliable diagnostic molecular bio-imaging tool to triage patients with suspicious uterine lesions. Discriminating the more common benign leiomyoma from the ominous malignant leiomyosarcoma is an area of high priority and will have major positive impact on women reproductive health.

Database: EMBASE

21. Concordance of uterine sarcoma diagnosis based on method of preoperative evaluation

Author(s): Goodrich S.K.; Buechel M.E.; Knight J.

Abstract: Objectives: To determine if the method of preoperative sampling affected the concordance of pre- and post-operative diagnosis of uterine sarcoma. Methods: Using data from the Cleveland Clinic pathology database, we identified all cases of uterine sarcoma diagnosed between the years 2000 and 2013.Medical records were then reviewed and data, including preoperative endometrial evaluation, were abstracted from patient charts. The study aim was to determine if the method of preoperative sampling affected concordance with postoperative diagnosis of uterine sarcoma. Carcinosarcomas and adenosarcomas were excluded. Results: A total of 80 cases met inclusion criteria: 58 leiomyosarcomas (LMS) and 22 endometrial stromal sarcomas (ESS). Preoperative sampling was performed in 52 cases and included: 24 endometrial biopsies (EMB), 19 dilation and curettages (D&C), and 9 other (cervical biopsy, interventional radiologic biopsy of metastatic lesion). Preoperative sampling identified cancer in 32 cases of the 52 sampled (62%), and the correct histology in 30 cases (58%). In the 32 cases of LMS with preoperative sampling, cancer was identified in 20 (63%) and the correct histology in 18 (56%). In the 20 cases of ESS with preoperative sampling, cancer was identified in 12 (60%) and the correct histology in 12 (60%). Diagnostic accuracy varied with the mode of sampling. For LMS, concordance was 30% for EMB, 63% for D&C, and 83% for others (P =0.106 EMB vs. D&C; P =0.04 EMB vs. other). For ESS, concordance was 43% for EMB, 100% for D&C, and 100% for other (P =0.07 EMB vs. D&C; P =0.07 EMB vs. other). Conclusions: Preoperative evaluation of uterine sarcoma has variable accuracy in identifying final pathologic diagnosis. There was a trend toward significance of D&C over EMB for accuracy in identifying LMS and ESS. These findings add to previous results suggesting that preoperative sampling can identify sarcomas preoperatively. (Table Presented).

22. Uterine sarcoma: Ability of preoperative evaluation to identify malignancy and correct histology

Author(s): Goodrich S.K.; Knight J.

Source: Gynecologic Oncology; Apr 2015; vol. 137 ; p. 97-98

Publication Date: Apr 2015

Publication Type(s): Conference Abstract

Abstract: Objectives: To determine the pathologic concordance of preoperative biopsy with a final diagnosis of uterine sarcoma. Methods: Using data from the Cleveland Clinic pathology database, we identified all cases of uterine sarcoma diagnosed between the years 2000 and 2013. Medical records were then reviewed and data, including preoperative endometrial evaluation, were abstracted from patient charts. The study aim was to determine pathologic concordance of preoperative endometrial evaluation with postoperative diagnosis of uterine sarcoma. Results: A total of 127 cases of uterine sarcoma were identified on final pathology, of which 91 underwent preoperative sampling. Overall, preoperative sampling correctly revealed a diagnosis of cancer in 66 women (73%). Correct histology was identified on preoperative biopsy in 66% of cases overall. Preoperative biopsy concordance with final pathology was 75% for adenosarcoma, 100% for carcinosarcoma, 56% for leiomyosarcoma, and 60% for endometrial stromal sarcoma. Survival was improved in the cohort of patients with concordant pathology (1502 days vs. 1202 days), but this did not reach statistical significance (P= 0.317). Conclusions: Preoperative endometrial biopsy is capable of identifying the presence of a malignancy in nearly two-thirds of cases of uterine sarcoma. While the accuracy of making the specific histologic diagnosis varies, based on the histology in question, the ability to at least identify the presence of tumor helps to accurately counsel these women toward proper operative management. (Figure Presented).

Database: EMBASE

23. Morcellating sarcomas: Failing to sample or sampling failure?

Author(s): Goodrich S.K.; Buechel M.E.; Knight J.

Source: Gynecologic Oncology; Apr 2015; vol. 137 ; p. 62

Publication Date: Apr 2015

Publication Type(s): Conference Abstract

Abstract: Objectives: To determine if cases of uterine leiomyosarcoma (LMS) or endometrial stromal sarcoma (ESS) that underwent uterine morcellation were not identified preoperatively due to a failure to obtain a preoperative tissue sample or a failure of pathologic diagnosis. Methods: Using data from the Cleveland Clinic pathology database, we identified all cases of uterine sarcoma diagnosed between the years of 2000 and 2013. Medical records were then reviewed and data abstracted. The study aim was to elucidate possible factors contributing to the failure to preoperatively identify LMS and ESS in women who were undergoing uterine morcellation as part of their hysterectomy procedure. Results: A total of 16 cases of morcellated uterine LMS (12) or ESS (4) were identified. These women ranged in age from 38 to 62 years, with a median of 48.5 years. Of these 16 women, 8 underwent preoperative endometrial sampling that was negative for malignancy (EMB 4, D&C 4). All of these women were ultimately diagnosed with LMS on final pathology. An additional eight women did not have preoperative endometrial sampling. Among these eight unsampled women, presenting symptoms were abnormal uterine bleeding (4), pelvic pain (3), and abnormal findings on pelvic examination (1), while preoperative diagnosis included symptomatic fibroids (5) and concerning mass (3). All but two of these unsampled patients had either a preoperative computed tomography scan and/or ultrasonography. In the cohort of women diagnosed with uterine sarcoma who did not undergo uterine morcellation, overall survival was 1340

days compared to 546 days in the morcellated cohort (P= 0.29). Conclusions: Failure to make a preoperative diagnosis of uterine LMS may be due to failure to sample the endometrium or failure of pathologic diagnosis. Our prior work demonstrated the ability to identify malignancy in 62% of cases of uterine LMS or ESS undergoing preoperative sampling. Thus, it may have been possible to preoperatively identify malignancy in nearly five of the eight women who did not undergo sampling in this cohort. Given the adverse impact of morcellation of uterine sarcomas on survival, albeit nonsignificant in this population (likely due to the limited number in the dataset), this would argue in favor of preoperative endometrial sampling in cases where uterine morcellation is being considered. (Figure presented) .

Database: EMBASE

24. Preoperative detection of uterine leiomyosarcoma by endometrial biopsy: An examination of clinical and histologic features

Author(s): Watkins J.; Hinchcliff E.; Del Carmen M.; Rauh-Hain A.; Esselen K.; Muto M.; Quade B.

Available at Laboratory Investigation - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract: Background: In the era of minimally invasive surgery, a need to identify women with uterine leiomyosarcoma (ULMS) pre-operatively has emerged. While the sensitivity of endometrial sampling (ES) in epithelial-based tumors is well established, the available data for its utility in diagnosing uterine sarcoma is limited. In this study, we attempt to determine the preoperative sensitivity of ES for ULMS and the effect of histologic and clinical variables on the sensitivity. Design: Our retrospective IRB-approved study included all ULMS cases treated at participating institutions between January 2005 and August 2012 (n=329). Cases in which pathologists from the participating institutions had reviewed both the patient's ES and uterine resection specimen were identified. Histologic features of ULMS including grade, presence of necrosis, tumor size, mitotic rate, and lymphovascular invasion were recorded. Data abstracted from the longitudinal medical record included age, presenting symptom, and method of preoperative biopsy. Results: Of 329 cases identified, 24 cases had both ES and uterine pathology reviewed by a pathologist at one of the participating institutions. 15 patients (62.5%) underwent preoperative pipelle endometrial biopsy (EMB), and 9 (37.5%) had dilation and curettage (D&C). 13 (54.2%) of the pre-operative biopsies showed either ULMS or an atypical spindle cell proliferation. Women sampled by D&C were significantly more likely to have a preoperative diagnosis of ULMS than women sampled by EMB (77.8% v 40%, p=0.036). No tumor histologic features were significantly associated with ES sensitivity. Tumors of a higher grade (grade 3/high), however, tended to have positive biopsies compared to tumors of a lower grade (2/intermediate) (61% v 33.3%, p=0. 128). Age and presenting symptom were not significantly associated with ES sensitivity, though women presenting with post-menopausal bleeding tended to have positive biopsies compared to others (66.7% v 41.6%, p =0.110). Conclusions: Preoperative ES will identify ULMS or an atypical spindle cell proliferation in 54.2% of patients with ULMS. D&C is significantly more likely than EMB to detect ULMS preoperatively. Further studies are warranted to explore the utility of D&C as a diagnostic tool in patients with uterine masses clinically presumed to be fibroids.

Database: EMBASE

25. Preoperative diagnosis of usual leiomyoma, atypical leiomyoma, and leiomyosarcoma.

Author(s): Matsuda, M; Ichimura, T; Kasai, M; Murakami, M; Kawamura, N; Hayashi, T; Sumi, T

Source: Sarcoma; 2014; vol. 2014 ; p. 498682

Publication Date: 2014

Publication Type(s): Journal Article

PubMedID: 25400500

Available at Sarcoma - from Europe PubMed Central - Open Access

Available at Sarcoma - from Hindawi Open Access Journals

Abstract: Uterine smooth muscle tumors (SMTs) are common pelvic tumors in women, and most of them are diagnosed as usual leiomyoma (UL). Exclusion of malignant disease is important in the management of SMTs. However, differentiation of SMTs remains difficult. In this study, we aimed to improve the preoperative diagnosis of SMTs. We examined 21 ULs, 7 atypical leiomyomas (ALs), and 6 leiomyosarcomas (LMSs), all of which were diagnosed by uterine tumor biopsy. Immunohistochemical findings (low-molecular-mass polypeptide 2 (LMP2) and Ki-67) and clinical features (serum lactate dehydrogenase level and menopause) were evaluated. Statistically significant differences in the expression of LMP2 and Ki-67 were observed between UL and AL and between UL and LMS. The combined LMP2 and Ki-67 score was significantly different between UL and AL, between UL and LMS, and between AL and LMS. The combined immunohistochemistry and clinical findings score (total score) was also significantly different between pathological types. The findings of this study suggest that the accuracy of the preoperative diagnosis of SMTs may be improved by using a combination of immunohistochemical and clinical findings.

Database: Medline

26. Mri features to identify uterine leiomyosarcoma-how often are these seen in benign fibroids?

Author(s): Connell F.; Tran D.; McNally O.; Dobrotwir A.

Source: International Journal of Gynecological Cancer; May 2014; vol. 24 (no. 9); p. 1493-1494

Publication Date: May 2014

Publication Type(s): Conference Abstract

Available at International Journal of Gynecological Cancer - from Ovid (LWW Total Access Collection 2015 - Q1 with Neurology)

Abstract: Aims To determine the prevalence of characteristics of uterine leiomyosarcoma (LMS) in benign fibroids (LM) on MRI imaging. Methods All patients referred to The Royal Women's Hospital for treatment of LMS between 2002- 2011 were identified. All women who had benign fibroids imaged on MRI in the same time period were identified. Any patients in whom the benign diagnosis could not be confirmed (either by histology, subsequent imaging or clinical course) were excluded. The study group was age matched to the LMS population, giving a total of 71 patients with 275 benign fibroids. All fibroids were assessed by a single radiologist for previously reported characteristics of LMS; heterogenous enhancement, DWI restriction, T2 high signal (>50%), ill defined margin and haemorrhage. Results Benign fibroids can exhibit features that could be consistent with LMS. More common findings are heterogenous enhancement (seen in 22.5% of benign fibroids), DWI restriction (6.9%) and T2 high signal (5.8%). Ill-defined margin (3.6%), and haemorrhage (0%) were rarely or not seen. Conclusion Preoperative identification of LMS is a clinical challenge, with recent controversies regarding laparoscopic morcellation highlighting this. We conclude that the use of previously reported characteristics of LMS in MRI imaging could result in false positive diagnoses. It is important to interpret MRI findings in the context of age, menopausal

status and clinical picture. The introduction of major and minor criteria for diagnosis of LMS is suggested.

Database: EMBASE

27. Clinical application of diffusion-weighted imaging for preoperative differentiation between uterine leiomyoma and leiomyosarcoma.

Author(s): Sato, Kenichiro; Yuasa, Noriaki; Fujita, Miri; Fukushima, Yasuyoshi

Source: American journal of obstetrics and gynecology; Apr 2014; vol. 210 (no. 4); p. 368

Publication Date: Apr 2014

Publication Type(s): Journal Article

PubMedID: 24368137

Abstract:OBJECTIVEThis study investigated the clinical usefulness of diffusion-weighted imaging (DWI) and the apparent diffusion coefficient (ADC) value for preoperative differentiation between uterine leiomyoma and leiomyosarcoma.STUDY DESIGNThis study included 10 lesions from 5 patients with pelvic leiomyosarcoma and 83 leiomyoma nodules from 76 patients, as identified by postoperative pathological examination (1 autopsy). All magnetic resonance examinations were performed with a 1.5-T superconductive magnetic resonance unit.RESULTSThe leiomyosarcoma lesions were readily apparent via DWI, presenting as an intermediate- to high-intensity area in the uterine wall. All low-intensity areas presented as leiomyoma nodules. The mean ADC value for the 10 leiomyosarcoma lesions was 0.791 ± 0.145 ($\times 10(-3)$ mm(2)/s), significantly lower than that of the leiomyoma nodules that presented with intermediate-intensity areas, 1.472 ± 0.285 ($\times 10(-3)$ mm(2)/s) (n = 41) (P < .001), and high-intensity areas (1.100 ± 0.343) (n = 9) (P = .03). Additionally, in this study, the highest ADC value for a leiomyosarcoma was 1.095, with an intermediate DWI intensity. Based on these results, we classified the patients into 2 groups: low-risk group (barely any leiomyosarcoma risk) and high-risk group. Analyses comparing the 2 groups yielded the following: sensitivity, 100%; specificity, 94.0%; positive predictive value, 66.7%; negative predictive value, 100%; and accuracy, 94.6%.CONCLUSIONWe suggest that this modality using a combination of signal intensity on DWI and ADC value is very effective, simple, and easy to apply clinically for differential diagnosis of leiomyosarcoma and myoma.

Database: Medline

28. Preoperative diagnosis by three-dimensional angiography of a leiomyosarcoma arising from the left ovarian vein.

Author(s): Saigusa, Susumu; Ohi, Masaki; Inoue, Yasuhiro; Kusunoki, Masato

Source: BMJ case reports; Apr 2013; vol. 2013

Publication Date: Apr 2013

Publication Type(s): Case Reports Journal Article

PubMedID: 23595179

Available at BMJ case reports - from Europe PubMed Central - Open Access

Available at BMJ case reports - from HighWire

Abstract: Leiomyosarcoma arising from the ovarian vein is extremely rare; we present a case with this unusual finding. A 78-year-old woman, diagnosed 2 years prior with a left retroperitoneal mass located in the lower part of the left kidney, was admitted to our hospital with a decrease in oral intake and a palpable, hard, abdominal mass. Contrast-enhanced CT showed a solid mass in the left lower abdominal cavity. On three-dimensional (3D) angiography the mass appeared to originate from the left ovarian vein. A simple total excision, including the involved vein, was performed and the tumour was found to be leiomyosarcoma. The patient's postoperative course was uneventful. There was no evidence of recurrence 5 months after surgery. In this patient, the previous information about the location of the retroperitoneal mass as well as the 3D angiography results were helpful in giving preoperative evidence of leiomyosarcoma originating from the left ovarian vein.

Database: Medline

29. Diagnostic accuracy of 3-dimensional power doppler ultrasound, magnetic resonance images and positron emission tomography in preoperative impression of uterine sarcomas

Author(s): Wu T.-I.; Hsu C.-S.; Chueh H.-Y.; Lai C.-H.; Ho K.-C.; Chen Y.-R.; Wu M.-Y.

Source: International Journal of Gynecological Cancer; Oct 2012; vol. 22

Publication Date: Oct 2012

Publication Type(s): Conference Abstract

Abstract: Aims: To assess the preoperative diagnostic accuracy of sequential use of three different image tools in diagnosis of uterine sarcoma or malignancy involving myometrium. Methods: Institutional review board approval and informed consent were obtained. From April 2006 to March 2009, 24 consecutive female patients (mean age, 51 years; range, 32-81 years) with suspicion of uterine sarcoma preoperatively who fulfilled the inclusion criteria were enrolled for 3-demensional power Doppler ultrasound (3-D echo), magnetic resonance imaging (MRI) and 18F-positron emission tomography/computed tomography (PET/CT). Diagnostic efficacy (sensitivity and specificity) and predictive values (positive and negative predictive values) were evaluated for this algorithm. The Receiver operating characteristic curve was used to verify the optimal cut-off points of scores. Results: Of twenty four patients enrolled for suspected uterine sarcoma, 15 were benign uterine tumors, one smooth muscle tumor of uncertain malignant potential, 2 malignant mixed mullerian tumors, 3 leiomyosarcomas, and three other malignancies involving uterus. The accuracy of 3-D echo, MRI or PET/CT to detect uterine malignancy is 71.4%, 63.6% or 70.8%, respectively. When combined these diverse diagnostic tools, the accuracy reaches to excellent level. The accuracy of both ultrasound and MRI is 85.7%, and both MRI and PET/CT is 90.5%, and both ultrasound and PET/CT is 90.5%. The accuracy of utilizing all these three image tools is also 91.7%. Conclusions: The preoperative diagnosis of uterine sarcoma is still a challenge for clinician. Using 3-D ultrasound or

MRI, and selected PET/CT scan followed by could provide satisfactory diagnostic efficacy preoperatively for predicting uterine sarcoma.

Database: EMBASE

30. Examination concerning preoperative diagnosis of usual leiomyoma, atypical leiomyoma and leiomyosarcoma that used anti-LMP2 antibody

Author(s): Matsuda M.; Ichimura T.; Kasai M.; Murakami M.; Ishiko O.; Sumikura T.; Kawamura N.; Asano C.; Hayashi T.

Abstract: Objectives: The possibility that the loss of LMP2 (Low Molecular weight Proteasome 2) which is one of the configuration factors of the proteasome takes part in the development of uterine leiomyosarcoma has been suggested, and LMP2 appearance decreases in leiomyosarcoma. We performed retrospective examination whether the immunohistological findings with anti- LMP2 antibody to specimens obtained by transcervical needle biopsy (needle biopsy) would be useful for preoperative diagnosis of usual leiomyoma, atypical leiomyoma and leiomyosarcoma. Materials: The objects in the present study were 30 examples (20 usual leiomyoma examples, 5 atypical leiomyoma examples, and 5 leiomyosarcoma examples) in total from Osaka city university hospital. Methods: An immunostaining that used anti-LMP2 antibody for the needle biopsy specimens of 30 examples was done. Staining intensity was divided into Positivity,Week-positivity, Negativity and Stained area was divided into Diffuse, Focal. The immunostaining result was made a score respectively (Positivity-Diffuse; 2 points, Weak positivity-Focal; 1 point, Negativity; 0 points), and the product of each score was calculated and evaluated using Mann- Whitney U Test. Results: The product score of usual leiomyoma was 1-4 points (median four points) and that of atypical leiomyoma was 0-4 points (median two points), and score of leiomyosarcoma was 0-2 points (median one point). A significant difference was admitted in the product score of usual leiomyoma and leiomyosarcoma (P < 0.01). When the cut off value was assumed to be one point to discriminate between usual leiomyoma and leiomyosarcoma, the most excellent inspection accuracy was obtained (sensitivity 80% and specificity 95%). Conclusions: The possibility that the product score of the immunohistlogical findings with anti-LMP2 antibody was useful for the preoperative discrimination between usual leiomyoma and leiomyosarcoma was shown. However, preoperative diagnosis of atypical leiomyoma was difficult.

Database: EMBASE

31. Value of Magnetic Resonance Imaging in Diagnosis of Adenomyosis and Myomas of the Uterus

Author(s): Stamatopoulos C.P.; Mikos T.; Grimbizis G.F.; Stamatopoulos P.; Tarlatzis B.C.; Dimitriadis A.S.; Efstratiou I.

Abstract: Study Objective: To estimate the diagnostic performance of magnetic resonance imaging (MRI) in detection of myomas and adenomyosis of the uterus. Design: Prospective cohort observational study (Canadian Task Force classification II-2). Setting: Department of obstetrics and gynecology, tertiary academic hospital. Patients: One hundred fifty-three consecutive women with an enlarged uterus accompanied by gynecologic symptoms and/or with an asymptomatic pelvic mass. Intervention: Total abdominal hysterectomy. All patients underwent MRI before the operation. Measurements and Main Results: The sensitivity, specificity, positive, and negative predictive value of MRI for the diagnosis of uterine pathology was calculated using histologic findings as the standard criterion for final diagnosis. Receiver operating characteristics curves were constructed to describe the diagnostic performance of MRI. In the diagnosis of myomas, MRI demonstrated sensitivity of 94.1%, specificity of 68.7%, PPV of 95.7%, and NPV of 61.1%. In the diagnosis of adenomyosis, MRI demonstrated sensitivity of 46.1%, specificity of 99.1%, PPV of 92.3%, and NPV of 88.5%. The area under the curve (AUC) for the diagnostic performance of MRI in the detection of myomas and adenomyosis was 0.81 and 0.73, respectively. Uterine sarcoma was diagnosed in 5 patients; in these cases, MRI demonstrated sensitivity of 60.0%, specificity of 99.2%, PPV of 75.0%, and NPV of 98.4%. The AUC for MRI in the diagnosis of uterine sarcomas was 0.80. Conclusions: MRI exhibits a high AUC for the diagnosis of both adenomyosis and myomas. The PPV of MRI in the diagnosis of adenomyosis and myomas of the uterus is high as well. MRI seems to be a useful technique in everyday clinical practice in the diagnostic approach of these common conditions, enabling clinicians to select the most appropriate management. © 2012 AAGL.

Database: EMBASE

32. Diagnosis and management of leiomyosarcoma arising from ovarian vein: case report and literature review.

Author(s): Tsuyoshi, Hideaki; Yoshida, Yoshio; Kurokawa, Tetsuji; Kotsuji, Fumikazu

Source: The journal of obstetrics and gynaecology research; Feb 2012; vol. 38 (no. 2); p. 466-470

Publication Date: Feb 2012

Publication Type(s): Case Reports Journal Article Review

PubMedID: 22229846

Available at The journal of obstetrics and gynaecology research - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract: Primary leiomyosarcomas arising from the ovarian vein are extremely rare and are associated with high morbidity. A 49-year-old nulliparous woman presented with a left lower abdominal mass. Although extremely rare, the radiological appearance is able to preoperatively identify malignant retroperitoneal masses, such as leiomyosarcomas originating from the ovarian vein; thus, the patient underwent a simple total excision of the mass-adjacent organs, as well as complete resection of the uterus, bilateral adnexae and the left ovarian vein. Adjuvant postoperative combination chemotherapy with gemcitabine and docetaxel was administered. At 22 months, she had no recurrence or metastasis. Delayed diagnosis and high metastatic potentiality are associated with the high morbidity of vascular leiomyosarcomas. The preoperative radiological appearance is useful for early diagnosis, and radical treatment with adjuvant chemotherapy consisting of gemcitabine and docetaxel may improve the poor prognosis of patients with leiomyosarcoma arising from the ovarian vein.

Database: Medline

33. Clinical presentation and diagnosis of uterine sarcoma, including imaging.

Author(s): Wu, Tzu-I; Yen, Tzu-Chen; Lai, Chyong-Huey

Source: Best practice & research. Clinical obstetrics & gynaecology; Dec 2011; vol. 25 (no. 6); p. 681-689

Publication Date: Dec 2011

Publication Type(s): Journal Article Review

PubMedID: 21816678

Abstract: Uterine sarcomas are uncommon tumours from mesenchymal elements. They are thought to arise primarily from endometrial stroma and uterine muscle, respectively. When endometrial stroma undergoes malignant transformation, it might be accompanied by a malignant epithelial component. Thus, malignant mesenchymal uterine tumours comprise leiomyosarcoma, endometrial stromal sarcoma, undifferentiated uterine sarcoma and carcinosarcoma. In this chapter, we discusses preoperative presentation, diagnosis and current progress in different imaging modalities, including ultrasonography, computed tomography, magnetic resonance image and positron emission tomography scan. We summarise advances in new technology, which might improve preoperative detection and enhance referral to gynaecologic oncologists for optimal staging surgery and treatment.

Database: Medline

34. Neutrophil to lymphocyte ratio for preoperative diagnosis of uterine sarcomas: a case-matched comparison.

Author(s): Kim, H S; Han, K H; Chung, H H; Kim, J W; Park, N H; Song, Y S; Kang, S B

Abstract:BACKGROUNDUterine sarcomas are rare among all uterine malignancies, and frequently misdiagnosed as benign uterine diseases such as leiomyoma and adenomyosis because of lack of feasible tools for the preoperative diagnosis. Although some studies have suggested the role of serum CA-125 levels for the preoperative diagnosis, the efficacy is controversial. Since malignancy is known to be associated with systemic inflammation which leads to hematological alteration, we compared the efficacy for the preoperative diagnosis of uterine sarcomas between the neutrophil to lymphocyte ratio (NLR) and serum CA-125 levels using a case-match comparison.METHODSFrom November 2004 to December 2008, 55 patients with carcinosarcoma (n=21), leiomyosarcoma (n=20) and endometrial stromal sarcoma (n=14) were matched to 330 patients with leiomyoma (n=165) and adenomyosis (n=165) in terms of age at diagnosis, body mass index and uterine volume.RESULTSThe receiver operating characteristic curve showed the best cut-off values of the NLR (>or=2.12) and serum CA-125 levels (>or=27.5U/ml) for the preoperative diagnosis of uterine sarcomas, demonstrating that the NLR was more powerful for the preoperative diagnosis of uterine sarcomas than serum CA-125 levels (sensitivity, 74.5% vs. 52.3%; specificity, 70.3% vs. 50.5%; positive predictive value, 29.5% vs. 15.1%; negative predictive value, 94.3% vs. 86.5%; accuracy, 60.6% vs. 49.6%; p<0.05). Furthermore, the NLR reflected recurrence and progression more accurately than serum CA-125 levels in patients with uterine sarcomas.CONCLUSIONSThese findings suggest that the NLR may be more useful than serum CA-125 levels as a cost-effective tool for the preoperative diagnosis in patients with uterine sarcomas.

Database: Medline

35. Assessment of the predictivity of preoperative serum CA 125 in the differential diagnosis of uterine leiomyoma and uterine sarcoma in the Turkish female population.

Author(s): Yilmaz, N; Sahin, I; Kilic, S; Ozgu, E; Gungor, T; Bilge, U

Abstract:AIMSUterine leiomyomas are the most common benign tumors of the uterus. Unfortunately, the diagnostic imaging criteria for distinguishing leiomyosarcomas from leiomyomas remain vague. Our aim was to study the preoperative diagnostic value of CA 125 in the differential diagnosis of leiomyoma and uterine sarcoma.METHODSThe subjects of the study included a total of 2,382 patients aged between 20-71 years operated for uterine myoma between the years 2005 and 2008 at our hospital, and in the same period 26 patients diagnosed with uterine sarcoma who were assessed retrospectively.RESULTSAssessment of the predictivity of CA 125 values in the preoperative diagnosis of uterine sarcoma showed it was not significant according to the 95% CI related to the area below the curve. The assessment of CA 125 values in the uterine sarcoma group showed that those with carcinosarcoma had higher CA 125 mean values than other sarcoma groups. The relation between staging and CA 125 in all sarcomas could not be statistically assessed.CONCLUSIONWe concluded that in the differential diagnosis of myoma and uterine sarcoma, the preoperative serum CA 125 level did not have any predictivity. Additionally, there was no association between staging and CA 125 in uterine sarcomas.

Database: Medline

36. A scoring system for histopathologic and immunohistochemical evaluations of uterine leiomyosarcomas

Author(s): Yoshida C.; Ichimura T.; Nakano A.; Kasai M.; Sumi T.; Ishiko O.; Kawamura N.

Available at Oncology Reports - from Free Medical Journals . com

Abstract: Uterine leiomyosarcomas (LMS) are difficult to distinguish from benign leiomyomas without surgery. In this study we performed transcervical needle biopsy on 475 patients, 8 LMS patients and 467 patients with non-sarcomas (non-LMS) in a high-risk group for LMS, and evaluated whether examinations performed with Ki-67 and CD34 immunohistochemical analyses in addition to the standard hematoxylin-eosin (H&E)-stained sections would improve preoperative diagnostic precision of the uterine smooth muscle tumors. Histopathologic analysis included three factors: degree of cytologic atypia, mitotic index and coagulative tumor cell necrosis (CTCN). We also evaluated cell proliferation with Ki-67 expression. In cases of suspected CTCN, we examined CD34 expression and counted positive blood vessels in the necrotic area. Three of the 8 LMS cases satisfied the diagnostic criteria of LMS by histopathologic evaluation with H&E-stained sections. We made a score list based on these analyses; scores for LMS specimens ranged from 6-14 points; non-LMS specimens scored 0-2 points. At the cut-off score of 6 points, the positive predictive value to distinguish LMS from non-LMS was 100%, showing that this scoring system, is a useful method for preoperative differentiation between LMS and non-LMS tumors.

Database: EMBASE

37. Clinical management of uterine sarcomas.

Author(s): Amant, Frédéric; Coosemans, An; Debiec-Rychter, Maria; Timmerman, Dirk; Vergote, Ignace

Available at The Lancet. Oncology - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract: Malignant pure mesenchymal uterine tumours encompass endometrial stromal sarcoma (ESS), uterine leiomyosarcoma, and undifferentiated sarcomas. This Review discusses pathology, preoperative diagnosis, and standard treatment of uterine leiomyosarcoma and low-grade ESS (distinct from undifferentiated uterine sarcomas), with an emphasis on targeted treatment. We show that several features on ultrasonography and MRI can raise suspicion of a uterine sarcoma; however, there are no pathognomonic features on any imaging technique. For both ESS and uterine leiomyosarcoma, hysterectomy with bilateral salpingo-oophorectomy, but without lymphadenectomy, is the standard surgical treatment for early stage disease. The clinical benefit of chemotherapy is limited, which underscores the importance of targeted therapy. ESS and uterine leiomyosarcoma are driven by different pathways, resulting in a different clinical behaviour. ESS typically is a hormone-sensitive tumour with indolent growth. Uterine leiomyosarcoma is notorious for its aggressive growth and poor outcome. Individualisation of treatment is mandatory, because randomised trials are almost non-existent. The progesterone and oestrogen receptors are clinically important targets for most primarily advanced or recurrent ESS and a subset of recurrent uterine leiomyosarcomas. Potential future targets and targeted treatments that are under investigation are presented for both entities.

Database: Medline

38. The value of perioperative imaging in patients with uterine sarcomas

Author(s): Nugent E.K.; Zighelboim I.; Case A.S.; Thaker P.H.; Rader J.S.; Mutch D.G.; Massad L.S.; Gao F.

Abstract: Objective: To explore the yield and impact of perioperative imaging on management among patients undergoing surgical resection and treatment of uterine sarcomas. Methods: A retrospective chart review was done for women with histologically confirmed uterine sarcomas treated at Barnes Jewish Hospital/Washington University from 2001 to 2007. Descriptive statistics, Cox multivariate models, and Kaplan-Meier plots were used to evaluate associations and survival. Results: A total of 92 patients were identified and 55 (60%) were diagnosed with stage III-IV disease. Perioperative imaging was obtained in 84 (91%) cases, including chest X-ray in 66 (72%), computerized tomography (CT) of the abdomen and pelvis in 59 (64%), chest CT in 33 (36%), positron emission tomography (PET) in 8 (9%), and CT of the head, pelvic magnetic resonance imaging (MRI), or bone scan in a total of 2 (2.2%). Imaging identified abnormalities concerning for metastases in 30 (32%) studies. Thirty-four recurrences have been documented, and 21 (62%) of these treatment failures were extrapelvic. Multivariate analysis of this series noted that tomographic evidence of extrauterine disease predicted recurrence (p = 0.028) and incomplete surgical resection

(p = 0.003, HR 6.0 95% CI 1.9-19.9) predicted disease-free survival. Imaging contributed to change in surgical and post-surgical treatment decisions in 8 (9%) patients. Conclusion: Pretreatment imaging studies change management in a minority of patients with newly diagnosed uterine sarcomas. © 2009 Elsevier Inc. All rights reserved.

Database: EMBASE

39. Leiomyosarcoma of the ovarian vein: A case report with radiological findings

Author(s): Hyeon J.C.; Ho K.K.; Jung H.S.; Ghi J.L.; Shim J.-C.; Young H.K.; Lee H.-S.; Yun K.K.

Source: Korean Journal of Radiology; Jul 2008; vol. 9

Publication Date: Jul 2008

Publication Type(s): Article

PubMedID: 18607118

Available at Korean Journal of Radiology - from Europe PubMed Central - Open Access

Available at Korean Journal of Radiology - from Free Medical Journals . com

Abstract: Leiomyosarcomas of the ovarian vein are very rare. Four cases have been reported in the English language clinical literature. We present a case of leiomyosarcomas where the use of multi-detector CT had a substantial role in the establishment of the preoperative diagnosis. The radiological images as well as intraoperative features are illustrated. We also discuss the radiological findings of the ovarian vein leiomyosarcoma in comparison with those of other venous or retroperitoneal leiomyosarcomas. We expect that the use of multi-detector CT will be the choice for the diagnostic work-up of vascular leiomyosarcomas.

Database: EMBASE

40. Potential role of preoperative serum CA125 for the differential diagnosis between uterine leiomyoma and uterine leiomyosarcoma.

Author(s): Juang, C M; Yen, M S; Horng, H C; Twu, N F; Yu, H C; Hsu, W L

Source: European journal of gynaecological oncology; 2006; vol. 27 (no. 4); p. 370-374

Publication Date: 2006

Publication Type(s): Comparative Study Journal Article

PubMedID: 17009628

Abstract:PURPOSEMost comparisons between uterine leiomyoma and uterine leiomyosarcoma have been based on postoperative pathological or molecular analyses. Very few reports have investigated preoperative differentiation between uterine leiomyoma and uterine leiomyosarcoma.METHODSBetween January 1990 and December 2003, 42 consecutive patients with uterine leiomyosarcoma treated at index hospitals were analyzed. Meanwhile, 84 patients with uterine leiomyomas were used as controls. The diagnostic performance of preoperative serum CA125 for the differential diagnosis between uterine leiomyoma and uterine leiomyosarcoma using receiver operating characteristic (ROC) curves was evaluated. Data presentations were categorized into premenopausal and postmenopausal groups. Diagnostic efficiency was calculated as the sensitivity multiplied by the specificity.RESULTSValues of preoperative serum CA125 were significantly higher in the uterine leiomyosarcoma group than those in the uterine leiomyoma group. There was significant overlapping of preoperative serum CA125 between the uterine leiomyoma group and early-stage uterine leiomyosarcoma. For both the premenopausal and postmenopausal group, there was a significant difference in the distribution of preoperative serum CA125 in early-

stage and advanced-stage uterine leiomyosarcoma. The optimal cutoff values of serum CA125 for the premenopausal group and postmenopausal group was 162 U/mL and 75 U/mL, respectively.CONCLUSIONThese findings demonstrated that preoperative serum CA125 had a potential role in the differential diagnosis between early-stage and advanced-stage uterine leiomyosarcoma. Further investigation with a larger sample size at adequate power is necessary to verify the current study.

Database: Medline

41. Diagnosis and surgical therapy of uterine sarcoma

Author(s): Vrzic-Petronijevic S.; Likic-Ladjevic I.; Petronijevic M.; Argirovic R.; Ladjevic N.

Abstract:INTRODUCTION: Uterine sarcomas are rare gynaecological neoplasms and their classification is complicated. Uterine sarcoma is usually diagnosed in postmenopausal women and the diagnosis is often accidental and postoperative. Aim of this study was to present clinical and pathological characteristics of uterine sarcomas, diagnostic procedures, treatment and two-, three- and five-years cumulative survival rates. MATERIALS AND METHODS: The retrospective study of 61 cases of uterine sarcomas was conducted. Cases were distributed into groups based on definitive diagnosis of uterine sarcoma: group of leiomyosarcomas (LMS), carcinosarcoma (CS), endometrial stromal sarcomas (ESS), adenosarcomas (AS) and other rare uterine sarcomas. We investigated patients with clinical and pathological characteristics of uterine sarcomas, diagnostic procedures and treatment. Survival rate was calculated by Kaplan-Meier method. RESULTS: From 61 patients 43 patients (70.49%) were postmenopausal. Mean period from menopause until appearance of symptoms was 14,63 years. One or more risk factors were present in 46 (75.4%) patients. Diagnosis of uterine sarcoma were established averagely 7.38 months after appearance of symptoms. 50 patients (82.0%) underwent one or more diagnostic procedures. Preoperative diagnosis of uterine sarcoma was established in 42.5% of patients. 53 (86.9%) of patients were treated operatively. The most used operative procedure (60,7%) was total hysterectomy with bilateral salpingooophorectomy. Postoperative pathohistologic analysis showed that low grade (LG) leiomyosarcoma were present in 19 (35.9%) cases, high grade (HG) leiomyosarcoma in 1 (1.9%) case, carcinosarcoma in 14 (26.4%) cases, low grade (LG) endometrial stromal sarcoma in 5 (9.4%) cases, high grade (HG) endometrial stromal sarcoma in 9 (17.0%) cases, adenosarcoma in 2 (3.8%) cases, and 2 cases of rare uterine sarcomas: 1 (1.9%) MALT HG lymphoma and 1(1.9%) malignant hemangiopericytoma. In one case of ESS (1.9%) only adenomyosis was found postoperatively suggesting that the whole tumour was removed during diagnostic procedure. Eight patients were not treated operatively. Two-years cumulative survival rate was 74.3%, three-years cumulative survival rate was 71.1%, and five years survival rate was 64.3%. DISCUSSION: Average age, percent of postmenopausal patients and the mean age at the time of menopause in our studied correlate with current data. Clinical presentation of uterine sarcoma is associated with obesity and hypertension in more than 30% of cases, which is approved in our study. For early diagnostics it is important to notice that risk factors are similar to those connected with far more frequent endometrial carcinoma. Postmenopausal abnormal bleeding was the main reason for medical examination, explaining relatively short period for establishing the diagnosis in this group of patients. The variety of clinical findings in our studied group showed that the diagnosis must be based on preoperative pathohistology. CONCLUSION: Adequate diagnosis and treatment of uterine sarcoma is possible with regular yearly or more frequent follow-up, especially in postmenopausal women with known risk

factors present. We need special attention for unclear symptoms and postmenopausal bleeding and we need to use all diagnostic procedures soon as possible including preoperative histology because early metastases are characteristic for uterine sarcomas. Factor of the most important predictive value is histologic grade.

Database: EMBASE

42. Fine-needle aspiration of soft tissue leiomyosarcoma: An analysis of the most common cytologic findings and the value of ancillary techniques

Author(s): Domanski H.A.; Akerman M.; Rissler P.; Gustafson P.

Available at Diagnostic Cytopathology - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract: This study aims to determine the diagnostic accuracy of fine-needle aspiration cytology (FNAC) of primary leiomyosarcoma (LMS) of soft tissue and to review diagnostic criteria and adjunctive methods, which can contribute to a confident diagnosis. We evaluated the preoperative FNAC in 89 patients with primary LMS for the following: cytomorphology and correspondence of FNA to histological features of excised tumors and clinical data. In addition, the utility of adjunctive techniques was analyzed and other spindle-cell lesions in the differential diagnoses were discussed. An unequivocal, malignant diagnosis was rendered by FNAC in 78 cases; 74 tumors were diagnosed as sarcoma, of which 31 as LMS or suspicion of LMS. In addition, three smears were labeled as malignant tumor, one as carcinoma metastasis, and three as neurilemmoma. Seven aspirates were inconclusive and one insufficient. On reevaluation, the diagnostic smears in most cases contained tumor cell fascicles with an admixture of dispersed cells or stripped nuclei. The most common cells were spindle cells with elongated, blunt-ended, segmented or fusiform nuclei, and round/polygonal cells, often with rounded or indented nuclei. In addition, 51 cases showed pleomorphic, often multinucleated cells. Osteoclasts, intranuclear vacuoles, and mitoses occurred in 14, 47, and 27 cases, respectively. Thus, most high-grade LMSs have cytologic features that allow diagnosis of sarcoma. Ancillary studies can confirm the diagnosis of LMS and help in the correct interpretation of predominant spindle-cell or epitheloid-cell smears resembling neurilemoma or carcinoma, respectively. © 2006 Wiley-Liss, Inc.

Database: EMBASE

43. Uterine leiomyoma versus leiomyosarcoma: a new attempt at differential diagnosis based on their cellular characteristics.

Author(s): Watanabe, K; Suzuki, T

Source: Histopathology; Apr 2006; vol. 48 (no. 5); p. 563-568

Publication Date: Apr 2006

Publication Type(s): Comparative Study Journal Article

PubMedID: 16623782

Available at Histopathology - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract:AIMTo differentiate uterine leiomyoma (LM) with 'pseudosarcomatous' features from leiomyosarcoma (LMS). We hypothesized that because pseudosarcomatous LM is only a benign variant of conventional LM, it may have some characteristics different from LMS.METHODS AND RESULTSFourteen uterine smooth muscle tumours, which had been diagnosed as LMS previously, were reviewed and divided into adverse outcome (true LMS; seven cases) and excellent outcome groups (presumed pseudosarcomatous LM; seven cases) based on their clinical course. The tumours of the adverse outcome group were composed of rather uniform long spindle cells similar to those of leiomyosarcoma arising from the soft tissue. All tumours in this group had coagulative necrosis and all but one case were diagnosed preoperatively as malignant. In contrast, the tumours of the excellent outcome group showed significant histological diversity both between tumours and also in the same tumour and areas indistinguishable from conventional LM were often seen. All the tumours of this group were diagnosed preoperatively as benign. Immunohistochemically, all tumours of the excellent outcome group expressed progesterone receptor, often intensely, and also frequently expressed oestrogen receptor. In contrast, all the tumours of the adverse outcome group lacked them completely.CONCLUSIONPseudosarcomatous LM has characteristics useful for differentiating it from LMS, which are common in conventional LM.

Database: Medline

44. Preoperative diagnosis and treatment results in 106 patients with uterine sarcoma in Hokkaido, Japan.

Author(s): Sagae, Satoru; Yamashita, Kohki; Ishioka, Shinichi; Nishioka, Yoshihiro; Terasawa, Katsuhiko; Mori, Mitsuru; Yamashiro, Katsushige; Kanemoto, Toshitaka; Kudo, Ryuichi

Source: Oncology; 2004; vol. 67 (no. 1); p. 33-39

Publication Date: 2004

Publication Type(s): Journal Article

PubMedID: 15459493

Available at Oncology - from ProQuest (Hospital Premium Collection) - NHS Version

Abstract:OBJECTIVEThe aim of this study was to evaluate the clinicopathological features of uterine sarcoma in Hokkaido, Japan, between 1990 and 1999, and to identify prognostic factors of patients with such malignancies in this area and period.METHODSOne hundred and six patients with histologically proven uterine sarcoma were evaluated retrospectively.RESULTS93.5% of the patients with carcinosarcoma (CS) were diagnosed as having malignant disease preoperatively, while 65% of those with leiomyosarcoma (LMS) and 75% of those with endometrial stromal sarcoma (ESS) were preoperatively diagnosed as benign leiomyoma. When patients had no residual disease postoperatively, 5-year survival rates in patients with CS and LMS were 78.8 and 73.0%, respectively. ESS cases had a better prognosis (94.7% for stage I cases). In patients with early-stage sarcoma, pelvic lymphadenectomy and adjuvant chemotherapy, with or without cis-

diamminedichloroplatinum, failed to show a survival benefit in both CS and LMS cases. Distant metastasis, myometrial invasion, and no residual disease at surgery were significantly associated with risk of death or recurrence in CS and LMS cases.CONCLUSIONAccurate preoperative diagnosis of uterine sarcoma was difficult, and no residual disease at surgery was the most important prognostic factor in patients with this disease. Postoperative adjuvant therapy had little effect on survival, especially in early-stage disease.

Database: Medline

45. Leiomyosarcomas: analysis of clinical presentations in 6 patients.

Author(s): Fahim, F

Source: JPMA. The Journal of the Pakistan Medical Association; Sep 2002; vol. 52 (no. 9); p. 412-414

Publication Date: Sep 2002

Publication Type(s): Journal Article

PubMedID: 12532576

Abstract:OBJECTIVETo identify characteristic features of leiomyosarcomas in an attempt to diagnose them preoperatively.STUDY DESIGNThe 3 years experience with 6 patients with uterine leiomyosarcomas at Hayatabad Medical Complex, Peshawar was retrospectively reviewed.RESULTSThe mean age of occurrence was 50 years with abnormal uterine bleeding the commonest symptom. Leiomyosarcomas had no preferential uterine location and were of variable sizes. Only 1 case was diagnosed preoperatively.CONCLUSIONWe have observed that physical examination and imaging techniques are rarely helpful in establishing the diagnosis preoperatively. We recommend larger prospective studies to evaluate the efficacy of preoperative monitoring of enlarged uteri.

Database: Medline

46. Transcervical needle biopsy for the differential diagnosis between uterine sarcoma and leiomyoma.

Author(s): Kawamura, Naoki; Ichimura, Tomoyuki; Ito, Fumihiro; Shibata, Sachiko; Takahashi, Kumiyo; Tsujimura, Akemi; Ishiko, Osamu; Haba, Tomoko; Wakasa, Kenichi; Ogita, Sachio

Abstract:BACKGROUNDThe clinical differential diagnosis between uterine sarcoma and benign leiomyoma is difficult even with magnetic resonance imaging (MRI). Therefore, a considerable number of patients have undergone hysterectomies due to an indication of "suspected malignancy" based on tumor size alone. However, approximately 80% of these hysterectomies have been judged to have been recommended inappropriately. In such situations, reliable preoperative diagnostic tests are required. The authors have evaluated the accuracy of needle biopsy for uterine myoma-like tumors, a procedure that to the authors' knowledge has been performed infrequently.METHODSTranscervical needle biopsy was performed in 435 patients with uterine myoma-like tumors. The biopsy specimens were scored for degree of malignancy according to the histopathologic criteria proposed by Bell et al. Histopathologic evaluation of surgical specimens and clinical outcome after 2 years of follow-up were used as the reference standards.RESULTSOf 435 patients, 7 had uterine sarcomas, 4 of which were scored as > or = 4 points and were diagnosed as "sarcoma" by needle biopsy alone. No sarcoma cases were included in the group of patients with a score of 0. The cutoff score combining the highest sensitivity and specificity with respect to distinguishing uterine leiomyosarcoma from uterine leiomyoma was 2; sensitivity, specificity, and positive and negative predictive values were 100%, 98.6%, 58%, and 100.0%, respectively.CONCLUSIONSTranscervical needle biopsy using histopathologic scoring is a reliable diagnostic test for the differential diagnosis between uterine sarcoma and leiomyoma. This diagnostic method, combined with MRI screening, could reduce the number of patients currently undergoing unnecessary surgery.

Database: Medline

47. Positron emission tomography using 2-[¹⁸F] fluoro-2-deoxy-D-glucose in the diagnosis of uterine leiomyosarcoma: A case report

Author(s): Umesaki N.; Tanaka T.; Miyama M.; Ogita S.; Kawabe J.; Okamura T.; Koyama K.; Ochi H.

Abstract: The preoperative diagnosis of uterine leiomyosarcoma (LMS) is very difficult. Magnetic resonance (MR) imaging is usually used for it; however, precise diagnosis by MR imaging is limited to typical LMS with coagulative tumor cell necrosis. We presented a case of LMS that was diagnosed preoperatively by positron emission tomography (PET) using 2-[18F] fluoro-2-deoxy-D-glucose (FDG). © 2001 Elsevier Science Inc. All rights reserved.

Database: EMBASE

48. Positron emission tomography with ¹⁸F-fluorodeoxyglucose of uterine sarcoma: A comparison with magnetic resonance imaging and power Doppler imaging

Author(s): Umesaki N.; Tanaka T.; Miyama M.; Kawamura N.; Ogita S.; Kawabe J.; Okamura T.; Koyama K.; Ochi H.

Abstract: Objective. The effectiveness of positron emission tomography with 18F-fluorodeoxyglucose (FDG-PET) for diagnosis of uterine sarcoma was evaluated in comparison to the effectiveness of magnetic resonance (MR) imaging and power Doppler imaging. Method. The cases of five Osaka City University Hospital patients diagnosed with uterine sarcoma based on histopathological examination, in whom FDG-PET, MR imaging, and power Doppler imaging studies had been performed preoperatively, were reviewed, A comparative study of the usefulness of these three imaging modalities for diagnosis of sarcoma was conducted. Tumors comprised three leiomyosarcomas, one endometrial stromal sarcoma, and one carcinosarcoma. Results. FDG-PET examinations were 100% positive for the five sarcomas; MR imagings were 80% positive (four of five cases), and US was 40% positive (two of five cases). The mean strandardized uptake value of the sarcomas was 4.5 +/- 1.3. Conclusion. The sarcoma lesions were clearly imaged by FDG-PET. FDG-PET may be a most useful diagnostic method for uterine sarcoma. © 2001 Academic Press.

Database: EMBASE

49. Role of fine-needle aspiration cytology in the preoperative evaluation of smooth muscle tumors

Author(s): Barbazza R.; Chiarelli S.; Quintarelli G.F.; Manconi R.

Available at Diagnostic Cytopathology - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract:A preliminary study was undertaken to assess the feasibility and the diagnostic role of fine-needle aspiration cytology (FNAC) in the preoperative evaluation of eight uterine smooth muscle tumors manifesting as single large masses with signs of growth. Percutaneous FNAC was performed under echographic control with a 22-gauge needle and the material was stained according to conventional techniques. Histology of surgically resected specimens was available for final diagnosis and comparative analysis in all the cases, including five leiomyomas (LM), one smooth muscle tumor of uncertain malignant potential (TUMP), and two low-grade leiomyosarcomas (LMS). Cellularity, as indicated by the density (crowding) of nuclei reflecting the amount of cytoplasmic volume, and the cohesiveness of the tissue fragments in the smears appeared to be the most important diagnostic parameters in the distinction between LM and LMS. LM usually showed few scattered poorly cellular fragments of highly cohesive tapering cells without nuclear crowding and with abundant cytoplasm. LMS usually showed a large number of single cells and fragments of loosely arranged tapering cells with nuclear enlargement and crowding and ill-defined scanty cytoplasm. Borderline forms such as TUMP were hardly distinguishable from LMS and LM. FNAC appears to be a feasible preoperative procedure in uterine smooth muscle tumors and may play a diagnostic role, especially in distinguishing frankly benign from overtly malignant forms.

Database: EMBASE

50. Uterine sarcoma: can it be differentiated from uterine leiomyoma with Doppler ultrasonography? A preliminary report.

Author(s): Hata, K; Hata, T; Maruyama, R; Hirai, M

Source: Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology; Feb 1997; vol. 9 (no. 2); p. 101-104

Publication Date: Feb 1997

Publication Type(s): Journal Article

PubMedID: 9132251

Available at Ultrasound in obstetrics & gynecology : the official journal of the International Society of Ultrasound in Obstetrics and Gynecology - from Wiley Online Library Science , Technology and Medicine Collection 2017

Abstract: Our objective was to evaluate whether intratumoral-blood flow analysis could differentiate uterine sarcoma from uterine leiomyoma. Color and pulsed Doppler findings obtained from 41 patients with histologically proven uterine leiomyoma and five with uterine sarcoma (four leiomyosarcoma, one mixed mesodermal tumor) were retrospectively assessed. Intratumoral blood flow velocity waveforms were recorded, and the resistance index (RI) and peak systolic velocity (PSV) were calculated. There was no significant difference between the RI (median 0.647; range 0.422-0.896) in the uterine leiomyomas and the RI (median 0.663; range 0.330-0.774) in the uterine sarcomas. The PSV (median 61.6 cm/s; range 40.0-124.0 cm/s) in the uterine sarcomas was significantly higher (median 21.6 cm/s, range 6.3-48.6 cm/s) than that in the uterine leiomyomas ($p < 0.05$). When a cut-off value for the PSV of 41.0 cm/s (mean PSV of the uterine leiomyomas plus 2 standard deviations) was considered, the detection rate for uterine sarcoma was 80.0%, and the false-positive rate was 2.4%. These results suggest that the PSV within the tumor detected by color and pulsed Doppler ultrasonography could be useful for the preoperative differential diagnosis of uterine sarcoma.

Database: Medline

51. Leiomyosarcoma of the uterus: Ultrasonography and serum lactate dehydrogenase level

Author(s): Seki K.; Hoshihara T.; Nagata I.

Source: Gynecologic and Obstetric Investigation; 1992; vol. 33 (no. 2); p. 114-118

Publication Date: 1992

Publication Type(s): Article

PubMedID: 1559623

Abstract: Between January 1, 1979, and September 30, 1990, a total of 1,886 patients in the National Defense Medical College Hospital, a self-referred population, had a hysterectomy because of signs and symptoms presumably resulting from uterine myomas. After hysterectomy with presumed benign disease, a histologic diagnosis of leiomyosarcoma was made in 7 patients (0.37%). Preoperative diagnosis of leiomyosarcoma was not made in any of the 7 patients. However, serum lactate dehydrogenase levels were abnormally elevated in 3 of them, and degenerative changes were found within the tumor by ultrasonography in 5 of them. Furthermore, increased lactate dehydrogenase levels and degenerative changes within the tumor were found in 3 of the patients whose tumors had 10 or more mitoses per 10 high-power fields. The prognosis for the leiomyosarcomas with increased mitotic rates is very poor. Therefore, a degenerative change within the uterine mass and an increased lactate dehydrogenase level, when present, should suggest the diagnosis of leiomyosarcoma.

Database: EMBASE

Strategy 338901

#	Database	Search term	Results
1	Medline	(preoperative* OR "pre operative*").ti,ab	268164
2	Medline	exp "PREOPERATIVE PERIOD"/	4711
3	Medline	(1 OR 2)	269219
4	Medline	(leiomyosarcoma*).ti,ab	9363
5	Medline	exp LEIOMYOSARCOMA/di	2031
6	Medline	(4 OR 5)	9824
7	Medline	(3 AND 6)	507
8	Medline	(preoperative* OR "pre operative*").ti	39161
9	Medline	(6 AND 8)	47
10	Medline	(preoperative* ADJ2 (diagnos* OR identif* OR detect*)).ti,ab	24671
11	Medline	("pre operative*" ADJ2 (diagnos* OR identif* OR detect*)).ti,ab	2563
12	Medline	(10 OR 11)	26970
13	Medline	(6 AND 12)	220
14	EMBASE	exp "PREOPERATIVE EVALUATION"/ OR exp "PREOPERATIVE INVESTIGATION"/	92123
15	EMBASE	(preoperative* ADJ2 (diagnos* OR identif* OR detect*)).ti,ab	29951

16	EMBASE	("pre operative*" ADJ2 (diagnos* OR identif* OR detect*)).ti,ab	3719
17	EMBASE	(14 OR 15 OR 16)	118621
18	EMBASE	(leiomyosarcoma*).ti,ab	11909
19	EMBASE	exp LEIOMYOSARCOMA/	13656
20	EMBASE	(18 OR 19)	15954
21	EMBASE	(17 AND 20)	475
22	EMBASE	21	475
23	EMBASE	21 [English language]	386
24	Medline	(presurg*).ti,ab	8467
25	Medline	(6 AND 24)	5
26	Medline	("pre surg*").ti,ab	3184
27	Medline	(6 AND 26)	2