MR features of the Uterine Cervical Cystic Lesions.

Poster No.: C-0782
Congress: ECR 2014
Type: Educational Exhibit
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Keywords: Cysts, Diagnostic procedure, MR, Genital / Reproductive system female, Pathology
DOI: 10.1594/ecr2014/C-0782

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Learning objectives

To describe the typical MR features of Uterine Cystic Lesions with a special interest to LEGH (Lobular Endocervical Glandular Hyperplasia) and MDA (Minimal Deviation Adenocarcinoma).

In this poster we will review the newly emerging pathological findings in this area and analyze the contribution of MRI to make a differential diagnosis among various types of uterine cystic lesions.

The aim is to improve the diagnostic skills and to make the better recommendation for clinicians how to follow-up such lesions.

Background

On women's pelvic MRI, it is quite common to find uterine cervical cystic lesions in our daily diagnostic situations. Most of these lesions such as 'Nabothian cysts' are benign and not necessary to be followed up or to be treated. At the same time, there exists malignant lesions such as MDA, also known as 'Adenoma malignum. Recent studies revealed that the cases previously diagnosed as MDA included LEGH which is rather new entity of endocervical glandular lesions and basically benign. [1]

In the past decade as a process to discover these facts, a variety of benign and malignant endocervical glandular lesion exhibiting gastric differentiation has been described in pathological field that has resulted in the concept of an important category of cervical adenocarcinoma which is unrelated to human papillomavirus. In this category, the most important thing in diagnostic process is to differentiate MDA from LEGH because the prognosis is very different; According to a report, the 5 year survival rate of patients after surgery were 100% for the patient with a diagnosis of LEGH, but only around 50% for the patients with MDA. [1] More confusingly and importantly, recent studies suggest that 'atypical LEGH' could be a precursor of adenocarcinomas exhibiting gastric differentiation including MDA. This means proper diagnosis of LEGH from other benign lesions is becoming also crucial. [2.3]

The problem is that the differential diagnosis between LEGH and MDA is not always easy because of several reasons. Firstly, there is no standardized diagnostic criteria. Secondly, they have similar clinical symptoms (mainly watery discharge). Thirdly, they show similar histopathological findings ; MDA's malignant glands mimic LEGH and both MDA and LEGH exhibit a gastric phenotype and immunophenotype HIK 1083 and/or MUC6#.
Therefore, knowing the typical MR features of these lesions is meaningful to lead accurate diagnosis, even though it's not also easy to differentiate LEGH from MDA from MR features. In a recent report, typical MR feature of LEGH was called as 'cosmos pattern' which was named after one popular flower's name. [4.5] As for the MR features of MDA, the biggest difference is they show the solid components which are clearly enhanced by gadolinium.

The combination of histopathological examinations and MR imaging must be helpful to differentiate these confusing lesions in order to avoid over-treatment for benign lesions and misdiagnosis for malignant lesions. Therefore radiologist should be familiar with both pathological background and typical MR features of these lesions.

**Findings and procedure details**

We present 3 typical cases; LEGH, MDA, and Nabothian cysts.

A 1.5 tesla MRI is used to perform exams. All cases were pathologically proven in each as LEGH, MDA, and Nabothian cysts after biopsy or surgery.

**1. LEGH case**

- **Clinical features**

  #A 44-year-old woman came to our hospital complaining watery vaginal discharge. By clinical and MR features, LEGH was considered. Column biopsy was performed and then diagnosed as LEGH pathologically.

- **MR features**

  #T2-weighted sagittal and axial images show multiple cystic lesions ranging from 2mm to 10 mm in diameter on cervical uterine. The shape of this lesion was characterized by so-called 'cosmos-pattern'. Cosmos flowers are produced in a capitulum with a ring of broad ray florets and a center of disc florets. The bigger cysts located in deeper area consist the ring of broad ray florets and the smaller cysts located in shallower area consist the center of disc florets. [11] Axial and sagittal T1-weighted MR image obtained after administration of contrast material show unenhanced multiple cystic lesions. Therefore, LEGH was suspected by these MR features. [Fig.1-3]

- **Pathological features**
Conization of the uterine cervix was performed and microscopically examined. A well-demarcated lesion is located in the higher endocervix and multiocular cysts delineated with the proliferating endocervical glandular epithelium are seen. The lesion is composed of the proliferation of endocervical glands preserving a lobular structure. Structural or nuclear atypia is absent in the proliferating glandular cells. Therefore, this case was diagnosed as LEGH pathologically. [Figure 4-6]

2. MDA case

- Clinical features

A 41-year old woman came to our hospital complaining watery vaginal discharge. Vaginal bleeding was not observed. By clinical and MR features, MDA was considered. Conization was performed and the case was diagnosed as MDA pathologically. Subsequently hysterectomy was performed.

-MR features

T2-weighted sagittal and axial images show multiple cystic lesions ranging from 1mm to 12 mm in diameter on cervical uterine. Axial and sagittal T1-weighted MR image obtained after administration of contrast material show that the walls of cysts are thickened and those walls were clearly enhanced. Therefore, malignant lesion was highly suspected. The MR feature was compatible with MDA. [Fig.7-9]

-Pathological features

Hysterectomy was performed. The cervical uterine was occupied by the tumorous lesions. The lesion is mostly composed of the proliferation of cytologically unremarkable endocervical glands mimicking LEGH and this LEGH-like glands with irregular shape and size diffusely and deeply infiltrate into the myometrium. The structural and nuclear atypia are seen. Immunophenotype, HIK 1083 and MUC6, are both positive. Finally, this case was diagnosed as MDA pathologically. [Figure10-12]

3. Nabothian cyst case

- Clinical features

A 50 year-old woman came to our hospital to receive an operation for a huge myoma. Hysterectomy was performed and incidentally these Nabothian cysts were found in the specimen.

-MR features
#T2#weighted sagittal and axial images show several regularly sized small cysts with well-defined margins and no solid components in the uterine cervix. [Fig.13]

Images for this section:

![Image](image_url)

**Fig. 1:** LEGH case. Sagittal MRI on T2WI. Multiple cysts on cervical with 'cosmos pattern' are seen.
Fig. 2: LEGH case. Sagittal MRI after intravenous Gd on T1WI (fat saturated image). The cysts’ wall are smooth and not enhanced.
Fig. 3: LEGH case. Coronal MRI after intravenous Gd on T1WI (fat saturated image). The cysts' wall are smooth and not enhanced.
Fig. 4: LEGH case. Specimen of Conization of cervical uterine.
Fig. 5: LEGH case. Photomicrograph. (×10#Hematoxylin-eosin stain)
Fig. 7: MDA case. Sagittal MRI after intravenous Gd on T1WI (fat saturated image). The cysts walls are clearly enhanced. Solid components are obvious.
Fig. 8: MDA case. Axial MRI after intravenous Gd on T1WI (fat saturated image). The cysts walls are clearly enhanced. Solid components are obvious.
Fig. 6: MDA case. Sagittal MRI on T2WI. Multiple irregularly-sized cysts are seen.
Fig. 9: MDA case. Specimen of hysterectomy.
Fig. 10: MDA case. Photomicrograph. ×10, HE)
**Fig. 11:** MDA case. Photomicrograph. HIK 1083 is positive.
Fig. 12: MDA case. Photomicrograph. MUC6 is positive.
Fig. 13: Nabothian cysts case. Sagittal MRI on T2WI. Regularly-sized small cysts with well-defined margins are seen.
Fig. 14: Nabothian cysts case. Photomicrograph. ×4, HE)
Conclusion

Awareness of MR features of LEGH, MDA, and other uterine cystic lesions as well as clinicopathologic manifestations must be helpful and essential among radiologists making a chance to avoid over-treatment and misdiagnosis.

Personal information

References


