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Hysteroscopy and three-dimensional ultrasonography in uterine diverticulum diagnosis: A case report

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The authors describe a case report of a uterine diverticulum in a postmenopausal woman with abnormal uterine bleeding, confirmed by 3-dimensional ultrasonography and hysteroscopy. They comment on the clinical significance of this rare lesion.

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True uterine diverticulum is an exceedingly rare anomaly with a difficult diagnostic confirmation. The circumstances behind this entity are usually abnormal uterine bleeding, pelvic pain, and spotting in a perimenopausal women, with additional conditions related to obstetric complications such as ectopic pregnancy, placental accretism, and ruptured uterus.^{1,2} As we know, it is the third published case report and, different from others, the first to confirm this entity by use of hysteroscopy and 3-dimensional ultrasonography.

Case report

A 54-year-old postmenopausal woman complained of intermittent uterine bleeding in the absence of hormonal replacement therapy. Endovaginal ultrasonography

demonstrated a heterogeneous and thickened endometrium (1.4 cm), suggesting a polyp.

After that, a diagnostic hysteroscopy was performed. As the cavity was expanded with gas, the initial polypoid lesion on the anterior uterine wall moved through the myometrial defect, forming a sacculation. The aspect of the endometrium was atrophic. An additional image study was carried out for further investigation and confirmed the initial hypothesis of uterine diverticulum. Hysterosonography demonstrated the same findings of hysteroscopic examination, before and after an irrigation of 25 mL of saline solution. Three-dimensional ultrasonography was applied to provide a spatial representation of the diverticulum, which confirmed our previous hypothesis (Figure).

Comment

The diverticulum is a tubular formation connected to the uterine cavity that ends in a cul-de-sac. The internal surface is lined with endometrial glands and stroma and the walls are composed of smooth muscle.^{1,2}

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Figure Three-dimensional ultrasound scan with spatial representation of the diverticulum.

Although a consensus has not been achieved in terms of etiology of this disease, some authors proposed that endometriosis or adenomyosis are pathologic conditions associated with progressive myometrium weakness and diverticulum formation.² Previous injuries to endometrium or myometrium could also be involved.

Uterine congenital anomaly results from varying degrees of nonfusion of the paired müllerian ducts, and it has been suggested that true uterine diverticulum could represent a localized, unilateral, distal nonfusion of the müllerian duct.¹

By confirming differential diagnosis, ultrasonographic findings may be suggestive in the case of a solitary uterine mass containing central echo-free areas, but degeneration in a leiomyoma can give a similar appearance. Hysterosalpingography would be capable of demonstrating the diverticulum with clarity but it is not usually performed to define uterine or parauterine masses.¹

Another separate entity is uterine sacculation, which is composed of a very thin myometrium connected to the uterine cavity. It has no anatomic relationship with uterine tube or round ligament and may contain parts or products of conception. In the case of term pregnancies, after the fetus is expelled and the uterus contracts, pressure decreases and the sacculation collapse. This defect is probably associated with a previous uterine injury (curettage or uterine surgery) and not with a congenital abnormality as proposed for true uterine diverticulum.

The advent of 3-dimensional ultrasonography increases our diagnostic accuracy for several gynecologic diseases. We described this rare condition to demonstrate the utility of this new technology associated with hysteroscopy for confirmation of uterine diverticulum.

In conclusion, although true uterine diverticulum represents a rare abnormality with doubtful origin and non-standardized clinical management, it was important to verify the excellent correlation between the findings of different noninvasive image methods and diagnostic hysteroscopy. Hysterosonography and 3-dimensional ultrasonography may be, in the near future, the imaging techniques of choice for initial investigation of uterine abnormalities before operation.

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