

## Degenerating cystic uterine fibroid mimics an ovarian cyst in a pregnant patient: a case report\*

*Degeneração cística maciça de leiomioma uterino em gestante simulando neoplasia ovariana: relato de caso*

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**Abstract** The authors describe the case of a pregnant woman referred to the institution to be evaluated for an adnexal mass. Ultrasonography showed a voluminous solid-cystic lesion suggestive of ovarian neoplasm. Magnetic resonance imaging demonstrated that the lesion was located within the uterine serosa, suggesting the presence of a degenerated leiomyoma. A correct diagnosis of pelvic masses in pregnancy is essential for the definition of a therapeutic approach. Magnetic resonance imaging represents a relevant tool in the diagnosis of these abnormalities.

*Keywords:* Ultrasonography; Magnetic resonance imaging; Leiomyoma.

**Resumo** Os autores descrevem o caso de uma gestante encaminhada por apresentar massa anexial. A ultra-sonografia demonstrou volumosa lesão sólido-cística sugestiva de neoplasia ovariana. A ressonância magnética mostrou que a lesão era recoberta pela serosa uterina, sugerindo mioma degenerado. O correto diagnóstico das massas pélvicas na gestação é fundamental para o estabelecimento da terapêutica. A ressonância magnética traz importantes contribuições no diagnóstico dessas entidades.

*Unitermos:* Ultra-sonografia; Imagem por ressonância magnética; Leiomioma.

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### INTRODUCTION

Uterine leiomyomas are the most frequently found benign solid tumors of the female genital system. These tumors affect 20% to 30% of women at childbearing age, and more than 40% of women above 40 years of age<sup>(1,2)</sup>. Leiomyomas are estrogen-dependent tumors presenting growth during gestation in up to 50% of cases<sup>(3)</sup>. Initially, ultrasonography (US) is the method of choice for evaluating these lesions.

Leiomyomas have a typical appearance, but variations in presentation occur as a result from degenerative factors such as hemorrhage, hyalinization and myxoid degeneration mimicking other diseases<sup>(2,4)</sup>. Magnetic resonance imaging (MRI) has shown to be a valuable tool in the diagnosis of these cases<sup>(2,5)</sup>. The authors present the case of a subserosal fibroid with cystic degeneration mimicking an adnexal neoplasm in a primigravida.

### CASE REPORT

A 28-year-old, asymptomatic primigravida referred to the institution presenting a complex mass in the right iliac fossa demonstrated at a second-trimester ultrasonography.

A new US demonstrated a single fetus with biometric data corresponding to a 20/21-week gestation. A large, mixed, predominantly cystic lesion was observed in the right adnexal region, presenting a thick content, irregular septa and peripheral flow, with 662 cm<sup>3</sup> in volume, suggesting an ovarian neoplasm (Figure 1).

MRI for preoperative evaluation demonstrated a gravid uterus, with small intramural and subserosal fibroids. Additionally, a complex cystic formation was observed in the iliac fossa, suggesting a degenerating subserosal fibroid, considering that the lesion was involved by the uterine serosa. The ovaries could not be visualized (Figure 2).

The patient was submitted to laparotomy, with a surgical finding of a large, pedunculated subserosal fibroid in the right cornual region. A complete enucleation was performed, with no intercurrentence (Figure 3). Histopathological study confirmed the diagnosis of degenerating leiomyoma.

### DISCUSSION

Leiomyomas are predominantly composed of smooth muscle cells surrounded by a pseudocapsule<sup>(2,4)</sup>. Leiomyomas may often enlarge during pregnancy or oral contraceptive use, besides regressing at the climacteric and puerperal periods<sup>(2)</sup>. Enlargement during the gestational period presents a multifactorial etiology, and may be re-

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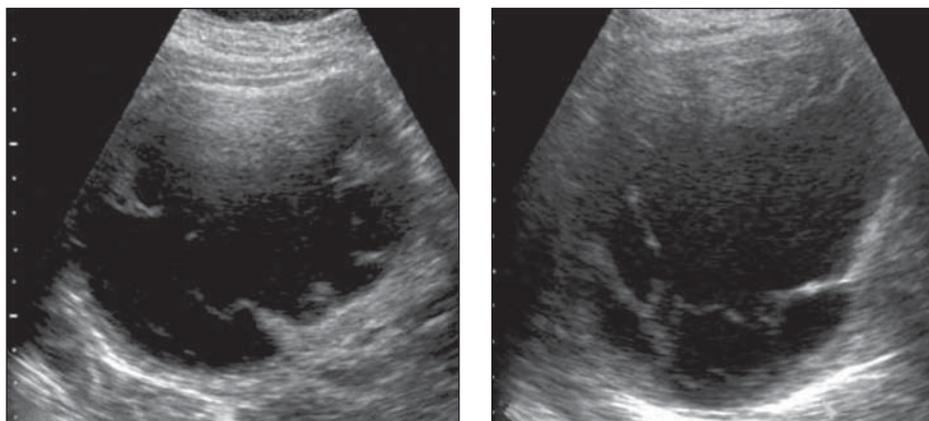
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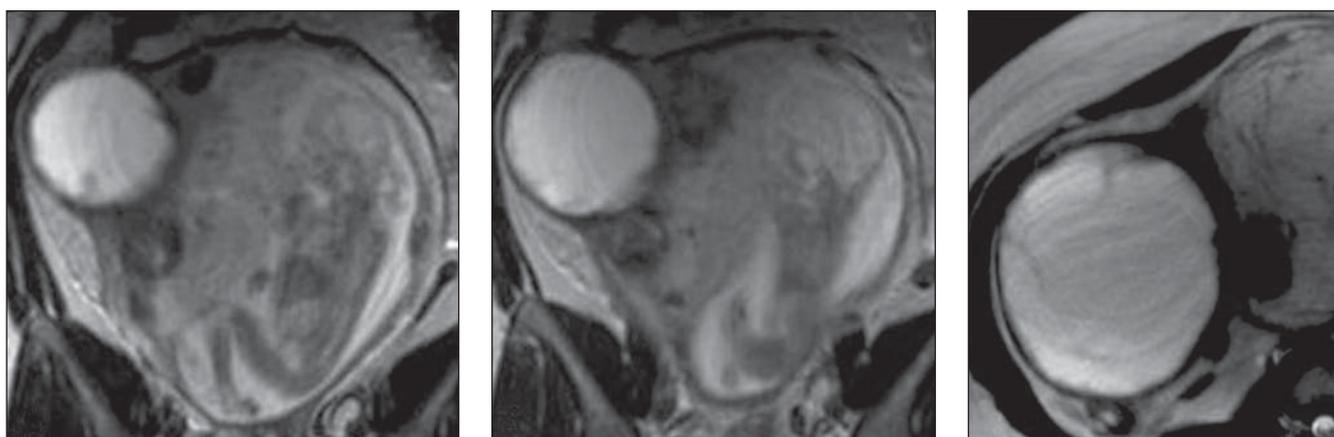
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**Figure 1.** Transverse (A) and longitudinal (B) sonographic images demonstrating a complex, predominantly cystic lesion in the right iliac fossa, with irregular, gross septa inside.



**Figure 2.** Coronal (A,B) and axial (C) T2-weighted magnetic resonance image demonstrating a gravid uterus and a predominantly cystic lesion in the right iliac fossa, with homogeneous content and hyperintense signal, with mildly irregular walls and containing fine septa. The uterine serosa is observed involving the lesion, defining the diagnosis of a cystic leiomyoma.



**Figure 3.** A picture taken during the surgery showing the uterine serosa partially covering the lesion.

lated to myometrial hypertrophy, higher vascularization and changes in the local steroid receptors. As leiomyomas enlarge, an imbalance between oxygen demand and supply is observed, causing areas of degeneration<sup>(2)</sup>. Among the degeneration types

observed during gestation, the benign ones are most frequently found, particularly the hyaline, myxoid, red and cystic degenerations. Malignant sarcomatous degeneration is observed in only 0.5% of fibroids, and whether malignancy is primary or secondary to degeneration is still controversial<sup>(3)</sup>.

Pelvic US is initially the method of choice for assessing leiomyomas<sup>(1)</sup>. Besides evaluating the gestation, first-trimester US may demonstrate the presence of fibroids as well as following up their progression. Typically, leiomyomas present as hypoechoic, circumscribed, homogeneous nodules localized in the submucosal, intramural or subserosal region of the uterine body and, less frequently, of the uterine cervix<sup>(3)</sup>. Frequently, the diagnosis of degenerating fibroids is difficult, because of the heterogeneity in their presentation. Cystic degeneration generally manifests as

a lesion with irregular walls, presenting cystic areas with solid contents<sup>(3)</sup>. In the present case, US suggested the diagnosis of an ovarian neoplasm as a function of the presence of a predominantly cystic, unilocular, thin-walled mass.

MRI has shown to be extremely useful in the diagnosis of complex pelvic masses. Currently, this is the most effective method for detecting and classifying fibroids considering the good resolution for demonstrating soft-tissues besides the capacity to depict the uterine anatomy<sup>(4)</sup>. Zawin et al. have suggested that in uteri with > 140 cm<sup>3</sup> complementary MRI studies would be convenient, considering that the presence of multiple nodules causing acoustic shadowing does not allow an adequate sonographic evaluation<sup>(6)</sup>. Typically, leiomyomas present as circumscribed nodules, with hypointense signal in relation to the

myometrium on T2-weighted sequences and contrast-enhancement on T1-weighted sequences. In cases where leiomyomas present an atypical appearance, MRI can better characterize the relationship between the mass and other pelvic structures besides providing a better definition of liquid and hemorrhagic components of the lesion<sup>(6)</sup>. In the present case, the visualization of the uterine serosa covering the lesion has determined the origin of the mass, allowing the diagnosis and application of an appropriate therapy.

Besides ovarian neoplasm<sup>(2,5)</sup>, other differential diagnoses should be considered in the evaluation of complex pelvic masses in pregnant women, namely, endometriomas<sup>(7)</sup>, abscesses<sup>(8)</sup>, adenomyosis<sup>(4)</sup> and uterine leiomyosarcomas.

## CONCLUSION

The knowledge of differential diagnoses and respective US and MRI findings becomes indispensable, considering that fibroids with cystic degeneration may mimic a range of pelvic disorders. The finding of a thin myometrial layer covering the lesion establishes the definite diagnosis, allowing an appropriate therapeutic planning.

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