

# Differential diagnosis of intraligamentous leiomyomas using magnetic resonance imaging

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Introduction: Laparoscopic myomectomy is now used in the treatment of all types of uterine leiomyomas. However, among them, intraligamentous leiomyomas, located in the broad ligament, are sometimes difficult to treat with myomectomy since there is a possible risk of heavy bleeding and damage to the ureter adjacent to the intraligamentous leiomyomas. Therefore, a method to distinguish intraligamentous leiomyomas from subserosal leiomyomas, which are much easier to treat with myomectomy, has yet to be established.

In the current study, we explored a new diagnostic method using MRI to compare the position of the ovary to differentiate intraligamentous leiomyomas from subserosal leiomyomas.

Materials and methods: We retrospectively recruited 82 patients who underwent laparoscopic or abdominal myomectomy at Nagoya University Hospital from January 2004 to December 2015. We included patients with intraligamentous (n = 25) or subserosal leiomyomas (n = 57).

We classified the cases into four groups on the basis of the MRI findings regarding the relationship of the position of the ipsilateral ovary and leiomyoma. The cases were classified as group "UU," group "UM," group "LM," and group "LL" when the ipsilateral ovary was located above the upper limit of the leiomyoma, between the upper limit and the maximum area of the leiomyoma, between the maximum area and lower limit of the leiomyoma, and below the lower limit of the leiomyoma, respectively.

The Student's t-test and Mann-Whitney U-test were used to compare patient characteristics. The chi-square test was used for the analysis of proportions.  $P < .05$  was considered statistically significant.

Results: The ipsilateral ovary in 24 out of 25 patients with intraligamentous leiomyomas was located above the horizontal plane corresponding to the maximum area of leiomyoma. The ipsilateral ovary was located below the horizontal plane corresponding to the maximum area of leiomyoma in 40 out of 57 patients with subserosal leiomyomas. The sensitivity and specificity of the method developed were 96.0% and 70.2%, respectively.

Conclusion: Our findings may be helpful for the preoperative differentiation of intraligamentous leiomyomas from subserosal leiomyomas using MRI.

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Keywords : intraligamentous leiomyoma, MRI, myomectomy, ovary, subserosal leiomyoma

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