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# THE IMPACT OF BULKY FIBROIDS ON LUTS: DOES EITHER THE SIZE OR THE POSITION MAKE A DIFFERENCE?

Hypothesis / aims of study

Uterine fibroids are the most common tumor of the female reproductive tract with a reported prevalence as high as 50%. Although most uterine fibroids are asymptomatic, they may be associated with a variety of pressure symptoms including lower urinary tract symptoms (LUTS) such as urinary urgency, nocturia, frequency, voiding dysfunction, urgency and stress urinary incontinence. Nevertheless, the relationship of specific urinary symptoms to the size or location of the dominant uterine fibroid has received little attention [1,2].

The primary aim of this study was to assess the association between uterine fibroid volume and LUTS severity, and LUTS specific quality of life impairment. The secondary aim was to assess the association between fibroid position and LUTS.

Study design, materials and methods

Women referred for pelvic MRI with suspected fibroid disease, were recruited from a specialist tertiary care uterine fibroid clinic. Women underwent pelvic MRI to measure fibroid volume and position, as part of evaluation before myomectomy, focused ultrasound, or uterine artery embolization. Women completed the validated King's Health Questionnaire (KHQ), rating the impact of LUTS on quality of life, and rating the severity of nine individual urinary symptoms. The association of fibroid volume and fibroid position (anterior vs. other) with either total KHQ quality of life scores (domains 1 to 9), or KHQ symptom scores (domain 10) was tested using multivariable linear regression adjusting for age, BMI and parity

Results

We recruited 92 women. We excluded 7 women with adenomyosis, leaving 85 available for analysis. These women were of mean age 42 years (s.d. 7.2), mean BMI 25.4 (s.d. 6.2) and median parity 0. In this sample the median fibroid volume was 150cm$^3$, range (10cm$^3$ – 3052cm$^3$). The median symptom score was 10 (possible range 0-27). The median quality of life score was 202 (possible range 0-900, higher scores represent worse quality of life).

Interpretation of results

In multivariable regression we found a positive association (p=0.003) between fibroid volume and symptom scores equivalent to a 5 point increase in score per 100cm$^3$ increase in volume (See table). We found a similar positive relationship with LUTS specific quality of life impairment, equivalent to a 15 point increase in clinically significant impairment per 100cm$^3$ increase in volume. The clinical minimal important difference for the KHQ is 10. Comparing the standardized regression coefficients, fibroid volume exerted a much larger effect than classic risk factors for LUTS, including age, BMI or parity. We found no significant association between fibroid position and symptom (p=0.547) or quality of life scores (p=0.129).

| **Symptom Score** | **Unstandardized** | | **Standardized** | |
|---|---|---|---|---|
| **Risk Factor** | Beta | SE | Beta | p |
| **Fibroid volume / cm$^3$** | 0.01 | 0.001 | 0.41 | 0.003 |
| **Age** | 0.07 | 0.09 | 0.09 | 0.446 |
| **BMI** | -0.15 | 0.13 | -0.16 | 0.230 |
| **Parity** | 0.50 | 1.30 | 0.05 | 0.702 |

| **Quality of life score** | **Unstandardized** | | **Standardized** | |
|---|---|---|---|---|
| **Risk Factor** | Beta** | SE | Beta | p |
| **Fibroid volume / cm$^3$** | 0.15 | 0.05 | .372 | 0.005 |
| **Age** | -1.51 | 3.15 | -0.06 | 0.633 |
| **BMI** | 3.29 | 4.34 | 0.10 | 0.451 |
| **Parity** | 36.74 | 44.81 | 0.10 | 0.416 |

Table: Multivariable linear regression of predictors of LUTS symptom score (KHQ domain 10) and LUTS specific quality of life impairment (KHQ domains 1 to 9).

*Models additionally adjusted for ethnicity, and position of largest fibroid

**Higher scores represent worse quality of life impairment

Concluding message

We found strong positive associations between fibroid volume and LUTS scores, and LUTS specific quality of life impairment, but no significant relationship with fibroid position. Future studies should further consider the impact of fibroids both on specific symptoms and on objective functional changes such as post void residual measurements. Further research is needed to evaluate the impact of different conservative and surgical treatment options for fibroids on LUTS[3]. Our findings highlight the importance of a multidisciplinary approach to large uterine fibroids which may have important impacts both on the uterus and bladder.

References

1. Female Pelvic Med Reconstr Surg. 2011 17(2) :91-6

2. J Womens Health. 2010 19(2):245-50
3. Int Urogynecol J. 2014 25(2): 241-8

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