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Clinical factors that increase the risk for endometriosis recurrence

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Introduction:

Despite surgical treatment endometriosis can reoccur in up to 67% of patients. Diagnosing disease recurrence is challenging, as symptoms can present in the absence of lesions. Therefore, the decision to re-operate for suspected recurrent endometriosis is not a simple one.

Aim:

To examine clinical information from surgically confirmed recurrent endometriosis cases to identify clinical factors that were associated with an increased risk of recurrent disease.

Materials & Methods:

Participants from the Melbourne Endometriosis Research Cohort (Royal Women's Hospital) with ≥2 surgically confirmed endometriosis diagnoses were included in the analysis (n=343). Medical (surgical/pathology reports) and questionnaire (patients/surgeons) data were collected. Employing date of surgery, a survival analysis was undertaken and univariate and multivariate co-efficients were calculated.

Results:

Several variables were associated with increased probability of recurrence (univariate analysis; hazard ratio adjusted p-values and Kaplan Meier p-values <0.05) (Table 1):

Table 1: Probability of disease recurrence

Factor	n	Univariate survival analysis: HR (95% CI)	Adj. P-value	Probability of no disease recurrence at 2 years	Probability of no disease recurrence at 5 years	Kaplan Meier P-value	Multivariate: Lasso Coef.
Age (35+ years)	82	3.14 (1.44 - 6.87)	0.019	0.83 (0.75 - 0.93)	0.64 (0.51 - 0.79)	0.010	0.000
Gravidity (3+)	14	3.55 (1.49 - 8.46)	0.019	0.73 (0.51 - 1.00)	0.46 (0.24 - 0.87)	0.010	0.000
Parity (1-2)	43	2.75 (1.49 - 5.06)	0.007	0.78 (0.66 - 0.93)	0.57 (0.42 - 0.78)	0.001	0.000
Obese BMI (kg/m^2)	48	2.42 (1.25 - 4.70)	0.035	0.88 (0.78 - 0.99)	0.63 (0.48 - 0.83)	0.032	0.000
Self-reported uterine fibroids	20	3.50 (1.65 - 7.41)	0.007	0.73 (0.56 - 0.96)	0.57 (0.36 - 0.89)	<0.001	0.000
Self-reported adenomyosis	22	3.63 (1.78 - 7.42)	0.003	0.60 (0.42 - 0.86)	0.54 (0.36 - 0.82)	<0.001	0.621
Uterine volume on U/S (ml) (Log)	343	9.51 (2.14 - 42.34)	0.016	-	-		N/A
Adenomyosis (U/S heterogeneous myometrium)	10	3.43 (1.31 - 8.98)	0.040	0.80 (0.59 - 1.00)	N/A	0.008	N/A
Endometriosis present on U/S (excluding OMA)	15	5.97 (2.96 - 12.07)	<0.001	0.51 (0.30 - 0.86)	0.23 (0.07 - 0.69)	< 0.001	N/A
Adhesions present on U/S	17	3.69 (1.84 - 7.40)	0.002	0.59 (0.40 - 0.88)	0.39 (0.21 - 0.73)	< 0.001	N/A
Self-reported previous diagnosis of endometriosis	35	31.30 (17.68 - 55.40)	<0.001	0.40 (0.27 - 0.60)	0.03 (0.00 - 0.20)	< 0.001	2.943
Stage 1 (rASRM)	195	-		0.96 (0.93 - 0.99)	0.89 (0.84 - 0.94)		-
Stage 2 (rASRM)	55	3.22 (1.51 - 6.89)	0.014	0.87 (0.78 - 0.97)	0.67 (0.53 - 0.86)	< 0.001	0.000
Stage 3 (rASRM)	38	3.03 (1.28 - 7.15)	0.040	0.91 (0.83 - 1.00)	0.61 (0.41 - 0.90)		0.000
Stage 4 (rASRM)	55	5.96 (3.07 - 11.57)	<0.001	0.75 (0.64 - 0.88)	0.57 (0.44 - 0.74)		0.000
Adhesions	140	5.26 (2.83 - 9.79)	<0.001	0.83 (0.77 - 0.90)	0.59 (0.50 - 0.70)	< 0.001	0.000
Deep ovarian lesion(s)	85	2.00 (1.17 - 3.42)	0.040	0.87 (0.80 - 0.95)	0.65 (0.53 - 0.80)	0.010	0.000
Deep peritoneal lesion(s)	108	2.72 (1.61 - 4.59)	0.002	0.79 (0.71 - 0.87)	0.68 (0.59 - 0.79)	< 0.001	0.000
Bowel lesion(s)	57	5.52 (3.25 - 9.36)	<0.001	0.65 (0.53 - 0.80)	0.46 (0.32 - 0.65)	< 0.001	0.346

The multivariate analysis identified which risk factors provided a good model for prediction of disease recurrence (non-zero Lasso coefficients, Table 1 and Figure 1).

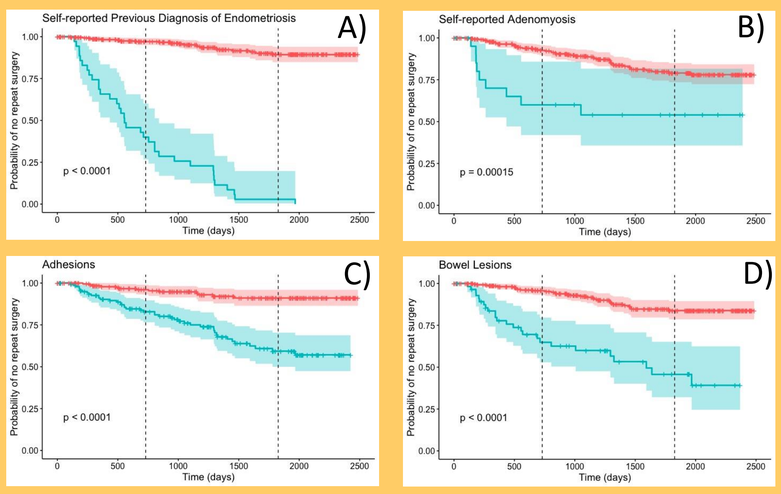

Figure 1: Survival analysis on data from patients with confirmed endometriosis. A) self-reported previous diagnosis of endometriosis, B) self-reported adenomyosis, C) presence of adhesions (surgically recorded), and D) presence of lesions on the bowel (surgically recorded). Dashed vertical lines indicate 2 and 5 years following first diagnosis (time 0). Red = no, blue = yes.

Conclusion & Impact:

Routine clinical and surgical data collected from patients with confirmed disease recurrence identified several features that were associated with increased probability of recurrence. Those who self-report a previous diagnosis of endometriosis, self-report adenomyosis and had bowel disease (surgically visualised) are at increased risk of recurrence.

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