Posterior focalized adenomyosis is associated with increased severity of deep infiltrating endometriosis.

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National Institute for Medical Research | National Council for Scientific Research
Paris Descartes University
Endometriosis: the implantation theory

Three phenotypes

- **SUP**: Peritoneal superficial endometriosis
- **OMA**: Ovarian endometrioma
- **DIE**: Deep infiltrating endometriosis
Deep infiltrating endometriosis

Multifocality / Heterogeneity

Intestinal

Extra intestinal

ureter

Bladder

Vagina

USL

DIE

SUP

OMA
Adenomyosis: definition

HISTOLOGY

Presence of endometrial glands and/or stoma outside the uterine cavity
Adenomyosis: MRI
MRI imaging of diffuse & focal adenomyosis

Diffuse adenomyosis

Focal adenomyosis
Relationship between endometriosis and adenomyosis?
Prevalence of adenomyosis in women undergoing surgery for endometriosis

Nadine Di Donato*, Giulia Montanari, Arianna Benfenati, Debora Leonardi, Valentina Bertoldo, Giorgia Monti, Diego Raimondo, Renato Seracchioli

Minimally Invasive Gynaecological Surgery Unit, S.Orsola-Malpighi Hospital, University of Bologna, Via Massarenti, 13, 40138, Bologna, Italy

Retrospective study of 1618 patiente / sonography before surgery – Prevalence = 21.8%

<table>
<thead>
<tr>
<th>Variables</th>
<th>Multivariate analysis</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adenomyosis (B coefficient)</td>
<td>Odds ratio (95% CI)</td>
</tr>
<tr>
<td>Age</td>
<td>0.88</td>
<td>1.092 (1.068, 1.116)</td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>0.080</td>
<td>1.083 (1.045, 1.122)</td>
</tr>
<tr>
<td><strong>DIE</strong></td>
<td><strong>1.131</strong></td>
<td><strong>3.097 (2.353, 4.077)</strong></td>
</tr>
<tr>
<td>Parity</td>
<td>0.090</td>
<td>1.040 (1.012, 1.180)</td>
</tr>
</tbody>
</table>

*Corresponding Author
The purpose of the present study...

To evaluate the **prevalence**

of **posterior focalized adenomyosis**

in women afflicted **with** DIE

and **correlate** it with the **severity** of

the disease
Methods

A prospective case control study of 352 women with preoperative diagnosis at MRI

January 2004

Cross-sectional study

March 2015

352 Women with preoperative MRI submitted to surgery

✓ < 42 years; non pregnant
✓ I: pelvic pain, infertility
✓ Complete surgical excision of all endometriotic lesions

Centre Hospitalier Universitaire (CHU) Cochin Saint Vincent de Paul, Department of Gynecology Obstetrics II and Reproductive Medicine (Professeur Chapron), Paris, France
Adenomyosis: MRI

MRI

- High signal-intensity myometrial spots
- Visible Junctional Zone with a threshold value > 12 mm
- Presence of an ill-defined-low-signal intensity area of myometrium
- Ratio ZJ/Myometrium > 40%
Methods

General characteristics
- Age
- BMI
- Gravidity
- Parity
- Smoking
- Previous infertility

Painful symptoms
- Dysmenorrhea
- Dyspareunia
- NCCPP
- GI symptoms
- LU symptoms

Surgical findings
- ASRM Scores
- ASRM Stages

Surgical classification:
- SUP
- OMA
- DIE
  - USL
  - Vagina
  - Bladder
  - Intestine
  - Ureter

Posterior focalized ADE

Controls
Available preoperative MRI for diagnosis of adenomyosis
N = 352

Deep infiltrating endometriosis
N = 188

Absence of focalised adenomyosis
N = 67

Focalised adenomyosis
N = 121

Posterior Focalised adenomyosis
N = 101

Anterior Focalised adenomyosis
N = 20
Patient Baseline characteristics
Lesions topography - endometriosis

DEEP INFILTRATIVE ENDOMETRIOSIS

N = 188

OMA 75 (44.6 %)

USL 22 (13.1 %)
Vagina 14 (8.3 %)
Bladder 4 (2.4 %)
Intestine 116 (69.0 %)
Ureter 12 (7.1 %)

ASRM:

Implant score ASRM 16.3 ± 14.2 (4-98)
Adhesions score ASRM 33.1 ± 27.5 (0-104)
Total score ASRM 48.6 ± 35.1 (4-150)

ASRM Stage (n, %):
• I 4 (2.4 %)
• II 46 (27.4 %)
• III 22 (13.1 %)
• IV 96 (57.1 %)

Lesions topography - endometriosis

OMA

Vagina
Bladder
Intestine
Ureter
# Patient Baseline characteristics

<table>
<thead>
<tr>
<th></th>
<th>Control group (n = 67)</th>
<th>Study group (n = 101)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td>31.5 ± 0.6</td>
<td>32.4 ± 0.5</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Body Mass Index (kg/m²)</strong></td>
<td>22.3 ± 0.4</td>
<td>22.8 ± 0.4</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Nullipara</strong></td>
<td>48 (71.6)</td>
<td>80 (79.2)</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Previous surgery for endometriosis n (%)</strong></td>
<td>30 (44.8)</td>
<td>64 (63.4)</td>
<td>0.02</td>
</tr>
<tr>
<td><strong>Infertility n (%)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pain n (%)</strong></td>
<td>60 (95.2)</td>
<td>94 (95.9)</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Length of pelvic pain m</strong></td>
<td>67.0 ± 8.2</td>
<td>101.3 ± 9.3</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>Painful symptoms Mean VAS scores</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• <em>Dysmenorrhea</em></td>
<td>7.8 ± 0.2</td>
<td>8.2 ± 0.2</td>
<td>NS</td>
</tr>
<tr>
<td>• <em>Deep dyspareunia</em></td>
<td>5.1 ± 0.4</td>
<td>5.3 ± 0.3</td>
<td>NS</td>
</tr>
<tr>
<td>• <em>Non-cyclic chronic pelvic pain</em></td>
<td>3.5 ± 0.4</td>
<td>3.5 ± 0.3</td>
<td>NS</td>
</tr>
<tr>
<td>• <em>Gastrointestinal symptoms</em></td>
<td>5.2 ± 0.4</td>
<td>6.4 ± 0.3</td>
<td>0.02</td>
</tr>
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</table>
## Anatomical distribution of the lesions

<table>
<thead>
<tr>
<th>Anatomical distribution of the lesions</th>
<th>Control group (n=67)</th>
<th>Study group (n=101)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Total number of DIE lesions $^a$</td>
<td>$2.4 \pm 0.2$</td>
<td>$3.7 \pm 0.2$</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>n = 1</td>
<td>23 (34.3)</td>
<td>9 (8.9)</td>
<td></td>
</tr>
<tr>
<td>n = 2</td>
<td>17 (25.4)</td>
<td>20 (19.8)</td>
<td></td>
</tr>
<tr>
<td>n $\geq$ 3</td>
<td>27 (40.3)</td>
<td>72 (71.3)</td>
<td>&lt; 0.01</td>
</tr>
</tbody>
</table>

Anatomical distribution of DIE (n, %)

<table>
<thead>
<tr>
<th>Location</th>
<th>Control (n=67)</th>
<th>Study (n=101)</th>
<th>P value</th>
</tr>
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<tbody>
<tr>
<td>USL</td>
<td>46 (68.7)</td>
<td>62 (61.4)</td>
<td>0.33</td>
</tr>
<tr>
<td>Vagina</td>
<td>32 (50.0)</td>
<td>58 (59.8)</td>
<td>0.22</td>
</tr>
<tr>
<td>Intestine</td>
<td>36 (53.7)</td>
<td>88 (87.1)</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Urologic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bladder</td>
<td>5 (7.5)</td>
<td>13 (12.9)</td>
<td>0.27</td>
</tr>
<tr>
<td>Ureter</td>
<td>5 (7.5)</td>
<td>8 (7.9)</td>
<td>0.92</td>
</tr>
<tr>
<td>Endometrioma (n, %)</td>
<td>19 (28.4)</td>
<td>56 (55.5)</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td></td>
<td>Control group (n= 67)</td>
<td>Study group (n= 101)</td>
<td>P value</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------</td>
<td>----------------------</td>
<td>---------</td>
</tr>
<tr>
<td><strong>Mean total score ASRM</strong></td>
<td>28.5 ± 3.2</td>
<td>61.9 ± 3.4</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td><strong>Mean implants score ASRM</strong></td>
<td>10.8 ± 1.1</td>
<td>20.0 ± 1.6</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td><strong>Mean adherences score ASRM</strong></td>
<td>17.8 ± 2.6</td>
<td>43.3 ± 2.7</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td><strong>Douglas pouch involvement</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>partial</td>
<td>28 (41.8)</td>
<td>28 (28.3)</td>
<td></td>
</tr>
<tr>
<td>total</td>
<td>14 (20.9)</td>
<td>62 (62.6)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>ASRM stage (n, %)</strong> b</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>33/67 (49.3)</td>
<td>13/101 (12.9)</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>10/67 (14.9)</td>
<td>12/101 (11.9)</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>21/67 (31.3)</td>
<td>75/101 (74.3)</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>
# Biological markers

<table>
<thead>
<tr>
<th>Biological marker</th>
<th>Control group (n= 67)</th>
<th>Study group (n= 101)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA 19.9 UI/mL</td>
<td>17.2 ± 2.9</td>
<td>30.0 ± 3.2</td>
<td>0.04</td>
</tr>
<tr>
<td>CA 125 UI/mL</td>
<td>26.9 ± 3.6</td>
<td>75.7 ± 12.2</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>AMH ng/mL</td>
<td>3.3 ± 0.8</td>
<td>2.6 ± 0.4</td>
<td>0.35</td>
</tr>
<tr>
<td>CRP mg/L</td>
<td>0.7 ± 0.2</td>
<td>3.9 ± 1.2</td>
<td>0.03</td>
</tr>
</tbody>
</table>
Predictive factors of ADF in DIE patients

<table>
<thead>
<tr>
<th>Predictive factors</th>
<th>OR (95%IC)</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of endometrioma</td>
<td>2.9 (1.4-6.0)</td>
<td>0.037</td>
</tr>
<tr>
<td>Intestine DIE</td>
<td>3.2 (1.3-8.1)</td>
<td>0.012</td>
</tr>
<tr>
<td>Mean number of DIE lesion ≥ 3</td>
<td>1.7 (1.1-2.9)</td>
<td>0.012</td>
</tr>
</tbody>
</table>
Posterior focalised Adenomyosis is associated with and increased severity of DIE

- more severe extension

- a greater prevalence of posterior pelvic compartment extension

- and increased serum level of biological markers
### Gynecology

**Surgical unit:** C Chapron, B Borghese, P Santulli, H Foulot, MC Lafay-Pillet, A Bourret, G Pierre, M Even, MC Lamau, L Marcellin, P Marzouk,

**Medical unit:** A Gompel, G Plu-Bureau, L Maitrot

**Reproductive Endocrinology unit:**
D de Ziegler, P Santulli, V Gayet, C Maignien, FX Aubriot

### Intestinal surgery

B Dousset, S Gaujoux, M Leconte

### Radiology

AE Millischer, L Maitrot

---

### Laboratory: Genetic

D Vaiman, F Mondon, S Barbaux

### Laboratory: Immunology

F Batteux, S Chouzenoux, C Nicco, C Chéreau, B Weill

### Laboratory: Reproductive biology

JP Wolf, V Lange, K Pocate, JM Kuntzman, C Chalas

### Statistical unit

F Goffinet, PY Ancel, C Prunet

---

**D. de Ziegler, Professor and Head, Reproductive Endocrinology and Infertility unit,**
**A. Gompel, Professor and Head, Medical Gynecological unit,**
**C. Chapron, Professor and Chair, Gynecology Obstetrics II and Reproductive Medicine**
3rd Congress of the Society of Endometriosis and Uterine Disorders

Fibroids & Uterine Bleeding: Facing Controversies

Location: Singapore
Congress President: Pr Yoke Fai Fong, Singapore
SEUD President: Pr Charles Chapron, France

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Society of Endometriosis and Uterine Disorders