



Adolescent endometriosis: does it really exist ?

Gürkan Uncu MD, Prof.
Uludağ University
Turkey

Adolescent endometriosis: does it really exist ?

- Endometriosis is a disorder that has an unknown part as much as the known part.
- Hidden Disease.....

Visible problems....

PAiN

INFERTILITY

- The nature and severity of endometriosis during adolescence has been the object of a controversy.

Definition of ADOLESCENT

: a young person who is developing into an adult : one who is in the state of **adolescence**

Defining terms. The World Health Organization (WHO) defines adolescents as those people between 10 and 19 years of age. The great majority of adolescents are, therefore, included in the age-based definition of “child”, adopted by the *Convention on the Rights of the Child*,⁴ as a person under the age of 18 years. Other overlapping terms used in this report are *youth* (defined by the United Nations as 15–24 years) and *young people* (10–24 years), a term used by WHO and others to combine adolescents and youth.

While these terms are sometimes used interchangeably^{5 6} and may be defined differently in different countries, with “adolescence”, for example, starting at 12 years or “youth” continuing into the mid-30s, this report focuses primarily on the second decade of life. When data on youth or young people are included, this is usually because available data have been aggregated in ways that do not distinguish the adolescent years specifically.⁷

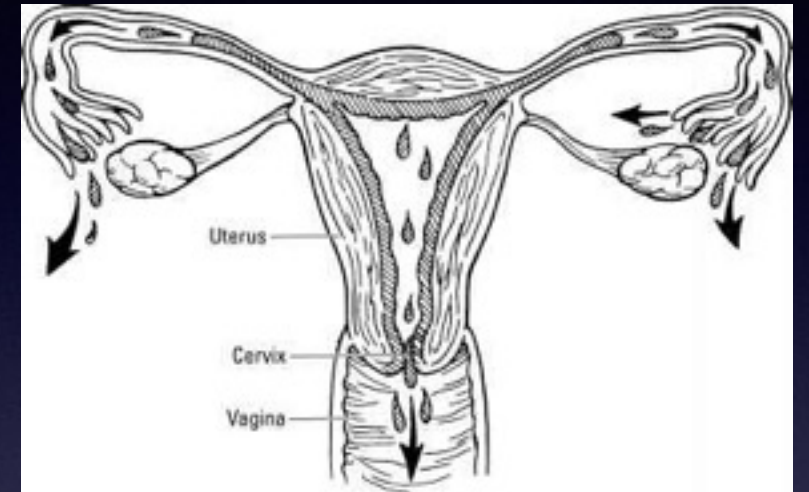
Adolescent endometriosis:
does it really exist ?

Adolescent endometriosis: does it really exist ?



John A. Sampson

retrograde flow



Case Report

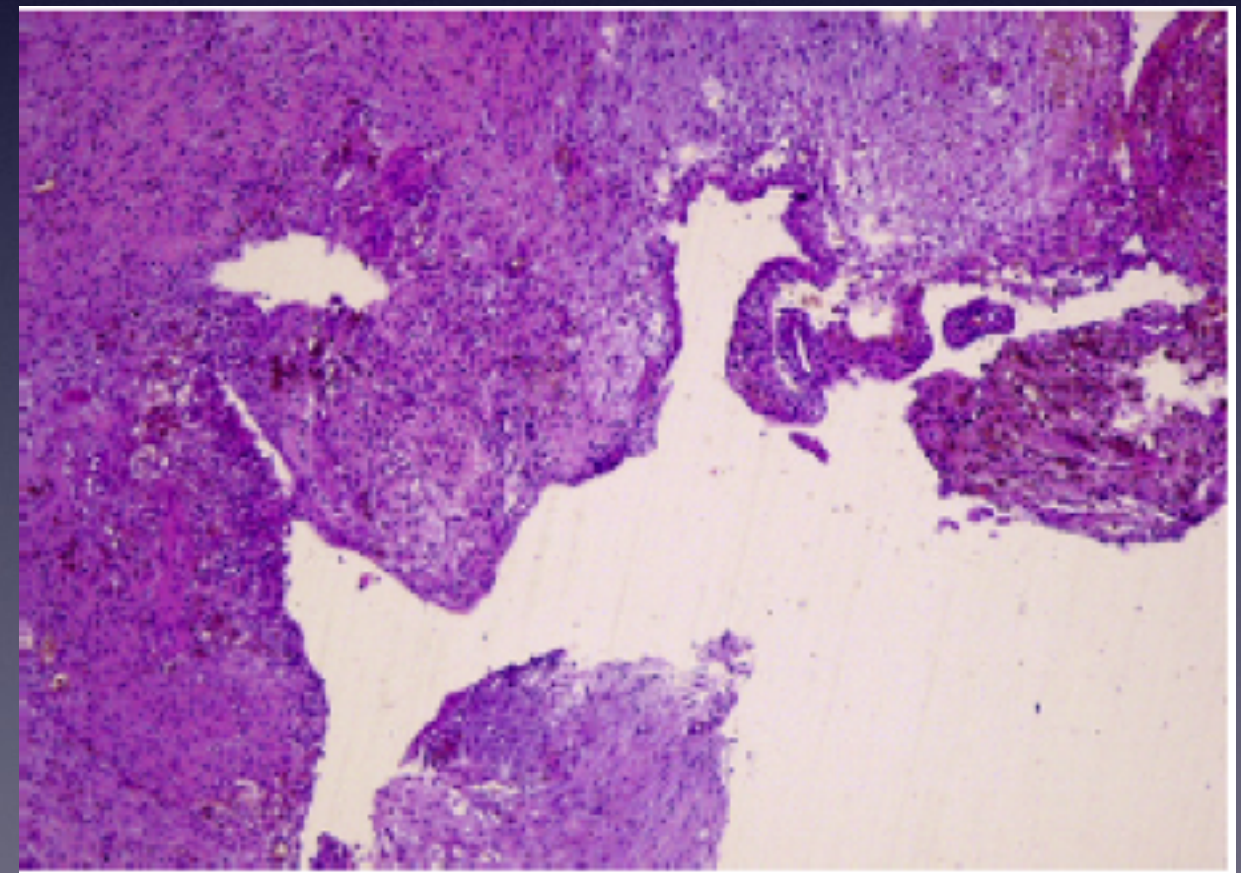
Ovarian Endometrioma in an 11-Year-Old Girl before Menarche: A Case Study with Literature Review

M. Gogacz MD, PhD¹, M. Sarzyński MD², R. Napierała MD², J. Sierocińska-Sawa MD, PhD³,
A. Semczuk MD, PhD^{1,*}

¹2nd Department of Gynecology, Medical University of Lublin, Lublin, Poland

²Department of Obstetrics and Gynecology, Municipal Hospital, Stalowa Wola, Poland

³Department of Pathology, Medical University of Lublin, Lublin, Poland

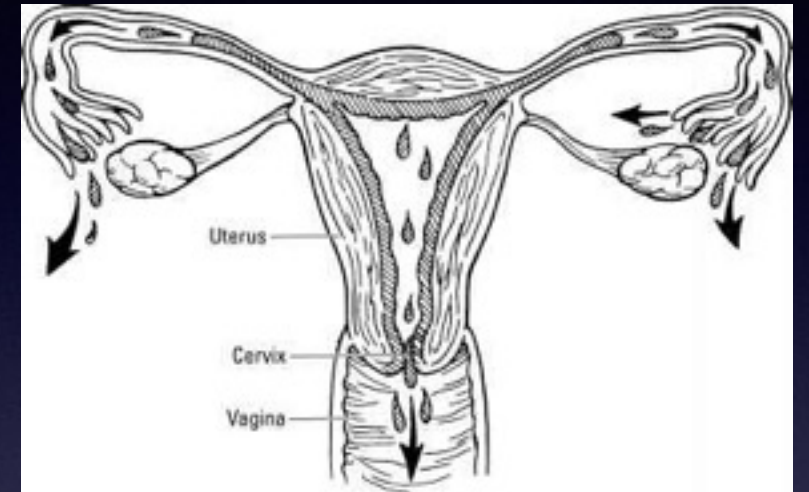


Adolescent endometriosis: does it really exist ?



John A. Sampson

retrograde flow



Immunologic System

Inflammatory System

Genetics

Adolescent endometriosis: does it really exist ?

NEONATAL BLEEDING

- in 1904, Halban...capillary injection, menstratio praecox
- 2-3 % neonates, Neuman HO, 1931, 25-61 % occult bleeding.. Beric, 1985
- 722 autopsies on female infant
 - 68 % proliferative
 - 27 % secretory
 - 5 % decidual, mens.
- 115 case. ovary correlated with the endometrial changes.Ober VW,1955

Adolescent endometriosis: does it really exist ?

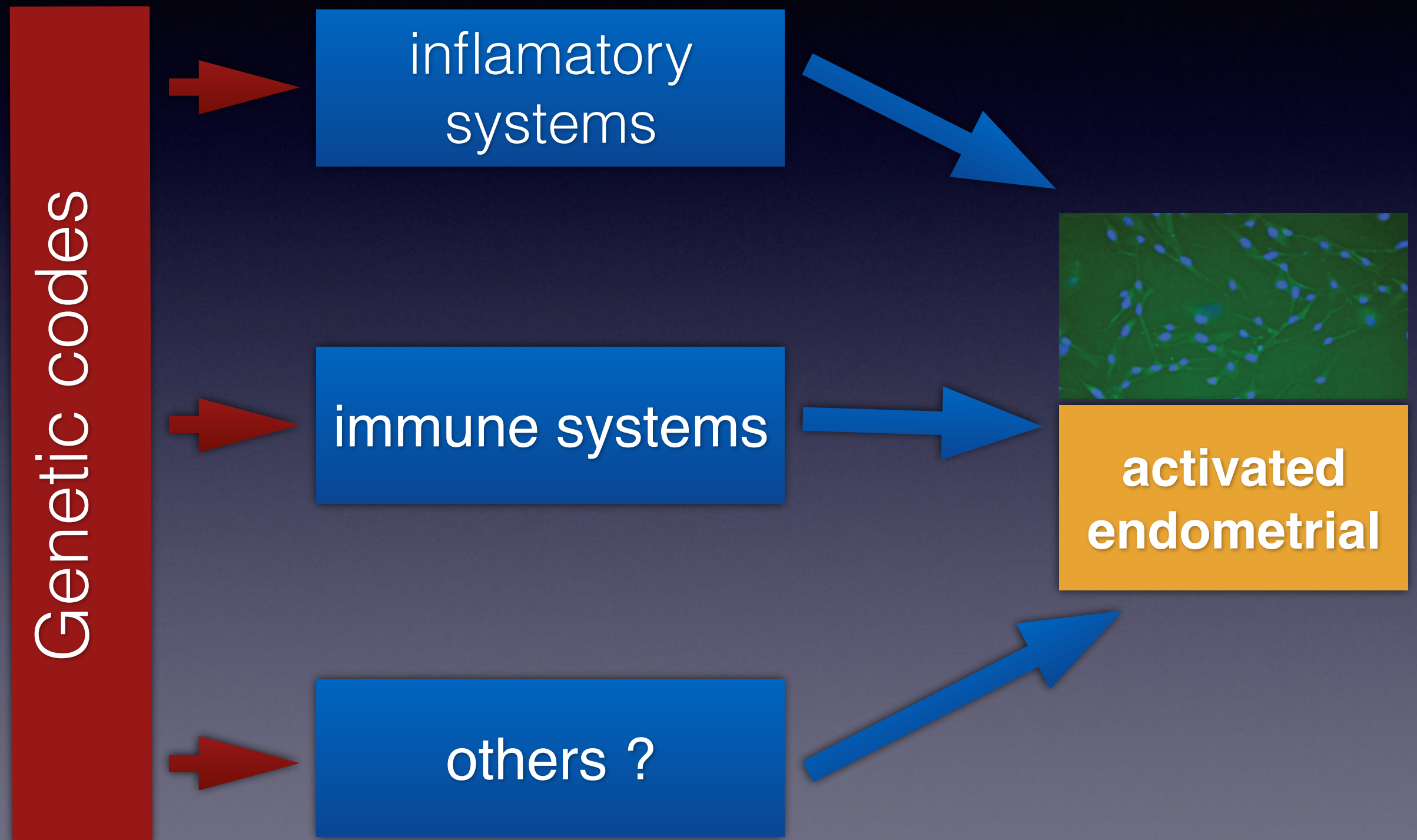
“Everywoman will have endometriosis one day “

Adolescent endometriosis: does it really exist ?

“Everywoman will have endometriosis one day “

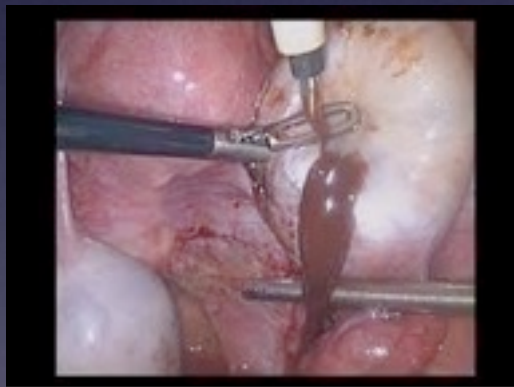
“Everywoman is born with endometriosis.”

STEM CELL THEORY



Adolescent endometriosis: does it really exist ?

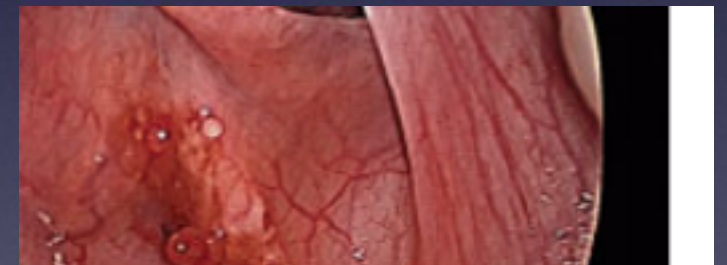
OVARIAN
ENDO.



SUPERFICIAL
ENDO.



DEEP
ENDO



INFERTILITY

PAIN

Adolescent endometriosis: does it really exist ?

PAIN

(without / resistant to treatment)

dysmenorhae

chronic pelvic pain

dysparonia ?

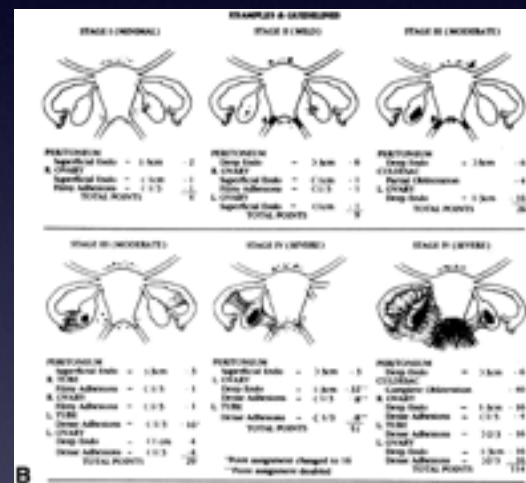


Adolescent endometriosis: does it really exist ?

INCIDENCE

Adolescent endometriosis: does it really exist ?

INCIDENCE

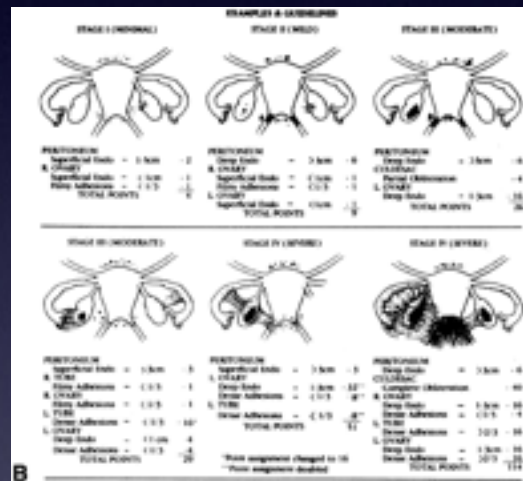


CLINICAL STAGE















Compartment	A	B	C	
Grade	RECTOVAGINAL SEPTUM VAGINA	SACROUTERINE LIG. PELVIC WALL	BOWEL	
Grade 1 < 1 cm				FA
Grade 2 1-3 cm				FB
Grade 3 1-3 cm				FU
Grade 3 > 3 cm				FI
				FO

Adolescent endometriosis: does it really exist ?

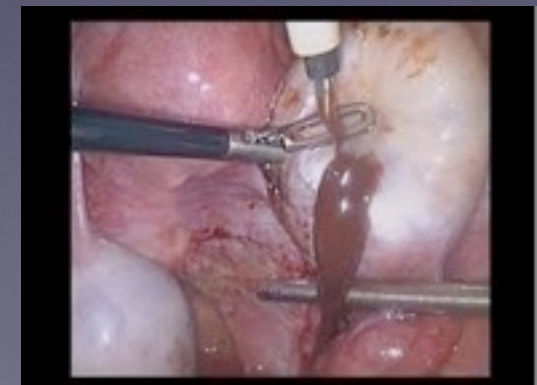
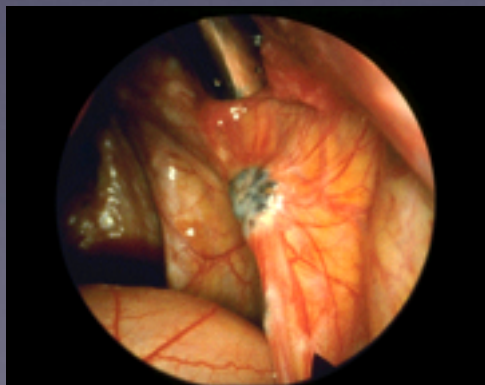
INCIDENCE



CLINICAL STAGE

Compartment	A	B	C	
	RECTOVAGINAL SEPTUM VAGINA	SACROUTERINE LIG. PELVIC WALL	BOWEL	
Grade 1 < 1 cm				FA 
Grade 2 1-3 cm				FB 
Grade 3 > 3 cm				FU 
				FI 
				FO 

TYPE OF LESIONS



INCIDENCE

- Laparoscopy for chronic pain
 - Irregular menses, GI- Bladder symptoms, increased vaginal discharge

Endometriosis was detected in 66/140 **(47 %)**

- Tenderness with or without nodularity
- 17 % with biopsy proved endometriosis has normal pelvic exam.
- 58% - early and minimal
- 20 % was not recognisable grossly, confirmed morphologically
-

Goldstein DP, De Cholinoky C, Emans SJ. J Adolesc Health Care. 1980;

INCIDENCE

- **CPP in 47 adolescents 11-19 years old after six months or more of cyclic or acyclic pelvic pain**

Endometriosis was detected in 18 (38.3%)

- **Nearly 60% of the patients had a treatable pelvic disease.**
- **Laparoscopy is an invaluable tool in the diagnosis of CPP in adolescents and should be performed before starting a psychiatric evaluation or prescribing long-term medical treatment.**

Vercellini P , Reprod Med. 1989 Oct;34(10):827-30.
Laparoscopy in the diagnosis of chronic pelvic pain in adolescent women.

INCIDENCE

CPP	n of patients with visually confirmed endometriosis n(%)	n with biopsied endometriosis/ n with visually confirmed endometriosis (%)	n with histologically proven endometriosis / n with biopsied endometriosis (%)
Goldstein,1980	66 /140 (47%)	66/66 (100%)	66/66 (100 %)
Emmert,1998	37/105 (35%)	14/37 (38%)	6/14(43%)
Kontoravdis,1999	24/98(25%)	NR	NR
Bai.2002	39/39(100%)	39/39(100%)	39/39(100%)
Vicini,2010	38/38(100%)	30/38(79%)	30/30 (100%)
SUBTOTAL	204 / 420 (49%)	149 / 180 (83%)	141 / 149 (95%)

Prevalence of endometriosis diagnosed by laparoscopy in adolescents with dysmenorrhea or chronic pelvic pain: a systematic review.
 E.B. Janssen, A.C.M. Rijkers, K. Hoppenbrouwers, C. Meuleman, and T.M. D'Hooghe
 Human Reproduction Update, Vol.19, No.5 pp. 570–582, 2013

INCIDENCE

Dysmenorrhea	n of patients with visually confirmed endometriosis n(%)	n with biopsied endometriosis/ n with visually confirmed endometriosis (%)	n with histologically proven endometriosis / n with biopsied endometriosis (%)
Vercellini, 1989	18 /47 (38%)	11/18 (61%)	8/11 (72 %)
Davis,1993	36/36 (100%)	NR	NR
Chatman & Ward, 1982	28/43 (65%)	18/28 (64%)	N13/18 (72%)
Roman,2010	20/20 (100%)	20/20 (100%)	20/20 (100%)
SUBTOTAL	102 / 146 (70%)	49 / 64 (77%)	41 / 49 (84%)

Prevalence of endometriosis diagnosed by laparoscopy in adolescents with dysmenorrhea or chronic pelvic pain: a systematic review.
 E.B. Janssen, A.C.M. Rijkers, K. Hoppenbrouwers, C. Meuleman, and T.M. D'Hooghe
 Human Reproduction Update, Vol.19, No.5 pp. 570–582, 2013

INCIDENCE

CPP unresponsive to treatment	n of patients with visually confirmed endometriosis n(%)	n with biopsied endometriosis/ n with visually confirmed endometriosis (%)	n with histologically proven endometriosis / n with biopsied endometriosis (%)
Reese,1996	49 /67 (73%)	3/67(5%)	3/3 (100 %)
Laufer,1997	31/46 (67%)	NR	NR
Stavroulis,2006	11/31 (36%)	NR	NR
Ventolini,2005	28/52 (100%)	28/28 (100%)	28/28 (100%)
Kafu,2008	28/28 (100%)	NR	NR
Doyle,2009	90/90(100)	NOT PERFORMED	
SUBTOTAL	234 / 314 (75%)	41 / 106 (39%)	39 / 41 (95%)

Prevalence of endometriosis diagnosed by laparoscopy in adolescents with dysmenorrhea or chronic pelvic pain: a systematic review.
 E.B. Janssen, A.C.M. Rijkers, K. Hoppenbrouwers, C. Meuleman, and T.M. D'Hooghe
 Human Reproduction Update, Vol.19, No.5 pp. 570–582, 2013

CLINICAL STAGE

Human Reproduction, Vol.28, No.8 pp. 2026–2031, 2013

Advanced Access publication on June 5, 2013 doi:10.1093/humrep/det243

human
reproduction

OPINION

Endometriosis in adolescents is a hidden, progressive and severe disease that deserves attention, not just compassion

I. Brosens^{1,*}, S. Gordts¹, and G. Benagiano²

CLINICAL STAGE

Table I Staging of endometriosis according to r-AFS classification in adolescents with chronic pelvic pain.

	Nr	Age range	Staging	I (%)	II (%)	III (%)	IV (%)
Goldstein <i>et al.</i> (1980)	66	10–19	K ^a	58	38	0	4
Vercellini <i>et al.</i> (1989)	18	11–19	r-AFS	67	33	0	0
Davies <i>et al.</i> (1993)	36	13–20	r-AFS	28	22	19	31
Reese <i>et al.</i> (1997)	49	11–19	r-AFS	80	12	6	2
Laufer <i>et al.</i> (1997)	32	13–21	r-AFS	77	23	0	0
Emmert <i>et al.</i> (1998)	37	11–19	M ^b	92	8	0	0
Bai <i>et al.</i> (2002)	39	14–21	r-AFS	10	44	28	18
Ventolini <i>et al.</i> (2005)	28	12–18	r-AFS	14	39	43	4
Stavroulis <i>et al.</i> (2006)	11	13–20	r-AFS	45 ^c		55 ^d	
Vicino <i>et al.</i> (2010)	38	15–21	r-AFS	18	13	34	34
Roman (2010)	20	14–20	r-AFS	40	45	5	10
Yang <i>et al.</i> (2012)	63	12–20	r-AFS	8	3	52	37

r-AFS, The American Fertility Society (1985).

^aK based on the criteria of Kistner *et al.* (1977).

^bM based on the endoscopic endometriosis classification (Metzler, 1989)

^cStages I and II.

^dStages III and IV.

CLINICAL STAGE

CPP	Classification (n patients / n patients with end) rAFS			
	I	II	III	IV
Goldstein, 1980	Staging system with Kistner			
Emmert, 1998	Endoscopic Endometriosis Classification			
Kontoravdis, 1999	4/39 (10%)	17/39 (44%)	11/39(28%)	7/39 (18%)
Bai, 2002	7/38 (19%)	5/38 (13%)	13/38 (31%)	13/38 (31%)
SUBTOTAL	11 / 77 (14%)	22 / 77 (29%)	24/77 (31%)	20/77 (26%)

Prevalence of endometriosis diagnosed by laparoscopy in adolescents with dysmenorrhea or chronic pelvic pain: a systematic review.
 E.B. Janssen, A.C.M. Rijkers, K. Hoppenbrouwers, C. Meuleman, and T.M. D'Hooghe
 Human Reproduction Update, Vol.19, No.5 pp. 570–582, 2013

CLINICAL STAGE

Dysmenorrhea	Classification (n patients / n patients with end) rAFS			
	I	II	III	IV
Chatman & Ward, 1982	14/28(50%)		1/28 (39%)	3/28 (11%)
Vercellini, 1989	12/18 (67%)	6/18(33%)	0/18(0%)	0/18(0%)
Davis, 1993	10/36(28%)	8/36(22%)	7/36(19%)	11/36(31%)
Roman, 2010	8/20(40%)	9/20(45%)	1/20(5%)	2720(10%)
SUBTOTAL	30 / 74 (41%)	23 / 74 (31%)	8/74 (11%)	13/74 (18%)

Prevalence of endometriosis diagnosed by laparoscopy in adolescents with dysmenorrhea or chronic pelvic pain: a systematic review.
 E.B. Janssen, A.C.M. Rijkers, K. Hoppenbrouwers, C. Meuleman, and T.M. D'Hooghe
 Human Reproduction Update, Vol.19, No.5 pp. 570–582, 2013

CLINICAL STAGE

CPP unresponsive to treatment	Classification (n patients / n patients with end) rAFS			
	I	II	III	IV
Reeses 1996	39/49(80%)	6/49(12%)	3/49(6%)	1/49(2%)
Laufer,1997	24/31(77%)	7/31(23%)	0/31(0%)	0/31(0%)
Stavroulis, 2006		5/11(45%)		6/11(55%)
Ventolini,2005	47/28(14%)	11/28(39%)	12/28(43%)	1/28(4%)
Doyle,2009	67/90(74%)	NR	NR	NR
SUBTOTAL	134 / 198 (68%)	24 / 108 (22%)	5/108 (14%)	2/108 (2%)

Prevalence of endometriosis diagnosed by laparoscopy in adolescents with dysmenorrhea or chronic pelvic pain: a systematic review.
 E.B. Janssen, A.C.M. Rijkers, K. Hoppenbrouwers, C. Meuleman, and T.M. D'Hooghe
 Human Reproduction Update, Vol.19, No.5 pp. 570–582, 2013

Incidence of OMA

- Early studies assessing the prevalence of endometriomas in adolescents reported those cysts to be relatively unusual.
- A study by Moore et al found that endometriomas comprised **4.7 % of adnexal masses** in adolescents.

Moore JG, Schifrin BS, Erez S: Ovarian tumors in infancy, childhood, and adolescence. Am J Obstet Gynecol **1967**; 99:913

Incidence of OMA

- Early studies assessing the prevalence of endometriomas in adolescents reported those cysts to be relatively unusual.
- A study by Moore et al¹⁰ found that endometriomas comprised **4.7 % of adnexal masses** in adolescents.

Moore JG, Schifrin BS, Erez S: Ovarian tumors in infancy, childhood, and adolescence. *Am J Obstet Gynecol* **1967**; 99:913

Original Study

Endometriomas in Adolescents and Young Women

Şebnem Özyer MD *, Özlem Uzunlar MD, Nagihan Özcan MD, Hüseyin Yeşilyurt MD, Rana Karayalçın MD, Ayla Sargın MD, Leyla Mollamahmutoğlu MD

Zekai Tahir Burak Women's Health Education and Research Hospital, Ankara, Turkey

Endometriomas in Adolescents and Young Women

Şebnem Özyer MD *, Özlem Uzunlar MD, Nagihan Özcan MD, Hüseyin Yeşilyurt MD, Rana Karayalçın MD, Ayla Sargın MD, Leyla Mollamahmutoğlu MD

Zekai Tahir Burak Women's Health Education and Research Hospital, Ankara, Turkey

Retrospective Analysis (2007-2011)

63 endometrioma cases

29/63 **49% Married**

Clinical Characteristics of the Patients at the Time of Surgery (N = 63)

Characteristic	Mean ± SD, Range, or n (%)
Age, y ± SD (range)	22 ± 2 (17-24)
Marital status, n (%)	
Single	34 (54)
Married	29 (46)
BMI, kg/m ² (range)	20.8 ± 2.6 (16.6-28.5)
Symptoms on admission, n (%)	
Pelvic mass	1 (2)
Dysmenorrhea	11 (18)
Chronic pelvic pain	28 (44)
Menstrual cycle abnormality	0
Infertility	15 (24)
GI/urinary symptoms	0
Incidentally	8 (13)
Previous ovarian surgery, n (%)	8 (13)
Presence of müllerian anomaly, n (%)	2 (3)
Ca 125 levels, U/ml ± SD (range)	78.7 ± 52.3 (30-228)

BMI, body mass index; GI, gastrointestinal

Symptom percentages add to 101% due to rounding

Endometriosis Characteristics during Surgery

Characteristic	Mean ± SD, Range, or n (%)
Endometrioma	
Left ovary	
Single	31 (49%)
Multiple	5 (8%)
Total size of the cyst (cm)	4.7 ± 1.9 (2-9)
Right ovary	
Single	39 (62%)
Multiple	2 (3%)
Total size of the cyst (cm)	5.08 ± 2.07 (1-10)
Superficial peritoneal endometriosis	22 (35%)
Deep peritoneal endometriosis	14 (22%)
Douglas pouch obliteration	
Partial	11 (18%)
Complete	1 (2%)
Not obliterated	51 (81%)
Adnexal adhesions	
<8	36 (57%)
8-16	19 (30%)
>16	8 (13%)

Adhesions are calculated according to revised ASRM classification. Stage I (minimal, 1-5), Stage II (mild, 6-15), Stage III (moderate, 16-40), Stage IV (severe, >40)

Original Study

Adolescent Endometriosis in China: A Retrospective Analysis of 63 Cases

Yunpeng Yang MD¹, Yin Wang MD¹, Jie Yang MD, Shu Wang MD, Jinghe Lang MD^{*,1}

Department of Obstetrics and Gynecology, Peking Union Medical College Hospital, Peking Union Medical College, Chinese Academy of Medical Science, Beijing, China

n:63	n				
Dysmenorrhea	45				
CPP	13				
GI	19				
Irregular Mens.	5				
Dysparonia	1				

- Operated endometriosis younger than 20 y..mean age 18.41
- GI abnormality ..15%

Original Study

Adolescent Endometriosis in China: A Retrospective Analysis of 63 Cases

Yunpeng Yang MD¹, Yin Wang MD¹, Jie Yang MD, Shu Wang MD, Jinghe Lang MD^{*,1}

Department of Obstetrics and Gynecology, Peking Union Medical College Hospital, Peking Union Medical College, Chinese Academy of Medical Science, Beijing, China

n:63	n	Involved	%		
Dysmenorrhea	45	Ovaries Involved	%87		
CPP	13	Douglas	%28		
GI	19	US Ligament	%20		
Irregular Mens.	5				
Dysparonia	1				

- Operated endometriosis younger than 20 y..mean age 18.41
- GI abnormality ..15%

Original Study

Adolescent Endometriosis in China: A Retrospective Analysis of 63 Cases

Yunpeng Yang MD¹, Yin Wang MD¹, Jie Yang MD, Shu Wang MD, Jinghe Lang MD^{*,1}

Department of Obstetrics and Gynecology, Peking Union Medical College Hospital, Peking Union Medical College, Chinese Academy of Medical Science, Beijing, China

n:63	n	Involved	%	Stage	n (%)
Dysmenorrhea	45	Ovaries Involved	%87	I	5 (7.94%)
CPP	13	Douglas	%28	II	2 (3.11%)
GI	19	US Ligament	%20	III	33 (52.38%)
Irregular Mens.	5			IV	23 (36.51%)
Dysparonia	1				

• Operated endometriosis younger than 20 y..mean age 18.41

• GI abnormality ..15%

Adolescent Endometriosis: Report of a Series of 55 Cases With a Focus on Clinical Presentation and Long-Term Issues

Alain Audebert, MD, Lise Lecointre, MD*, Karolina Afors, MD, Antoine Koch, MD, Arnaud Wattiez, MD, and Cherif Akladios, MD

From private practice, Bordeaux, France (Drs. Audebert), Department of Obstetrics and Gynecology, Strasbourg University Hospital, Strasbourg, France (Drs. Lecointre, Koch, Wattiez, and Akladios), and IRCAD, Strasbourg, France (Dr. Afors).

• Between 1998-2013

• 2015 JMIG

n:55 Age (12-19)	DM	DP	Mass	Infertility	Müllerian Abnormality
Symptoms	53/55 (96%)	6/55 (10%)	23/55 (41.8%)	5/55 (9%)	4/55 (7.3%)

Adolescent Endometriosis: Report of a Series of 55 Cases With a Focus on Clinical Presentation and Long-Term Issues

Alain Audebert, MD, Lise Lecointre, MD*, Karolina Afors, MD, Antoine Koch, MD, Arnaud Wattiez, MD, and Cherif Akladios, MD

From private practice, Bordeaux, France (Drs. Audebert), Department of Obstetrics and Gynecology, Strasbourg University Hospital, Strasbourg, France (Drs. Lecointre, Koch, Wattiez, and Akladios), and IRCAD, Strasbourg, France (Dr. Afors).

• Between 1998-2013

• 2015 JMIG

n:55 Age (12-19)	DM	DP	Mass	Infertility	Müllerian Abnormality
Symptoms	53/55 (96%)	6/55 (10%)	23/55 (41.8%)	5/55 (9%)	4/55 (7.3%)
Stage	DIE	Superficial			
	1/55 (1.8%)	31/55 (57%)			

Adolescent Endometriosis: Report of a Series of 55 Cases With a Focus on Clinical Presentation and Long-Term Issues

Alain Audebert, MD, Lise Lecointre, MD*, Karolina Afors, MD, Antoine Koch, MD, Arnaud Wattiez, MD, and Cherif Akladios, MD

From private practice, Bordeaux, France (Drs. Audebert), Department of Obstetrics and Gynecology, Strasbourg University Hospital, Strasbourg, France (Drs. Lecointre, Koch, Wattiez, and Akladios), and IRCAD, Strasbourg, France (Dr. Afors).

• Between 1998-2013

• 2015 JMIG

n:55 Age (12-19)	DM	DP	Mass	Infertility	Müllerian Abnormality
Symptoms	53/55 (96%)	6/55 (10%)	23/55 (41.8%)	5/55 (9%)	4/55 (7.3%)
Stage	DIE	Superficial	Mild (I and II)	Severe (III-IV)	
	1/55 (1.8%)	31/55 (57%)	33/55 (60%)	22/55 %40	

Advanced Stage Endometriosis in Adolescents and Young Women



Noam Smorgick MD, MSc*, Sawsan As-Sanie MD, MPH, Courtney A. Marsh MD,
Yolanda R. Smith MD, MS, Elisabeth H. Quint MD

Department of Obstetrics and Gynecology, University of Michigan Health System, Ann Arbor, MI

Table 1

Comparison of Pain Symptoms of Adolescents and Young Women with Early versus Advanced Stage Endometriosis

Parameter	All patients (N = 86)	Early stage (N = 66)	Advanced stage (N = 20)	P-value
Age at diagnosis (y)	19.9 ± 1.9	18.7 ± 2.2	20.4 ± 1.4	<.001
BMI (kg/m ²)	24.9 ± 4.9	24.2 ± 4.2	26.9 ± 6.5	.09
Parity	0 (0-1)	0 (0-1)	0 (0-1)	.2
Smoker	25 (29)	20 (33)	5 (29)	.8
Race				.2
White	78 (91)	61 (92)	17 (85)	
Black	1 (1)	1 (2)	0	
Other/Unknown	7 (8)	4 (6)	3 (15)	
First degree relative with endometriosis,	24 (28)	17 (26)	7 (35)	.4
Prior surgical diagnosis of endometriosis at outside institution	33 (38)	27 (41)	6 (30)	.4

BMI, body mass index

Except as noted, data is presented as mean ± SD, median (range) or number (%).

Advanced Stage Endometriosis in Adolescents and Young Women

Noam Smorgick MD, MSc*, Sawsan As-Sanie MD, MPH, Courtney A. Marsh MD,
Yolanda R. Smith MD, MS, Elisabeth H. Quint MD

Department of Obstetrics and Gynecology, University of Michigan Health System, Ann Arbor, MI

Table 2

Comparison of Pain Symptoms of Adolescents and Young Women with Early versus Advanced Stage Endometriosis

	Early stage (N = 66) n (%)	Advanced stage (N = 20) n (%)	P-value
Only dysmenorrhea	12 (18)	3 (1.5)	.7
Daily pelvic pain	24 (36)	2 (10.0)	.03
Random pelvic pain	29 (44)	15 (75)	.01
Dyspareunia*	38/52 (73)	8/14 (57)	.3
Pain with urination	8 (12)	2 (10)	.7
Pain with bowel movements	12 (18)	3 (15)	.7

* Calculated among women who reported being sexually active.

Conclusions

- About two-thirds of adolescents girls with CPP or dysmenorrhea have laparoscopic evidence of endometriosis.
- This ratio reach to 75 % in CPP resistant to medical treatment.
- About one-third of these adolescents with endometriosis have moderate - severe disease, including endometrioma.

Symptoms and markers in adolescence predicting the risk of endometriosis

- Chronic pelvic pain, Severe dysmenorrhea
- Use of oral contraceptives for dysmenorrhea
- Dysmenorrhea resistant to non-steroidal anti-inflammatory drugs and/or oral contraceptives
- Interference with daily living during menstruation, e.g. absenteeism from school
- Dyspareunia and/or pain on defecation during menstruation
- History of benign ovarian cysts
- Family history of endometriosis