Recognition of Endometriosis

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Learning objectives

- Understand techniques for the recognition of endometriosis
- Recognize the limits of recognition
- Balance goals including pain relief, restoration of fertility, completeness of procedures, avoiding complications, and avoiding recurrence.

Conflicts of Interest

> None

Recognition

When is Endometriosis Missed?

- Unrecognized found on histology
 - > Peritoneal surface
 - ➤ Retroperitoneal nodules and lymphatics including nodes
 - > Ovaries
 - Peritoneal pockets
 - ➤ Large bowel
 - > Intraovarian
 - > Tubal
 - **➢** Omentum

- ➤ Nonvisualized but palpable at laparotomy or pelvic exam and potentially palpable with hand assisted laparoscopy or visible using ultrasound, MRI, or a rectal probe at surgery.
 - Retroperitoneum including cervix, rectum, ureter, and nerves
 - Adhesions and scar
 - Large and small bowel
 - Appendix
 - Epiploic fat
 - Mesentery

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Dr. Dan C. Martin is the Scientific and Medical Director of the Endometriosis Foundation of America, New York; a community member of the Virginia Commonwealth University Institutional Review Board, Richmond; and Professor Emeritus, School of Medicine, University of Tennessee Health Science Center, Memphis. Dr. Martin retired from clinical practice in 2016.

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Home • Endometriosis Concepts • Site Information • Links



Endometriosis Images

Images of endometriosis and look-a-like lesions can be downloaded from files on the Links page including

1988 Endometriosis Slide Set images (revised 2020)

1990 Laparoscopic Appearance of Endometriosis Color Atlas (revised 2020

Endometriosis Concents

Endometriosis Concepts and Theories (PDF

Endometriosis Concepts Page (FITIVIL

The Endometriosis Concepts and Theories page and files are focused on endometriosis history, concepts, theory and education beginning about 1,855 BC. This includes Rokitansky's 1860 histology and Russell's 1899 recognition of non-visualized, intra-ovarian lesions of what Sampson would subsequently (1925) call endometriosis. Sampson also discussed venous dissemination (1918), epithelial metaplasia (1921), implantation from menstruating ovaries (1921), transition from endometrium to endometriosis (1921), endometriosis different from endometrium "both in structure and in function" (1921), and retrograde menstruation (1921 & 1927). Ongoing research in endometriosis includes more than 27,300 articles in PubMed (NIH), 362,000 references at scholar.google.com, and 291,000 array- and sequence-based data in the GEO database (NIH). More than 400 references are included in the Endometriosis Concepts and Theories (PDF) summary. The summary also has sections on "When does the cell of origin become endometriosis?" the "tomato effect." and "reversal in evidence-based medicine."

Endometriosis Concepts and Theories

Revised 2/16/2022

This document is updated periodically. An update may be available at http://www.danmartinmd.com/files/endotheory.pdf

Please cite as: "Martin DC. Endometriosis Concepts and Theories. Resurge Press, Richmond, Virginia, revised February 16, 2022, https://www.danmartinmd.com/endoconcepts.html. Accessed [insert date]"

Table of Contents

Introduction		1
Summary		2
Theoretical Concept	<u>s</u>	4
Can We Recognize	Endometriosis?	6
What Size Lesion C	an We Detect?	7
When Does the Cell	Of Origin become Endometriosis?	7
Subtle Inflammatory	Lesions (Subtle Peritonitis)	8
The Tomato Effect (Theory-Based Medicine)		
Medical Reversal of Evidence-Based Medicine 9		
Annotated Concepts	and Theories (Chronologic)	10
References (Alphabe	etical)	57

Introduction

William W. Russell, MD, 1899

"Aberrant portions of the Müllerian duct found in an ovary"

- ➤ Left Ovary "Cystic adenocarcinoma"
- Right Ovary "Normal size," the "outer pole cystic and the surface covered with shreds of adhesions"

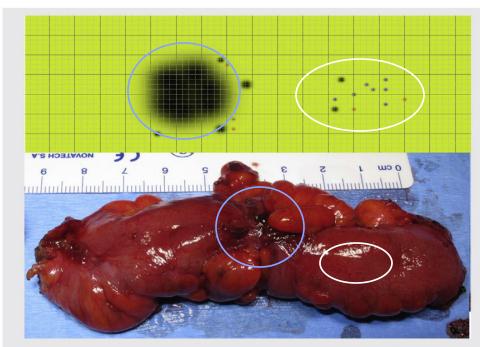


Russell, WW. Johns Hopkins Hospital Bulletin, 1899, 10:8-10 Longo, LD. Am J Obstet Gynecol. 1979, 134:225-6

Non-Visualized Bowel Satellites

- > 26 Patients
- > 0.1 mm to 10 mm
- > 100% at 0.5 cm
- > 4% at 5 cm

FIGURE 1



Endometriosis map of the resected specimen in patient 1, showing the macroscopic nodule and surrounding microimplants (*black dots* represent endometriosis microimplants measuring 1–5 mm; *blue dots*, 0.5–1 mm; *red dots*, 0.1–0.5 mm).

Badescu. Bowel occult microscopic endometriosis. Fertil Steril 2016.

Non-Visualized But Palpable Satellites

- > 51 Patients
- > 13 (25.5%) nonvisualized palpable satellites
- > 2 mm to 10 mm
- > 7 (14%) satellites past the planned staple line

Rectovaginal Endometriosis

Rectovaginal endometriosis missed at first laparoscopy

> 14 (88%) of 16 cases

Techniques

One-Finger Pelvic Exam

c1984 – Palpable Pelvic Nodule

- Before excision to localize
- During excision to push the lesion into the field



> After excision to confirm removal

Continue excision if the nodule is still present and then repeat palpation until there is no palpable residual.

A probe can be better during surgery. (Reich, Martin, Arrington, Griffiths)

Menstrual Exam

61 Patients

- > 7% (4 of 61) on untimed exam
- > 36% (22 of 61) on menstrual exam
- > 14% (3 of 21) had a **normal pelvis** at laparoscopy

Retrocervical and Retroperitoneal Endometriosis



Copyrighted Gower Medical Publishers, London, 1993

Koninckx & Martin. Fertil Steril. 1992, 58:924-928 Koninckx & Cornillie. 1993, Atlas of Endometriosis, ISBN 1563755475

Retrocervical and Retroperitoneal Endometriosis



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Koninckx & Martin. Fertil Steril. 1992, 58:924-928 Koninckx & Cornillie. 1993, Atlas of Endometriosis, ISBN 1563755475

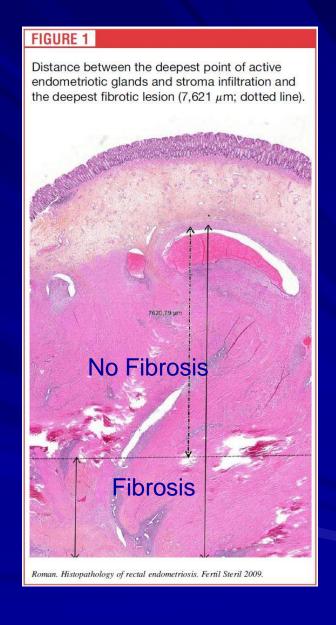
Sciatic Nerve

- Less than one year of sciatic pain
- Sixty-seven patients
- > Thirty-six patients (46.8%) isolated to sciatic nerve

Fibrosis

Fibrosis

- Palpation and squeeze techniques may require fibrosis.
- > Endometriosis can extend past fibrosis.



Disc Resection Before Segmental Resection

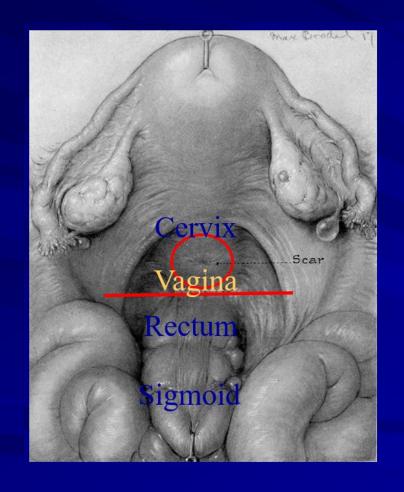
- > 44% (7 of 16) Incomplete
- > < 50% Fibrosis > 86% Incomplete
- \geq 50% Fibrosis \rightarrow None Incomplete

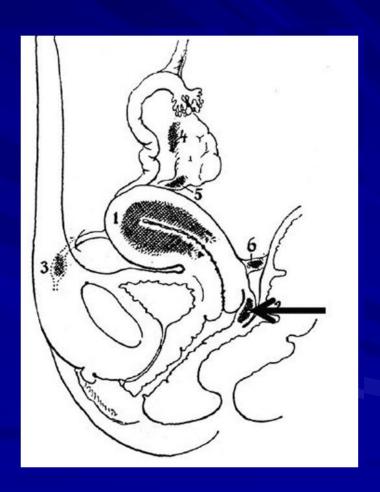
Table III.	Muscular layer fibrosis in the resected bowel segment		
surrounding the lesions removed by nodulectomy			

	Complete nodulectomy $(n = 9)$	Incomplete nodulectomy $(n = 7)$
G0, no fibrosis	0	3
G1, <25%	0	3
G2, 25-49%	2	1
G3, 50-75%	4	0
G4, > 75%	3	0

Intraoperative Vaginal or Rectal Probe

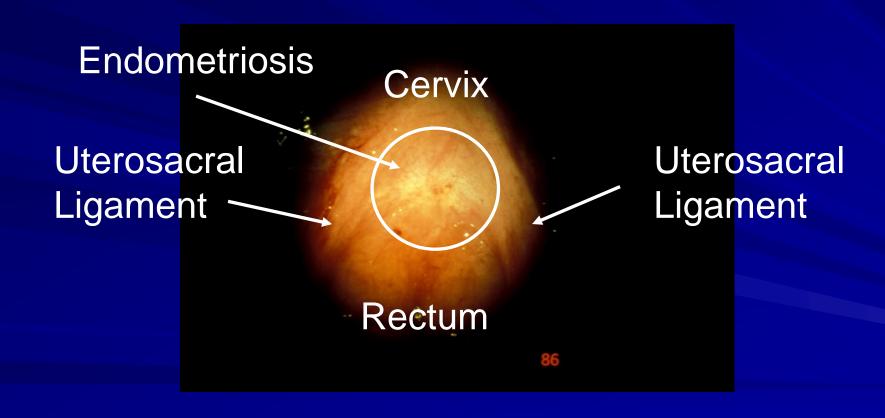
Thomas Cullen, MD



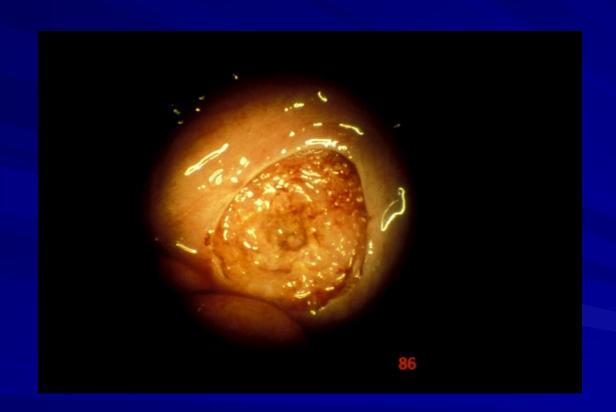


Cullen 1917 & 1918

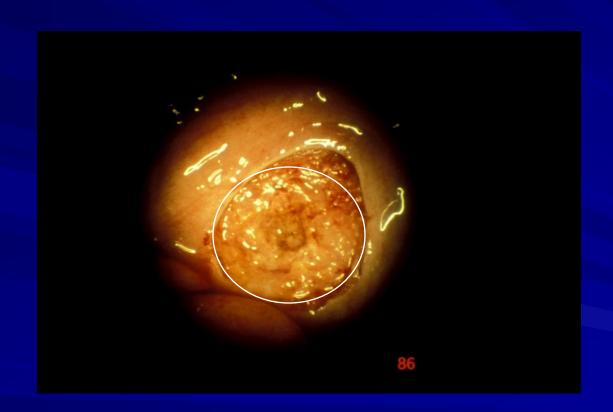
Retrocervical Endometriosis



Retrocervical Endometriosis



Retrocervical Endometriosis



Ring Forceps



Reich et al. 1991, Jul;36(7):516-22. PMID: 1834840

Intraoperative Rectal Probe





Jeff Arrington, www.youtube.com/watch?v=G0TCB7FZltU

Appearances

Powder Burn Lesions

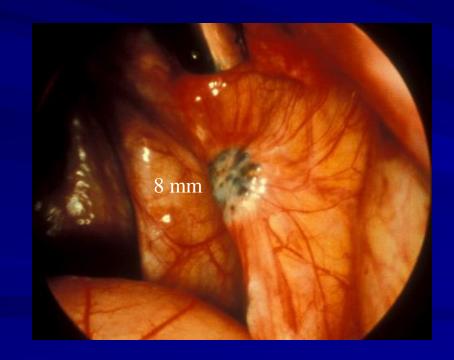
- ➤ Blue/black is old blood trapped in scar.
- > Brown is hemosiderin incorporated in the peritoneum.

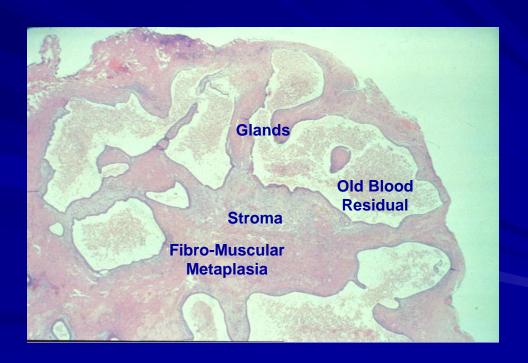




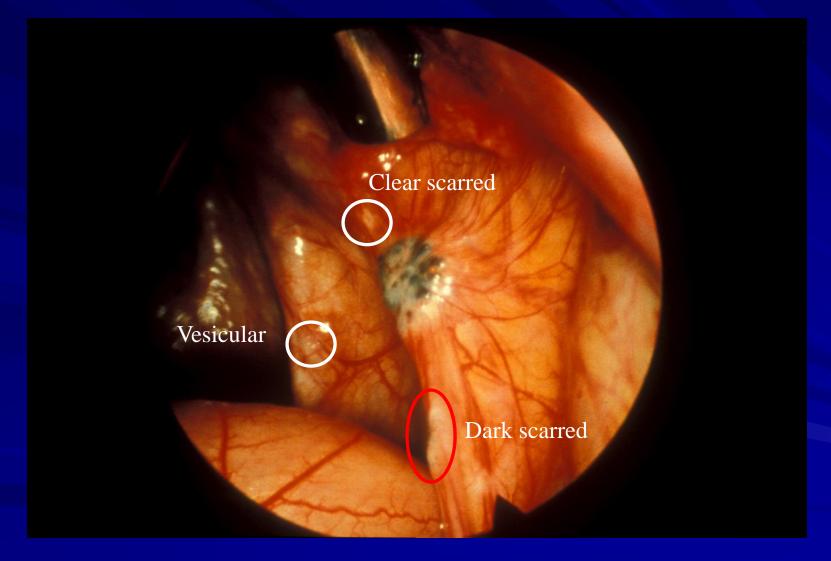
Powder Burn ('Dark Scarred' or 'Blue Berry' appearance)

- Dark is old blood trapped in glands.
- White is collagen, muscle and stroma.



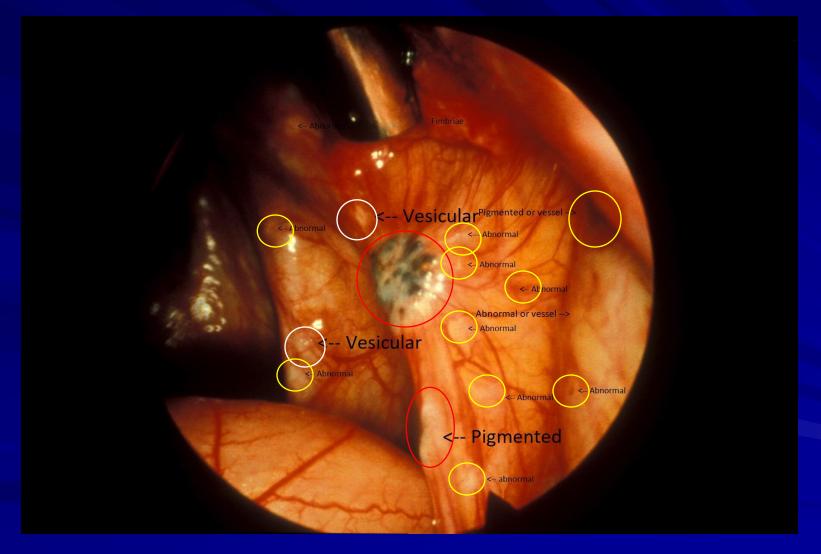


Satellites



Note: The only one seen at surgery was the dark, scarred lesion. Martin DC. Laparoscopic Appearance of Endometriosis. 1988

Abnormal Peritoneum



900 to 5,000 sections or individual sampling would be required for confirmation Martin DC. Laparoscopic Appearance of Endometriosis. 1988

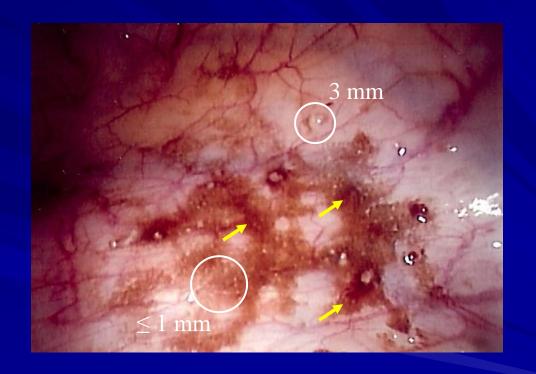
Visually Normal Peritoneum

- Atypical-Appearing Tissue
- > 24.3% Endometriosis

Powder Burn

Surface Vesicles and Peritoneal Hemosiderin

- > Vesicles are endometriosis.
- Brown tissue is hemosiderin in macrophages on the peritoneal surface.
- > Symptoms are generalized.



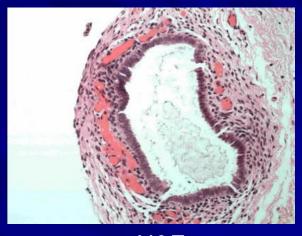
Surface Endometriosis

Vesicles

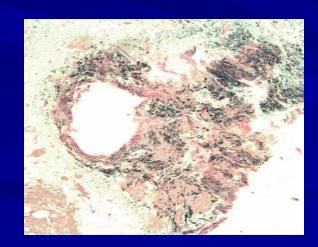
- > Glands
- > Stroma

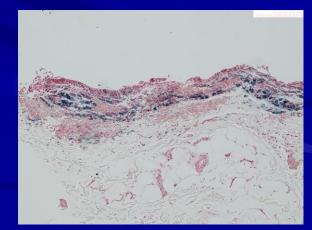
Brown Peritoneum

> Iron / Hemosiderin



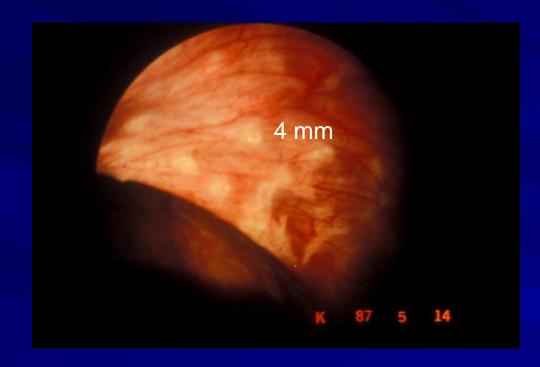
H&E

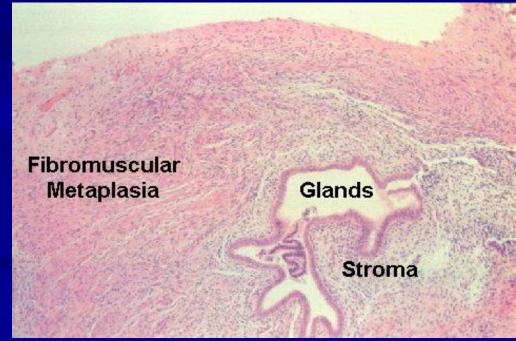




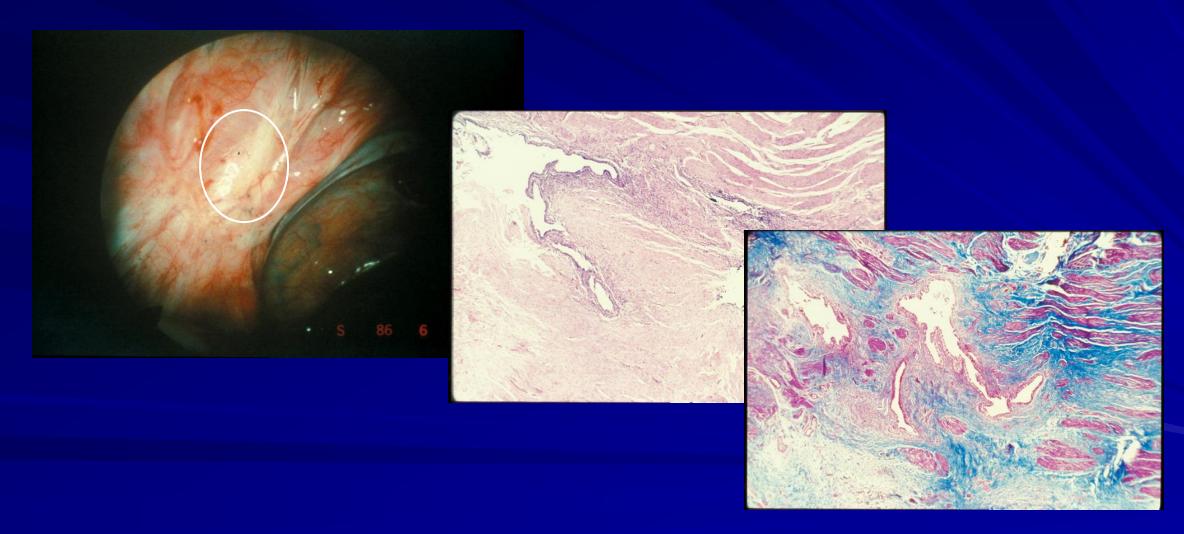
Mallory Iron Stain
With permission Dan C. Martin, MD.

White Scarred

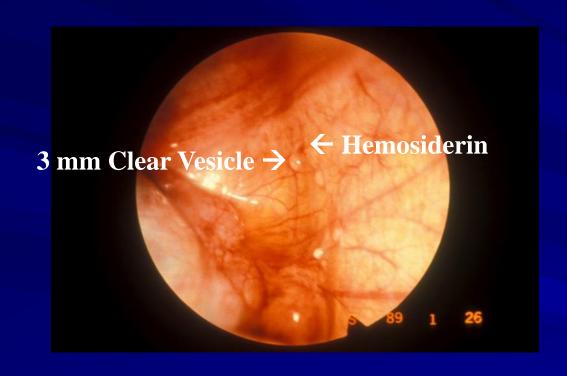


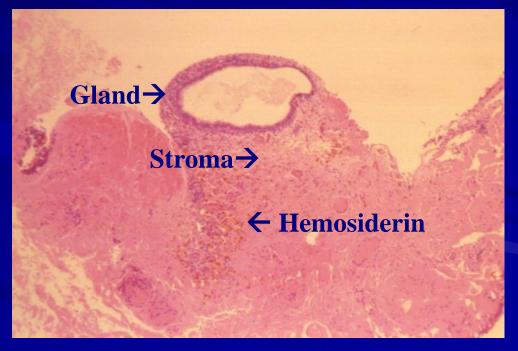


White Scarred

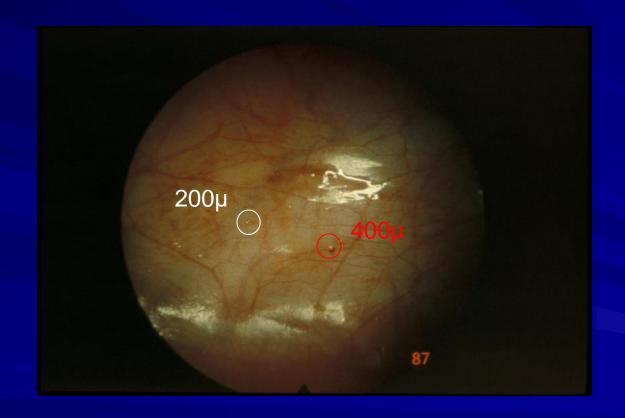


Vesicle and Hemosiderin



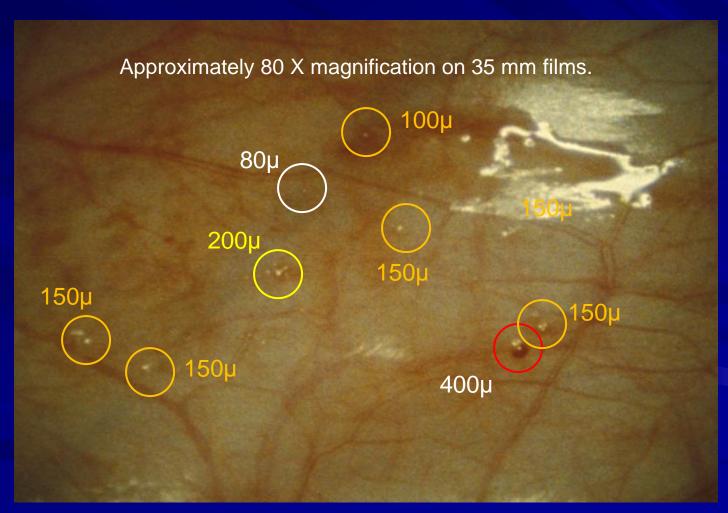


Teenage Endometriosis



Differential: psammoma bodies, endosalpingiosis, inclusions, LMPT, hemangioma, granulation,...
With permission, Martin DC. Laparoscopic Appearance. https://www.danmartinmd.com/files/lae1988.pdf

Teenage Endometriosis



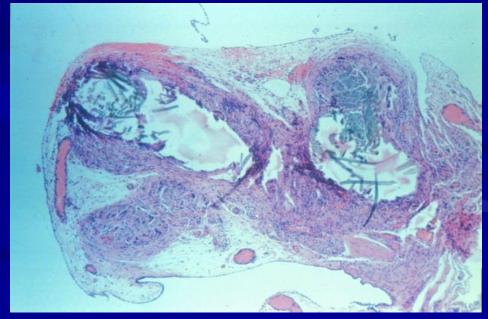
5 x 7 mm

Differential: psammoma bodies, endosalpingiosis, inclusions, LMPT, hemangioma, granulation,... Martin DC. Laparoscopic Appearance. https://www.danmartinmd.com/files/lae1988.pdf

Look-a-Like Lesions

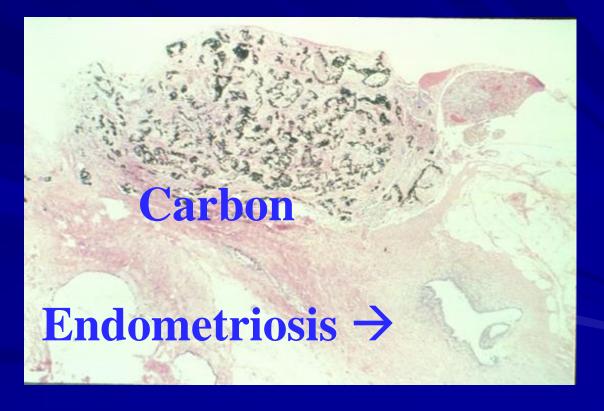
Dark Scarred

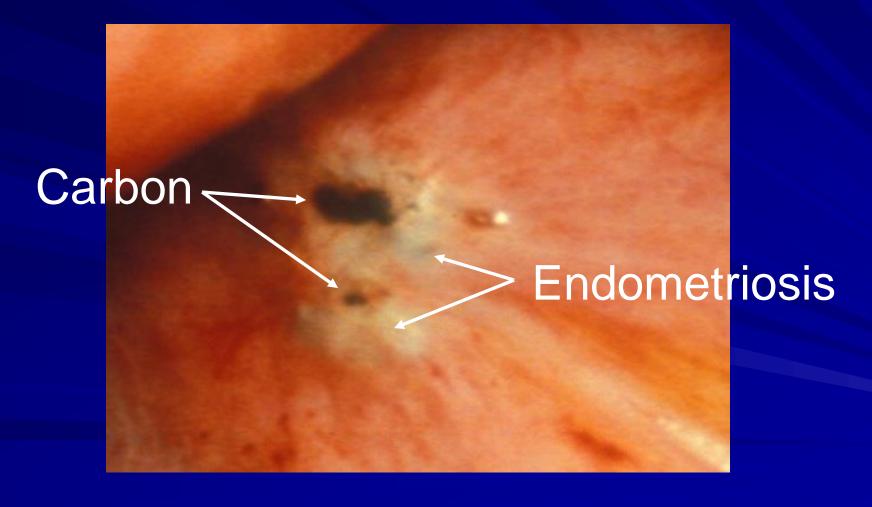




Dark Scarred



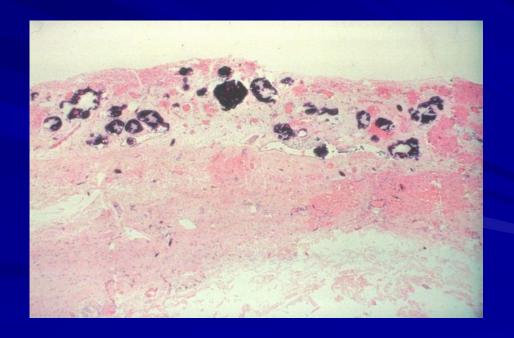




Martin DC. Laparoscopic Appearance. https://www.danmartinmd.com/files/lae1988.pdf

Psammoma Bodies

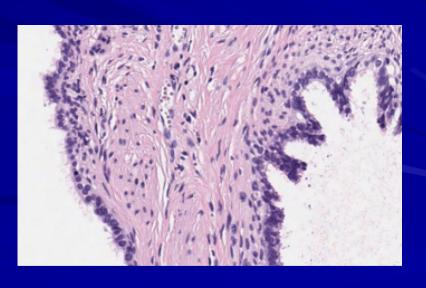




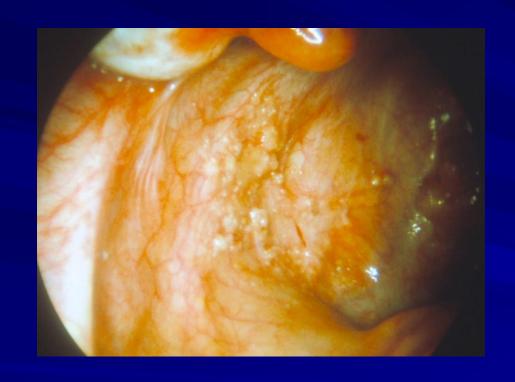
Endosalpingiosis

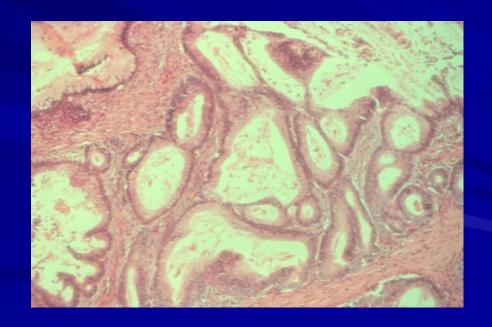




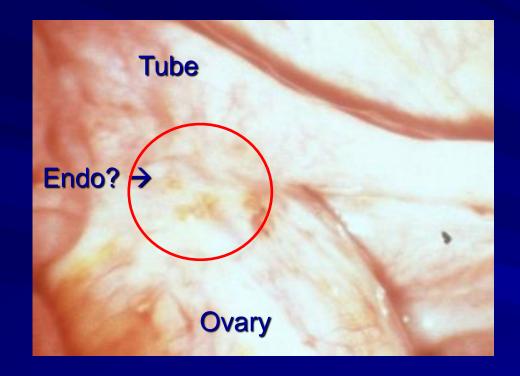


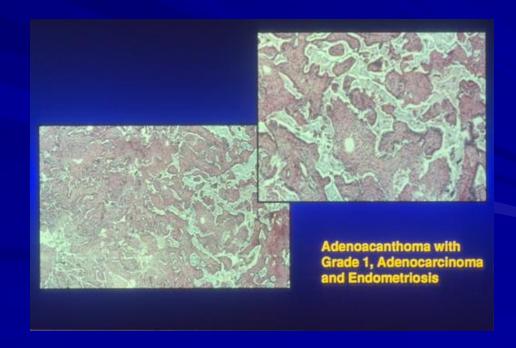
Low Malignant Potential Tumor





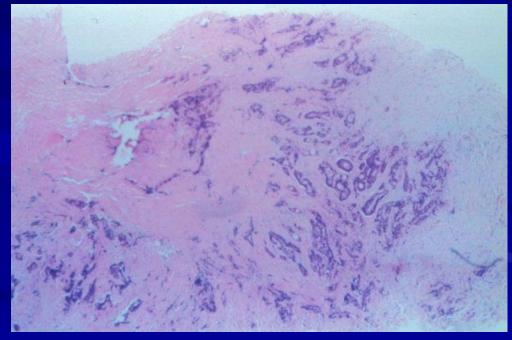
Adenocarcinoma





Metastatic Breast Cancer





Conclusions

Conclusions

Recognition is not always reasonable or possible

Balance

- > Pain relief
- Restoration of fertility
- Completeness of removal
- > Avoiding complications
- Avoiding recurrence

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the Links page including: or endometriosis and look-a-like lesions can be downloaded from files or

1988 Endometriosis Slide Set images (revised 2020)

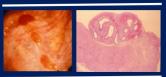
1990 Laparoscopic Appearance of Endometriosis Color A

Endometriosis Concents

Endometriosis Concepts and Theories (PDF

The Endometriosis Concepts and Theories page and files are focused on endometriosis history, concepts, theory and education beginning about 1,855 BC. This includes Rokitansky's 1860 histology and Russell's 1899 recognition of non-visualized, intra-ovarian lesions of what Sampson would subsequently (1925) call endometriosis. Sampson also discussed venous dissemination (1918), epithelial metaplasia (1921), implantation from menstruating ovaries (1921), transition from endometrium to endometriosis (1921), endometriosis different from endometrium "both in structure and in function" (1921), and retrograde menstruation (1921 & 1927). Ongoing research in endometriosis includes more than 27,300 articles in PubMed (NIH), 362,000 references at scholar.google.com, and 291,000 array- and sequence-based data in the GEO database (NIH). More than 400 references are included in the Endometriosis Concepts and Theories (PDF) summary. The summary also has sections on "When does the cell of origin become endometriosis?," the "tomato effect," and "reversal in evidence-based medicine."

Laparoscopic **Appearance** of Endometriosis



Dan C. Martin

Laparoscopic **Appearance** of Endometriosis





Endometriosis Concepts and Theories

This document is updated periodically. An update may be available at http://www.danmartinmd.com/files/endotheory.pdf

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Table of Contents	
Introduction	. 1
Summary	
Theoretical Concepts.	-4
Can We Recognize Endometriosis?	. 6
What Size Lesion Can We Detect?	. 7
When Does the Cell Of Origin become Endometriosis?	. 7
Subtle Inflammatory Lesions (Subtle Peritonitis)	. 8
The Tomato Effect (Theory-Based Medicine)	. 8
Medical Reversal of Evidence-Based Medicine	. 9
Annotated Concepts and Theories (Chronologic)	. 10
References (Alphabetical)	57

Introduction

Thank You