

## The Pathologist's View on Consultation Cases

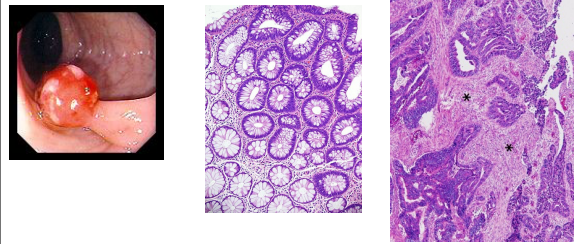
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### Case #1

- The hidden tumor or where have you been?

### Case history

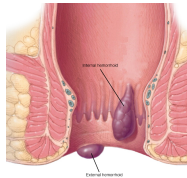
- 2003
  - 48 year old man undergoes routine endoscopy to make sure he does not have a colon carcinoma.
  - No family history of colon carcinoma.
  - Six biopsies were taken, one from the terminal ileum and five from the colon.
  - Four are normal, one is a 0.3 cm tubular adenoma in the rectum



Adenoma: polyp in the bowel which has cells which may develop into a carcinoma, if the polyp was not removed. If removed, there is no development of tumor, but patients may have multiple polyps or tumor syndromes

### Case continued

- 2008
  - Patient comes to attention for rectal bleeding, a single event. The physical examination shows bleeding hemorrhoids. No further examination



### Case continued

- 2012
  - Adenocarcinoma of colon moderately differentiated, 3.5 cm with positive lymph nodes



### Questions to the pathologist

Should the patient have undergone additional endoscopies because of the previous polyp (adenoma) in 2003?

Should the patient have undergone endoscopy or other diagnostic steps when he presented with rectal bleeding in 2008?

(Clinical problem can not be addressed by pathologist)

If patient would have undergone such endoscopy, would a lesion have been there at that time?

### Intervals of endoscopy and interval carcinoma

- American College of Clinical Gastroenterology Guidelines for Colorectal Cancer Screening
  - Colonoscopy every 10 years, beginning at age 50, remains the preferred CRC screening strategy
- Cancer prevention tests vs. cancer detection tests
  - Preferred CRC prevention test: colonoscopy every 10 years
  - Preferred cancer detection test: annual fecal blood test

- Screening of average risk persons:
  - ACG recommends that screening begin at age 50 years for both the genders (at age 45 years for African-American men and women). (colonoscopy every 10 years beginning at age 50 years)
- Single first-degree relative with CRC or advanced adenoma (adenoma  $\geq 1$  cm in size, or with high-grade dysplasia or villous elements) diagnosed at age  $\geq 60$  years.
  - Recommended screening: same as average risk (colonoscopy every 10 years beginning at age 50 years)
- Single first-degree relative with CRC or advanced adenoma diagnosed at age  $< 60$  years or two first-degree relatives with CRC or advanced adenomas.
  - Recommended screening: colonoscopy every 5 years beginning at age 40, or 10 years younger than age at diagnosis of the youngest affected relative

### 2012 Recommendations for Surveillance and Screening Intervals in Individuals With Baseline Average Risk

Baseline colonoscopy: most advanced findings(s)	Recommended surveillance interval (y)	Quality of evidence supporting the recommendation	New evidence stronger than 2006
No polyps	10	Moderate	Yes
Small (<10 mm) hyperplastic polyps in rectum or sigmoid	10	Moderate	No
1-2 small (<10 mm) tubular adenomas	5-10	Moderate	Yes
3-10 tubular adenomas	3	Moderate	Yes
>10 adenomas	<3	Moderate	No
One or more tubular adenomas >10 mm	3	High	Yes
One or more villous adenomas	3	Moderate	Yes
Adenoma with HGD	3	Moderate	No

- What will the guide lines do:
  - When patients are examined according to these guide lines, most developing tumors will be caught and the system resources will be adequately used.
  - Not every tumor will be caught.
  - Tumors which develop between endoscopic events are called interval carcinomas

### Interval Carcinomas

- Samadder et al conducted a population based-study of Utah residents and observed that 3.4% of all colon carcinomas occurred in 6-36 months from their index colonoscopy.
- Singh et al. looked at 4883 cases of colon carcinomas and concluded that 1 in 45 of CRCs are of the interval type
- Sanduleanu S et al showed that 1 in 15 proximal colon carcinomas and 1 in 34 distal colon carcinomas being interval tumors

### Interval Carcinomas

Colonoscopy results were correlated with cancer histories from the Utah Population who underwent colonoscopy 6 to 60 months before a diagnosis of colorectal cancer

Among 126,851 patients who underwent colonoscopies, 2,659 were diagnosed with colorectal cancer

6% of these colorectal cancers were found to have developed within 6 to 60 months after a colonoscopy

### Back to the time line

- 2003 Adenoma
- 2008 Bleeding
- 2012 3.5 cm tumor
- Regular interval for screening 10 years (2013)
- How long could the tumor have been there?
- What about the rectal bleeding
  - Even if the rectal bleeding was caused by the hemorrhoids, would an endoscopy have detected a tumor?

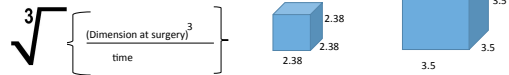
### Radiologic following of tumors, which were not removed

- 25 tumors were measured after different time intervals radiologically.
- The median interval between these examinations was 11 months (4-91 months).
- The median linear growth rate was 0.083 mm/day (0.008-0.262 mm/day).
- The median time for doubling of tumor volume was 130 days (53-1570 days), assuming a three-dimensional pattern of tumor growth.

Carcinoma of the Colon and Rectum-Growth Rate  
S. BOLIN, M.D., E. NILSSON, M.D., R. SJODAHL, M.D.  
Ann. Surg. \* August 1983

### Back to our patient

- Tumor size at the time of surgery was 3.5 cm
  - $3.5 \times 3.5 \times 3.5 = 27$  ccm
  - One doubling time BEFORE the surgery:  $27 \text{ ccm} / 2 = 13.5$  ccm
  - Cubic root (13.5) = 2.38 cm diameter



$$\sqrt[3]{\frac{(\text{Dimension at surgery})^3}{\text{time}}}$$

Original dimension:	3.5			2012
New dimension:	2.7795 one doubling time	Doubling time 53 days	Doubling time 130 days	
	2.2	0.15	0.36	
	1.75	0.29	0.71	
	1.38	0.44	1.07	2011
	1.1	0.58	1.42	
	0.88	0.73	1.78	
	0.7	0.87	2.14	2010
	0.55	1.02	2.49	2009
	0.43	1.16	2.85	2008
	0.35	1.31	3.21	2007
		1.45	3.56	2006

### Conclusion for the Pathologist

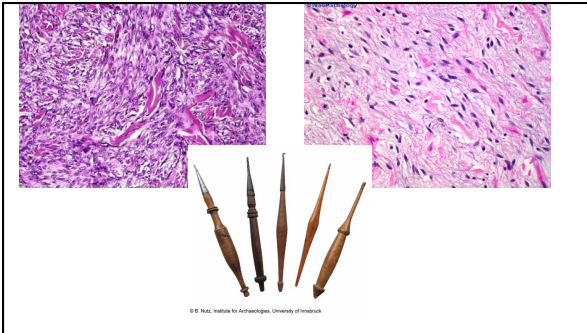
- The patient did not need earlier endoscopy than after ten years
- If the rectal bleeding was truly caused by hemorrhoids, an endoscopy was not necessary
- If an endoscopy had happened at that time, it is likely that a lesion would have been detected

### Case #2

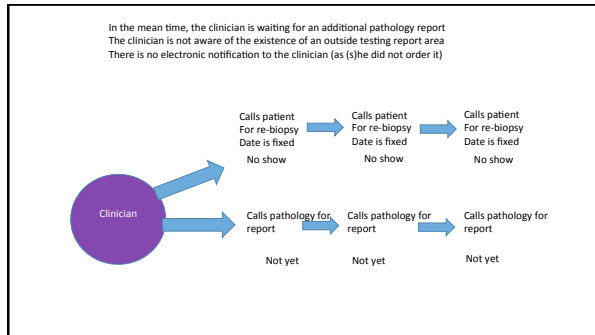
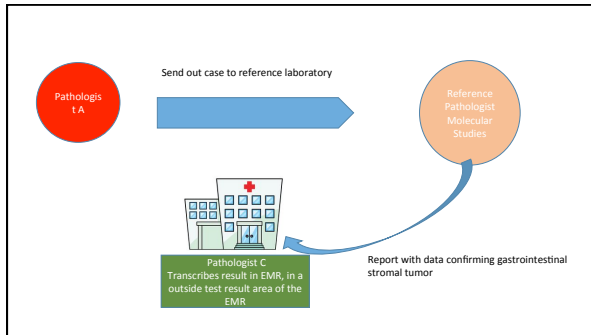
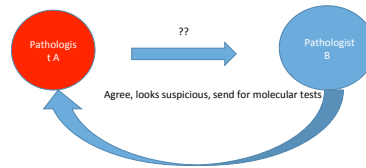
- Don't call us, we call you - or where is my diagnosis

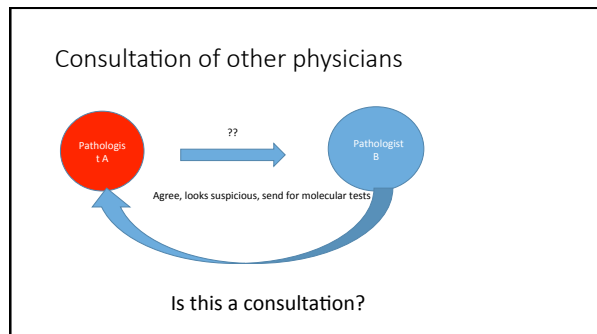
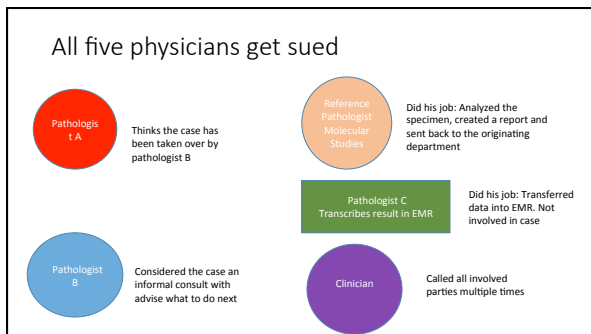
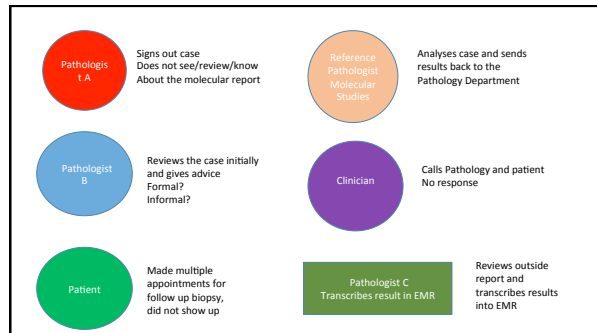
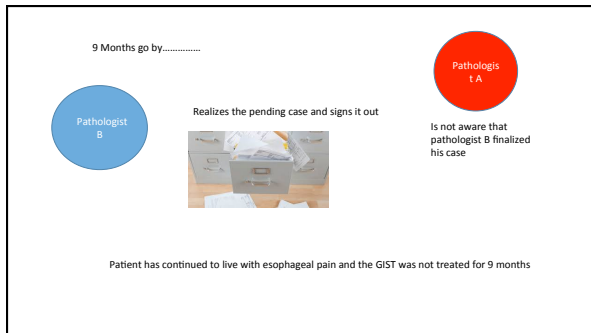
### Case presentation

- 54 year old man undergoes esophageal biopsy for pain
- A diagnosis is rendered
  - Acute inflammation
  - Atypical spindle cells, molecular tests will be performed and an additional report will be created



### How was that first diagnosis made





**Types of Consultations**

- Intradepartmental consultation
- Intradepartmental consensus conference
- Extradepartmental consultation

- Has a physician-patient relationship been created?
  - Informal consultation
  - Formal consultation

**Consultations**

- Formal consultation, in general
- when the primary . . . Physician refers the patient or their records to the consultant for review and seeks diagnostic advice, resulting in a relationship between the consultant and the patient
- In formal consultations, the consultant establishes a relationship with the patient and has a duty to that patient, even if the consultant and patient have never met in a face-to-face interaction
- For treating physicians, in this category of 'formal' consultations, the patient is aware of, and consents to, the consultation and usually is billed for the service

## Consultations

- Formal consultations, in the area of Pathology, patients are typically not aware of the pathologist who is responsible for the direct diagnosis, much less the pathologist performing the intradepartmental consultation, patient awareness and consent cannot be criteria
- Therefore, in determining whether a formal consultation, and consequently, a consensual physician-patient relationship exists between the pathologist and the patient . . . the issue is not who is contracted for the service, but whether the service was performed with the expressed or implied consent of the patient and rendered on behalf of the patient

## Formal Consultation

- An intradepartmental consultation may be considered “formal” if:
  - The consultation materially affected the primary pathologist’s ultimate diagnosis
  - If the primary pathologist “relied on” the intradepartmental consultation diagnosis.
  - If the pathologist performing the intradepartmental consultation knows the identity of the patient, reviews the slides related to that patient’s disease or condition, and possibly performs additional staining or other testing on the specimen.

## Informal Consultation

- Informal consultations, on the other hand, occur where the second physician
  - only gave an informal opinion
  - had not been asked to see the patient, did not review tests, directly order laboratory or other studies
  - did not bill the patient . . . the consultation amounted to nothing more than an answer to an inquiry from a colleague
- Such “curbside” consultations generally involve
  - presentation of the patient’s history
  - recitation of the diagnostic test results obtained to date
  - discussion of potential avenues of treatment for this patient and others with similar symptom complexes
- In these cases, the patient’s identity may be unknown to the specialist, the patient does not know about the consultation and the specialist colleague does not bill for his advice
- Such informal consultations fail to result in the establishment of a relationship between the consultant and the patient

## Special cases regarding consultations

- Intradepartmental consultations and consensus conferences can reasonably be considered to meet the criteria of a formal consultation, for which medical malpractice liability might attach
- Consensus conferences are a routine and sanctioned part of a department’s functioning, representing a clearly professional activity
- Were a medical malpractice lawsuit to arise involving the participants of a department consensus conference, it is likely that liability would be joint and several, under the principle that physicians treating a patient for the same illness may be *jointly and severally* liable for malpractice damages

## Any opinions?

## ...back to the case

- Likely, the consultation was informal, as the consulted pathologist (B) did not order the tests himself
  - In cases of an informal consultation, final diagnosis should remain the responsibility of the primary pathologist
- If the consultation were formal, one could argue that there is still a responsibility for the primary pathologist to make sure the case is diagnosed and signed out in time

### Conclusion

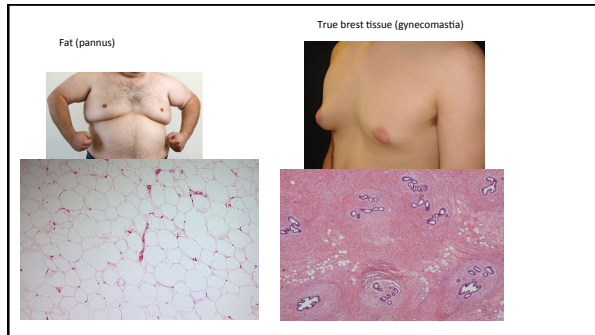
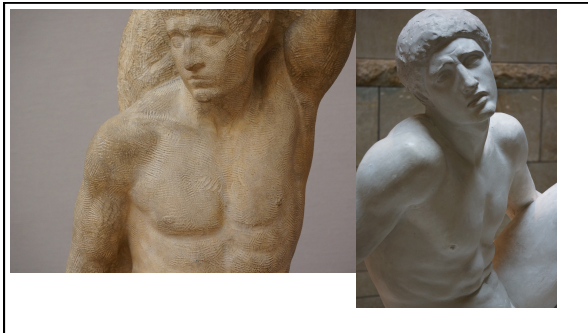
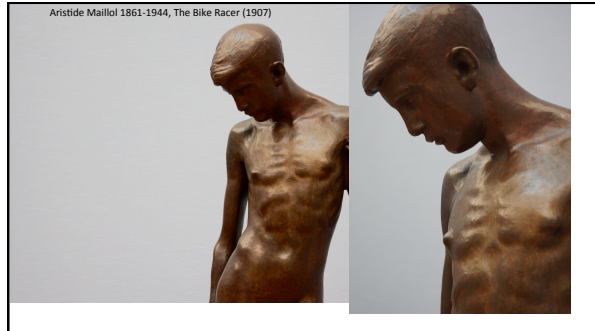
- The primary pathologist remains responsible that a report is finalized, even if the case has been submitted to a formal consultation
- In formal consultations the consulted pathologist may have significant responsibility in making sure that a final diagnosis is rendered
- In informal consultations, the consulted pathologist is not truly involved in a given case, but acted to answer a general informal question
- How did our patient do? The diagnosis of a gastrointestinal stromal tumor was rendered, which, in this case, was benign.

### Case #3

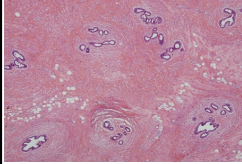
- Increasing chest size, are those pecs?

### Our patient

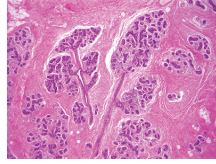
- 45 year old male who developed gynecomastia (male breast development) after taking antidepressants
- Antidepressant medication was initiated at age 32 and stopped at age 36
- Breast tissue grew around age 43
- Tissue resected at age 45



### Male versus female breast

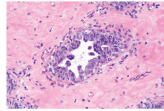


Male breast: ducts only

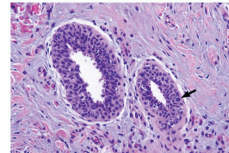


Female breast: ducts and milk producing glands

### What did the patient's tissue show?

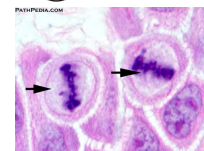
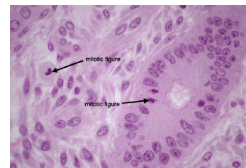
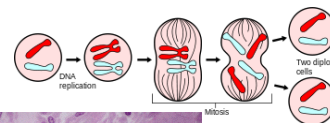


- Typical tissue of gynecomastia
- Multiple mitotic forms



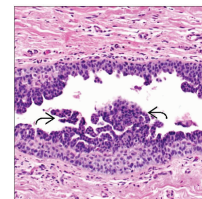
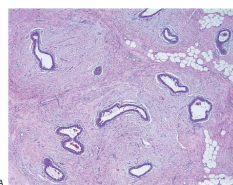
### What do mitotic forms indicate

- In order for a tumor (benign or malignant) to grow, cells must divide
- Cells divide
  - either through a natural stimulus
    - Estrogen, growth hormone, testosterone etc
  - Or abnormal stimuli
    - Medications that mimic or replace natural stimuli
    - Genetic events which initiate cell growth
- Cells divide through mitosis



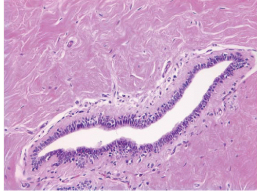
### What does the literature say about forms of gynecomastia

- There are only a few papers between the 1960-80 on the histologic features of gynecomastia
- Three phases of gynecomastia
  - Florid pattern
  - Intermediate form
  - Inactive or fibrous form



Florid pattern: From initiation of growth until a maximum 1.5-2 years after the growth stimulus has stopped





Fibrous form:  
In most cases already seen  
around 8 months after the  
stimulus stopped

### What was seen in the patient's tissue?

- Areas of dense fibrosis
- Areas with multiple mitotic forms
- This indicates
- The lesion has been there for a while
- There is still a stimulus, which drives the growth of the tumor

### Back to the time line

- Medication was initiated at age 32 and stopped at age 36
- Breast tissue grew around age 43
- Breast growth should likely have started earlier than age 43
- Florid phase should be terminated at age 38
  - Presence of mitotic forms indicates ongoing growth stimulus
- 7 years after stopping medication, there should only be fibrous change and not ongoing proliferation

### What are your thoughts?

### Conclusion

- Based on the fact that the breast growth started after the patient stopped the medication and based on the fact that there is ongoing proliferation of cells, it is unlikely that the antidepressant medications have caused the gynecomastia in this patient

