

# Oncology Review

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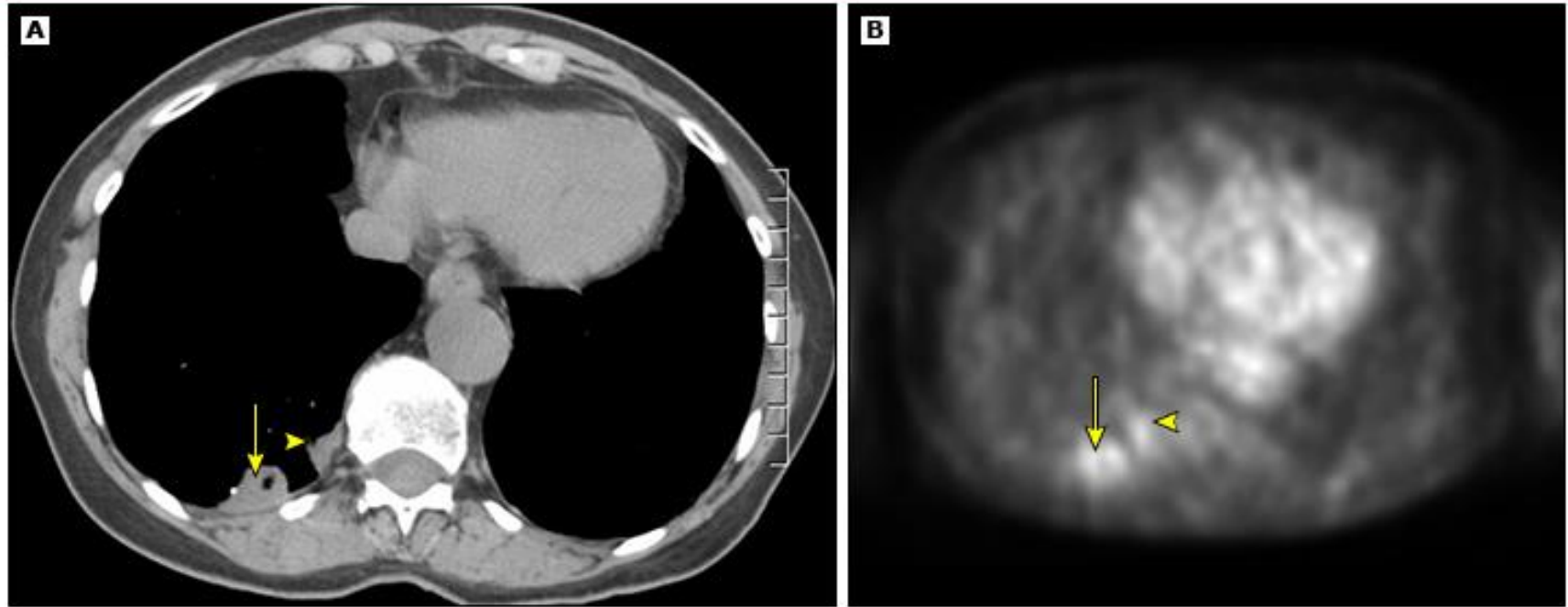
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# Oncology Review

1. A 56 year man with metastatic carcinoma of the colon has just completed a course of chemotherapy for progressive hepatic metastatic disease. The tumor has regressed, his appetite and energy are improved. The patient asks to see you because he has right sided pleuritic pain and cough. You find him to have swelling of the RLE, and a palpable cord. A doppler reveals a DVT in the right femoral vein and you order a pulmonary angiogram.

## Subacute infarct from pulmonary embolism on CT scan and PET scan



(A) A CT scan shows a cavitating nodule in the posterior segment of the right lower lobe (arrow) alongside a subsegmental infiltrate (arrowhead).

(B) A PET scan shows moderate FDG activity in the cavitating nodule (arrow), which has an indeterminate SUV of 2.1. Pathology showed a subacute infarction as a result of pulmonary embolism. The subsegmental infiltrate (arrowhead) could represent another small infarct or an inflammatory abnormality.

CT: computed tomography; PET: positron emission tomography; FDG: fluorodeoxyglucose (18F); SUV: standardized uptake value.

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The appropriate management for this patient is:

- A. Insert an IVC filter and administer warfarin
- B. LMW heparin
- C. LMW heparin and transition to warfarin
- D. Start warfarin as outpatient and gradually adjust dose to INR of 2-5-3.5
- E. Start a direct-acting oral anti-coagulant



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2. A 54 year old post-menopausal woman with osteolytic metastases in ribs and vertebrae is receiving an aromatase inhibitor as systemic anti-cancer treatment. In addition to the endocrine therapy she should:
- A. Start a course of radiation therapy to the sites of metastatic disease
  - B. Start a regimen of calcium plus vitamin D
  - C. Start therapy with a bisphosphonate
  - D. Start therapy with a RANK ligand inhibitor

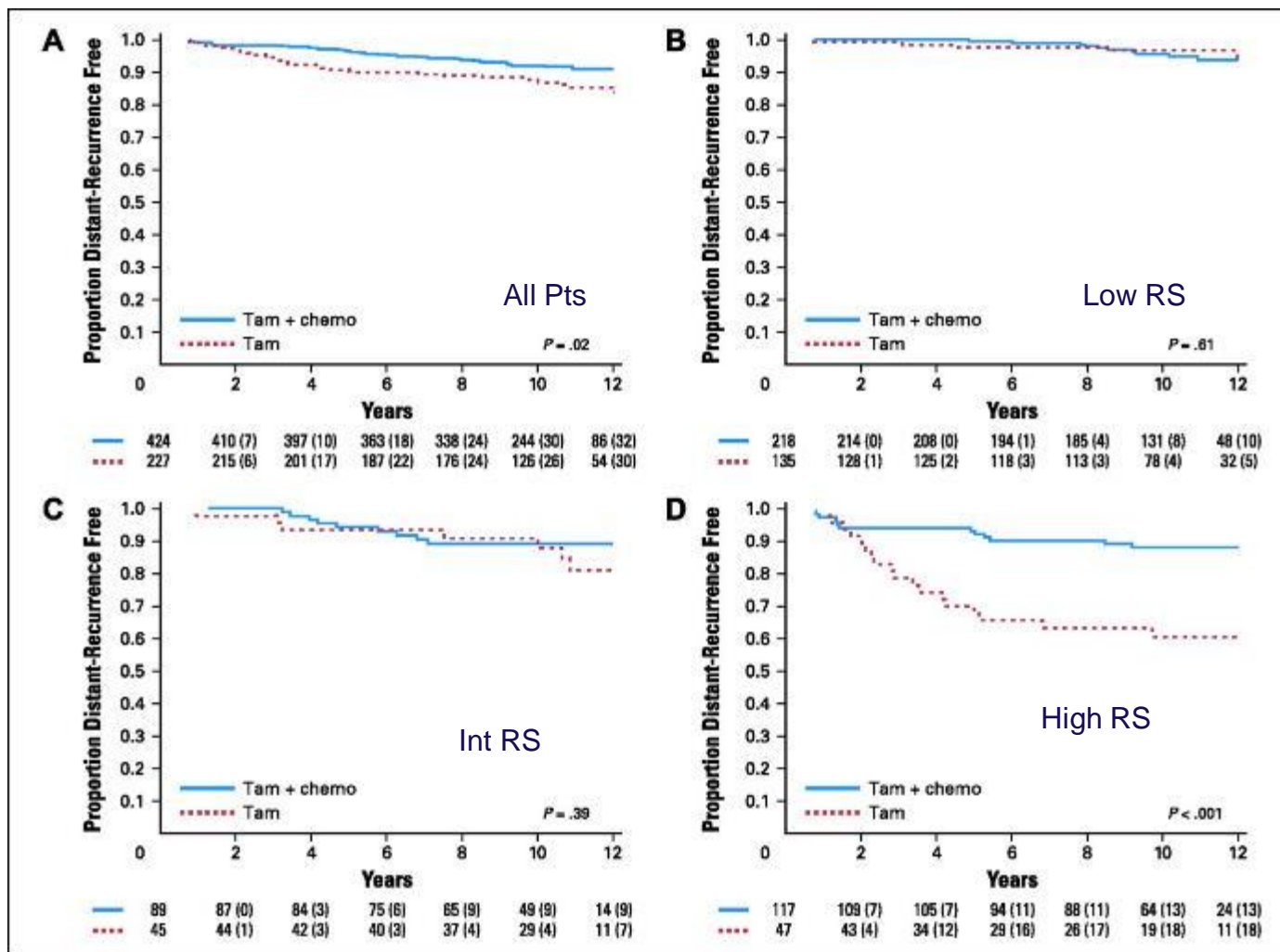


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3. A 42 y.o. woman asks your opinion about her management following her mastectomy. She has a T2(4 cm)N0M0, grade II, ER+/PR+/Her-2 non-amplified, lymphatic vascular invasion + (LVI) breast cancer that has a recurrence score on the Oncotype Dx assay of 11. She asks your opinion regarding adjuvant therapy:
  - A. Recommend post-mastectomy radiation
  - B. Add chemotherapy based on the predicted 10 year risk of recurrence
  - C. Test the tumors' in vitro sensitivity to chemotherapy, and thereby choose the optimal regimen
  - D. Add ovarian suppression to tamoxifen

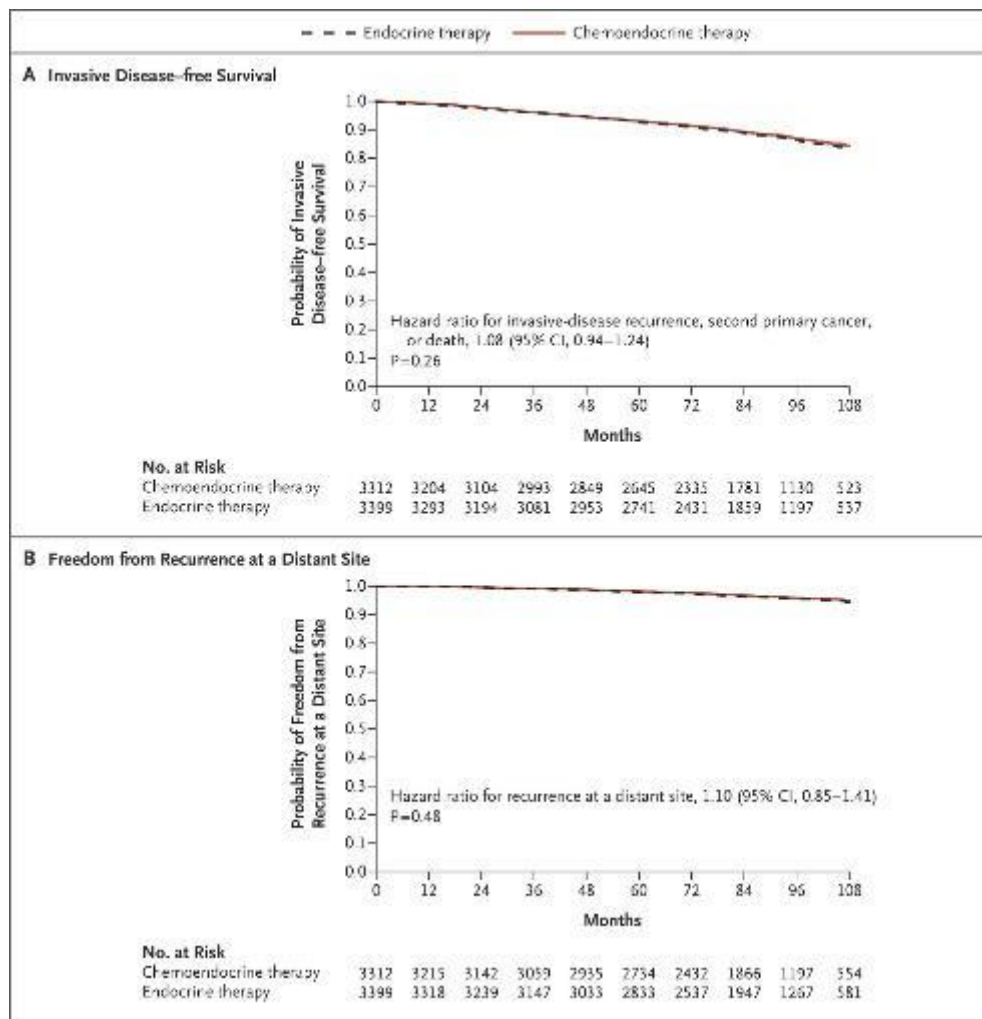
# Kaplan-Meier plots for distant recurrence comparing treatment with tamoxifen (Tam) alone versus treatment with tamoxifen plus chemotherapy (Tam + chemo)

Cancer Center



Paik, S. et al. J Clin Oncol; 24:3726-3734 2006

# Clinical Outcomes among Patients with a Recurrence Score of 11 to 25.





# Take Home Message for Internists

- Genomics can be used to predict responsiveness to hormonal therapy and the need for chemotherapy
- The test is expensive, although many insurers cover it since it can lead to the avoidance of chemotherapy
- Lymphoma, colorectal cancer, NSCLC-analogous approaches



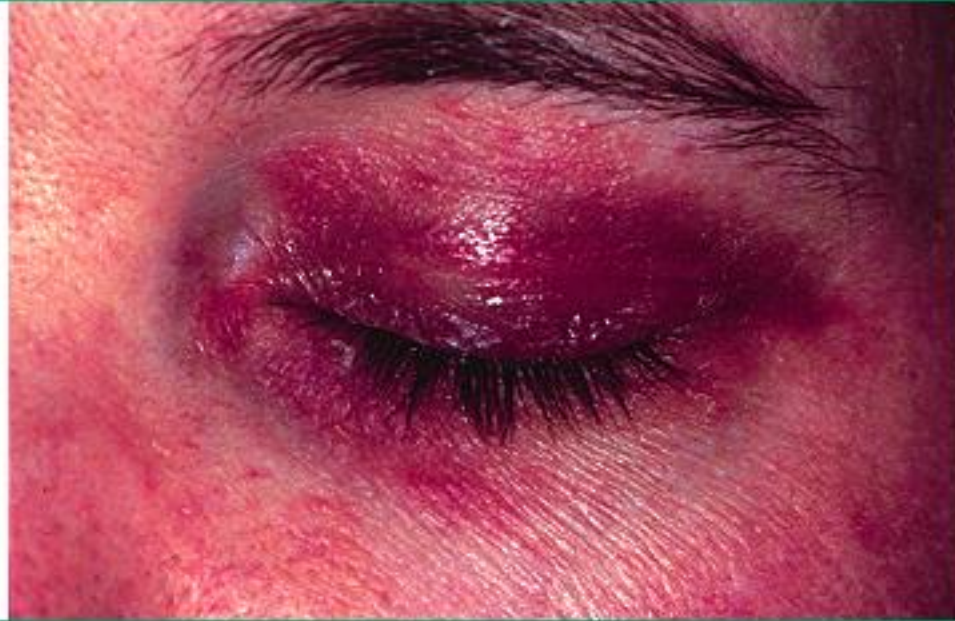
## 4. Oncology Review



Courtesy of Jeffrey Callen, MD, FACP, FAAD.

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This 54 y.o. woman described 2 months of this rash and weakness arising from a chair and climbing stairs.



*Courtesy of John H Stone, MD, MPH.*

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Another patient with similar rash

## 4. Oncology Review

She is most likely to suffer from all of the following except:

- A. Hodgkins Lymphoma
- B. Nasopharyngeal Carcinoma
- C. Ovarian Cancer
- D. Adenocarcinoma of the Lung

## Cancer risk in the autoimmune rheumatic diseases reported in several meta-analyses

Disease	Author (year)	Pooled SIR or RR for all cancers	Tumor types with increased risk
Rheumatoid arthritis	Simon (2015) <sup>[1]</sup>	1.09 (1.06, 1.13)	Lymphoma (Hodgkin, non-Hodgkin), lung, melanoma
Systemic lupus erythematosus	Bernatsky (2013) <sup>[2]</sup>	1.14 (1.05, 1.23)	Lymphoma (non-Hodgkin), lung, leukemia, thyroid
Systemic sclerosis (scleroderma)	Onishi (2013) <sup>[3]</sup>	1.41 (1.18, 1.68)	Lung, liver, hematologic, bladder
Myositis – Polymyositis  – Dermatomyositis	Yang (2015) <sup>[4]</sup>	– 1.62 (1.19, 2.04)  – 5.50 (4.31, 6.70)	– Lung, kidney, breast, lymphoma, bladder, endometrial, cervical, thyroid, brain  – Ovary, breast, lung, colorectal, cervical, bladder, nasopharyngeal, esophagus, pancreas, kidney
Sjögren's syndrome	Liang (2014) <sup>[5]</sup>	1.53 (1.17, 1.88)	Non-Hodgkin lymphoma, thyroid
ANCA-associated vasculitis	Shang (2015) <sup>[6]</sup>	1.74 (1.37, 2.21)	Non-melanoma skin, leukemia, bladder, lymphoma, liver, lung

SIR: standardized incidence ratio; RR: risk ratio; ANCA: antineutrophil cytoplasmic antibody.

### References:

1. Simon TA, Thompson A, Gandhi KK, et al. Incidence of malignancy in adult patients with rheumatoid arthritis: A meta-analysis. *Arthritis Res Ther* 2015; 17:212.
2. Bernatsky S, Ramsey-Goldman R, Labrecque J, et al. Cancer risk in systemic lupus: An updated international multi-centre cohort study. *J Autoimmun* 2013; 42:130.
3. Onishi A, Sugiyama D, Kumagai S, Morinobu A. Cancer incidence in systemic sclerosis: Meta-analysis of population-based cohort studies. *Arthritis Rheum* 2013; 65:1913.
4. Yang Z, Lin F, Qin B, et al. Polymyositis/dermatomyositis and malignancy risk: A metaanalysis study. *J Rheumatol* 2015; 42:282.
5. Liang Y, Yang Z, Qin B, Zhong R. Primary Sjogren's syndrome and malignancy risk: A systematic review and meta-analysis. *Ann Rheum Dis* 2014; 73:1151.
6. Shang W, Ning Y, Xu X, et al. Incidence of cancer in ANCA-associated vasculitis: A meta-analysis of observational studies. *PLoS One* 2015; 10:e0126016.

Reproduced from: Egiziano G, Bernatsky S, Shah AA. Cancer and autoimmunity: Harnessing longitudinal cohorts to probe the link. *Best Pract Res Clin Rheumatol* 2016; 30:53. Table used with the permission of Elsevier Inc. All rights reserved.

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**5. A 57-year-old man underwent surgery for an acute obstruction of the ascending colon. He was found to have a adenocarcinoma of the colon that perforated into the peritoneal cavity. All 18 lymph nodes in the resection specimen were negative for metastatic cancer. He received no further therapy.**

**Three years later the CEA was elevated and CT scan revealed to lesions in the right lobe of liver that were proven to be metastatic colon carcinoma. The optimal treatment is:**

- A) Cryoablation of the metastases**
- B) Chemoembolization of right lobe of liver**
- C) Chemotherapy and hepatic resection**
- D) Liver transplantation**





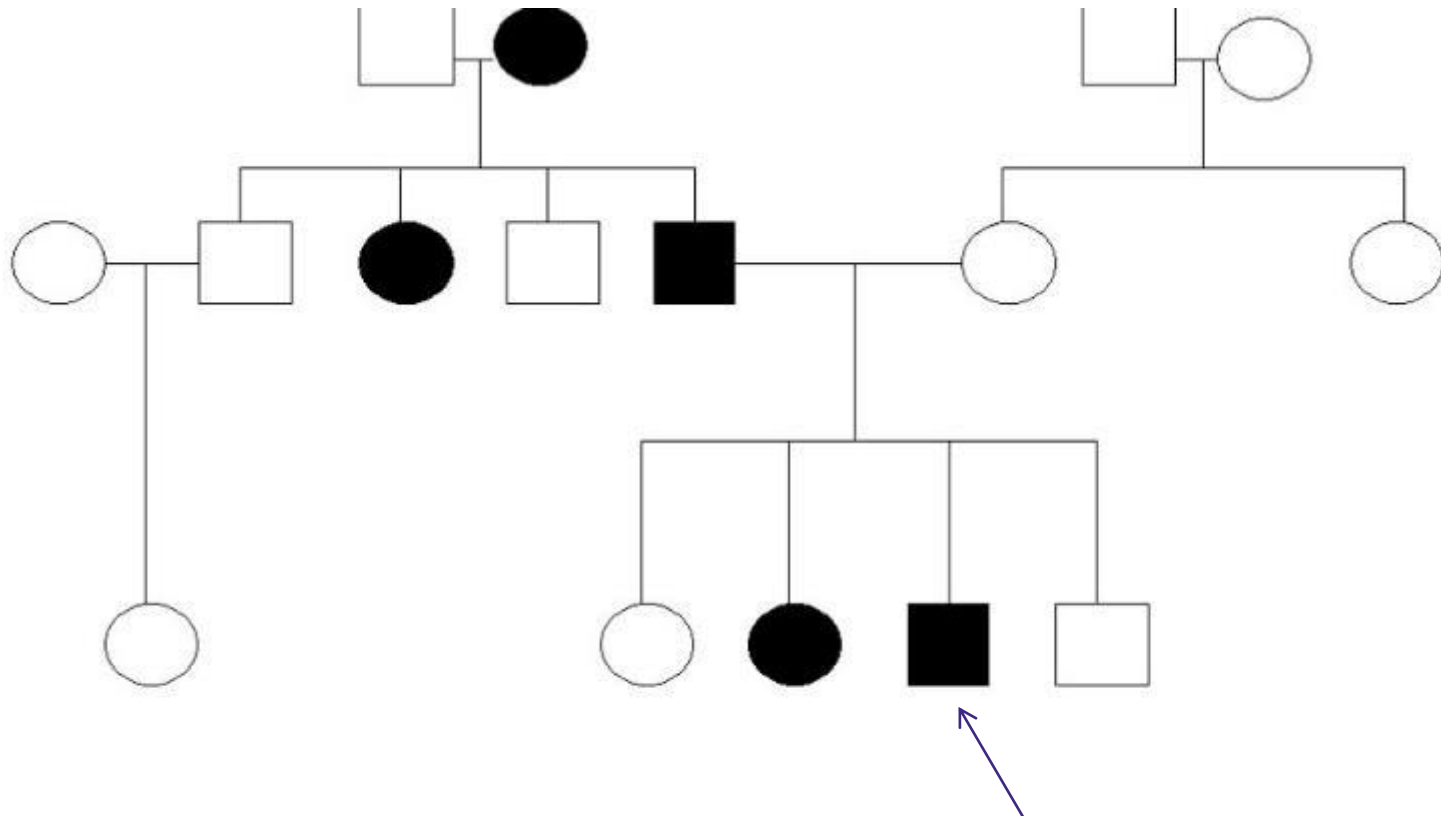
# Surveillance after treatment for Stages II, III Colon Cancer

**History and physical every 3–6 mo for 2 years, then every 6 mo for a total of 5 years**

- **CEA every 3–6 mo for 2 years, then every 6 mo for a total of 5 years**
- **Chest/abdominal/pelvic CT every 6–12 mo (category 2B for frequency <12 mo) for a total of 5 years**
- **Colonoscopy:**
  - **1 y except if no preoperative colonoscopy due to obstructing lesion, colonoscopy in 3–6 mo**
  - **If advanced adenoma, repeat in 1 year**
  - **If no advanced adenoma, repeat in 3 years, then every 5 years**
- **PET/CT scan is not recommended**



7. The patient's paternal grandmother, father, father's sister had colon cancer, and the patient's sister was recently found to have endometrial cancer. This is the pedigree:



**Figure 1. Example of an Autosomal Dominant Pedigree: (Darkened indicate affected individuals.)**



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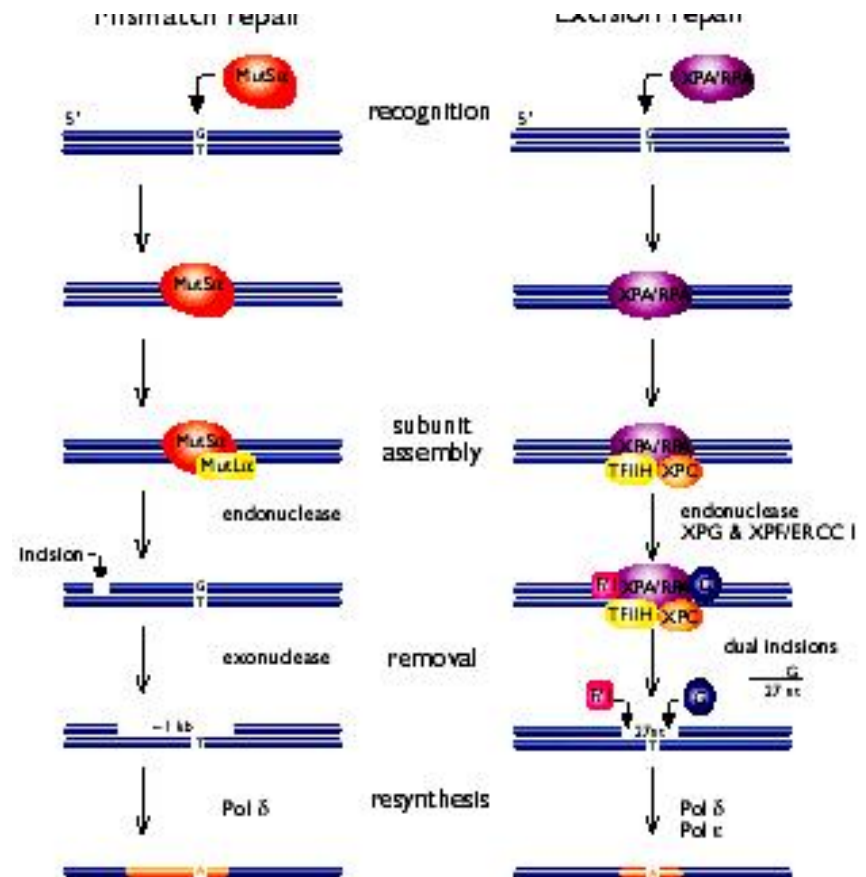
**7. You should refer him to a genetics clinic because of high suspicion for:**

- A. Loss of p53**
- B. Loss of PTEN**
- C. Loss of MLH1**
- D. Loss of BRCA 2**



# The Lynch Syndrome: Hereditary Non-polyposis Colon Cancer (HNPCC)

- Mutations in one of several mismatch repair genes are the basis of this cancer-prone syndrome, e.g., MLH1, MSH 2, etc. Path labs now routinely testing for this
- Women with the Lynch syndrome are at high risk for endometrial cancer, increased risk for ovarian cancer as well as other cancers in the GI tract
- Consider prophylactic TAHBSO



# 7. Oncology Review

This patient complained of pains in the ankles and hands.

Which of the following is the most likely finding on your physical exam?



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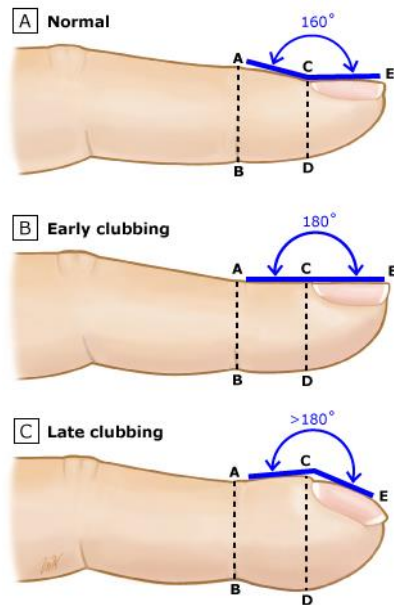
Courtesy of Jonathan Kruskal, MD, PhD.

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## 8. Oncology Review

- A. Erythema nodosum
- B. Clubbing
- C. Palpable abdominal mass
- D. Malar rash

## Clubbing of the fingers



In a normal finger, the length of the perpendicular dropped from point A to point B should be greater than a similar line from C to D. In clubbing, the relationships are reversed - that is, the distance C-D is greater than the distance A-B. The other important change is the angle described by A-C-E. In the normal finger this is usually <180 degrees, whereas in clubbing it is >180 degrees.

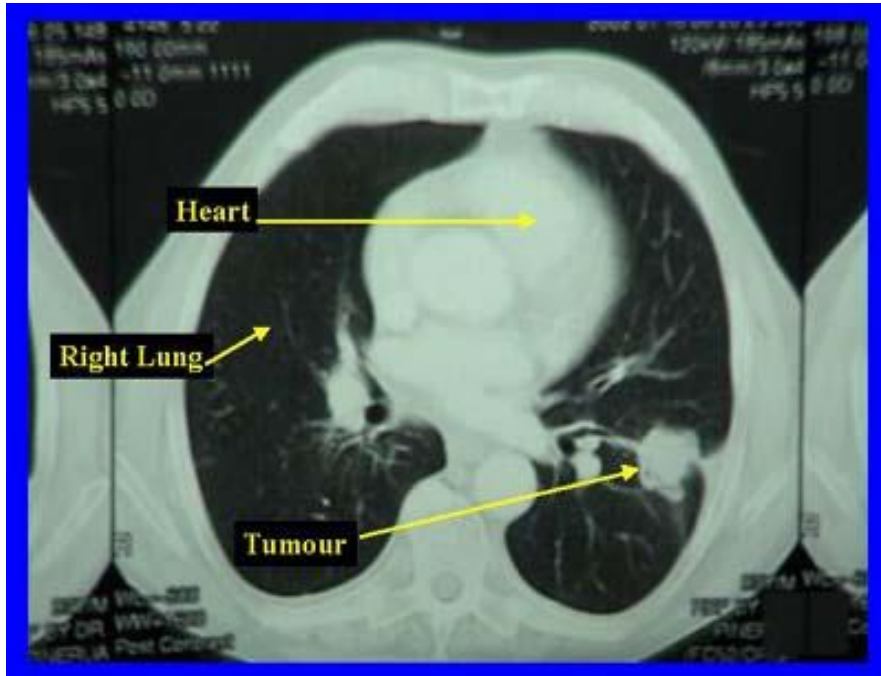
Panels A and C redrawn from: DeRemee RA. Facets of the algorithmic synthesis. In: DeRemee RA, (Ed), *Clinical profiles of diffuse interstitial pulmonary disease*, Mount Kisco, NY, Futura Publishing Company, Inc, 1990, pp. 9-44.

Panel B redrawn from: Bates B. *A Guide to Physical Examination and History Taking*, 5th Ed. Philadelphia: J.B. Lippincott Company, 1991.

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Often seen with lung cancer, pulmonary infections, cystic fibrosis, and right-to-left cardiac shunts and can be seen less often in other conditions (eg, Hodgkin lymphoma and cirrhosis). A separate disorder, termed primary (or idiopathic) hypertrophic osteoarthropathy or pachydermoperiostosis, is a hereditary disorder that presents in childhood and mimics secondary form

# Oncology Review #9



- A 54 year old man with cough for 4 weeks comes to your office after having a CT chest, c/o nausea, lethargy, unsteady gait and muscle cramps. The lung biopsy revealed SCLC

# Oncology Review #9

The least likely finding in this man is:

- A. Polycythemia
- B. SIADH
- C. Hypercalcemia
- D. Cushing's Syndrome
- E. Hypertrophic Pulmonary Osteoarthropathy



**10. Cancers evade the immune system by invoking which one of the following mechanisms?**

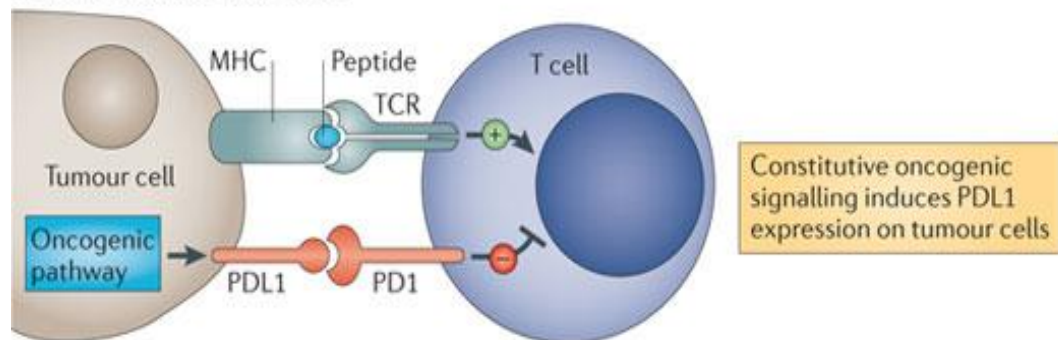
- a. Establishing a fibrin “cocoon” around the tumor mass**
- b. Overwhelming the immune system by the large tumor burden**
- c. Paralyzing B cells so no/or inadequate antibody production is developed**
- d. Promoting apoptosis of cytotoxic T cells**



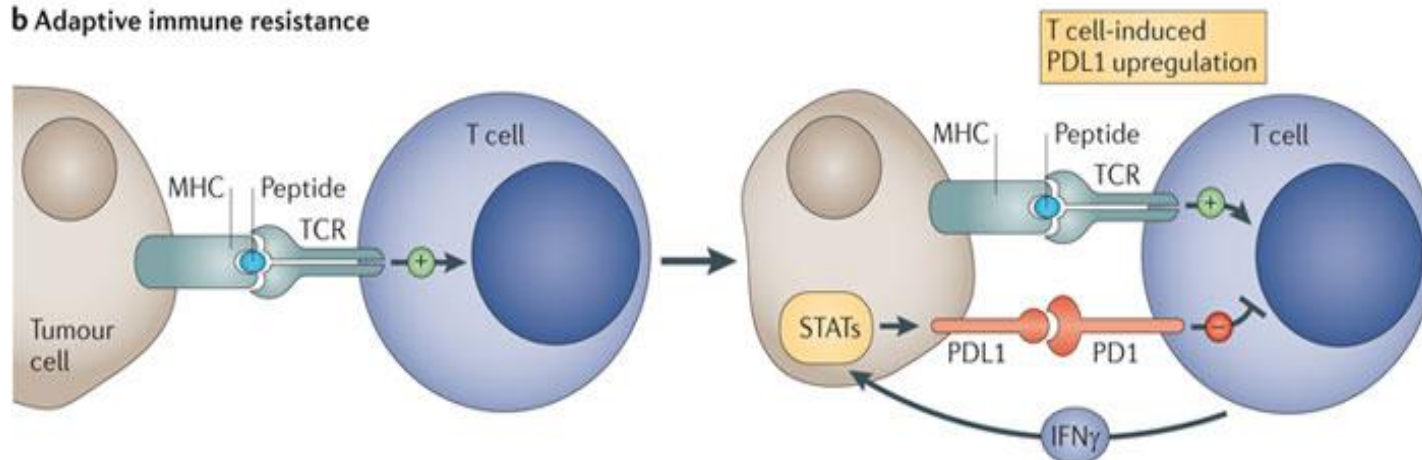


# Tumor Anergy: The PDL-1/PD-1 Pathway

## a Innate immune resistance

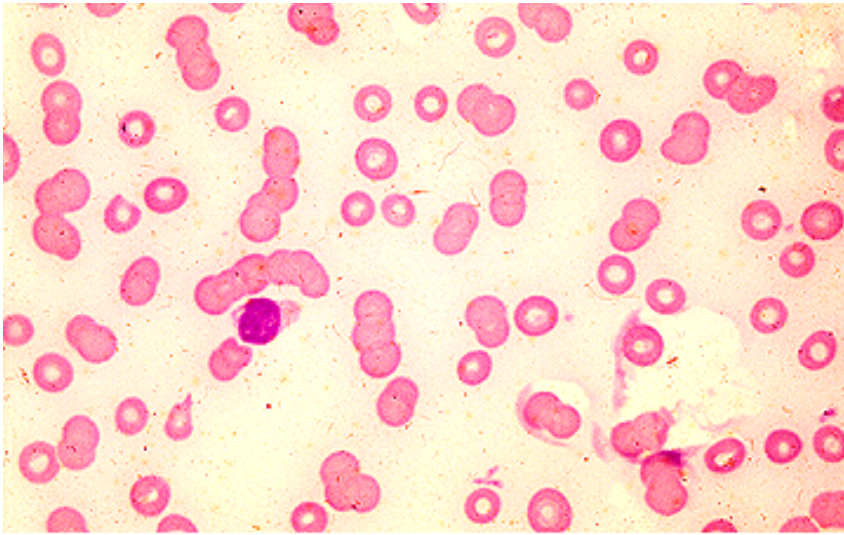


## b Adaptive immune resistance



Nature Reviews | Cancer

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11. A 63 year old man was diagnosed by multiple myeloma three year earlier. Because of intense skeletal pain and a rising level of serum IgA, he was placed on chemotherapy. After a two year period of remission he presents with dizziness, somnolence, bruising, the peripheral smear on the left and his monoclonal IgA was measured at 5.0 gm/dl.

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**11. Each of the following can result in the same clinical findings of somnolence, dizziness and easy bruising except:**

- A. Polycythemia vera**
- B. Hepatocellular carcinoma**
- C. Hemoglobinopathy (high avidity)**
- D. Carcinoma of the breast**
- E. Chronic obstructive pulmonary disease**



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**12. A 40 year old woman is now 5 years from completing adjuvant endocrine therapy for ER+, Stage II adenocarcinoma of the right breast. Her menses have returned and she asks you if it is safe for her to become pregnant.**

**Your assessment is that:**

- a. She should avoid pregnancy and continue to take Tamoxifen**
- b. She should proceed with a pregnancy but anticipate an enhanced risk of recurrence**
- c. She should avoid pregnancy due to enhanced risk of a second breast cancer**
- d. She should proceed with pregnancy assuming no increased risk of recurrence**

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13. A 55 year old Chinese woman has a 2 month history of cough and blood streaked sputum. She has a left upper lobe mass on CT chest, biopsy of which demonstrates adenocarcinoma. The genetic abnormality that is most likely to be “driving” her cancer is:
- A mutation in the epidermal growth factor receptor (EGFR)
  - A translocation involving EML4/ALK
  - A mutation of k-ras
  - A mutation of c-kit



# Best Site for Cancer Info for Docs and Patients

**Cancernet --access via any search engine**

**or**

**Google nci---you' ll get to the website of the National Cancer Institute**

