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# Lower GI Bleeds

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# Index Case

maroon/bright red: think lower GI bleed

Mr. X, 78 years old, presents w/ **maroon** stool and eighteen hours of prior bleeding per rectum.

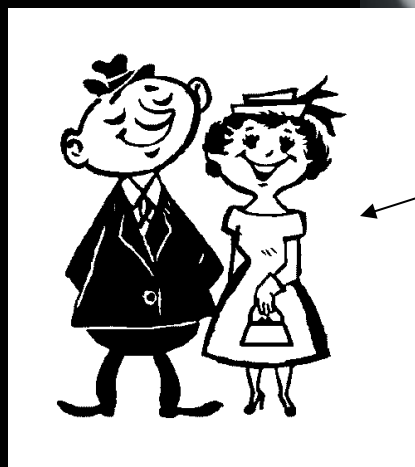
Not necessarily, there is enough overlap between the two groups that you would want further studies!

And if melena: think upper GI, right?



# Before we order tests, let's check his history

A single contrast Barium enema shows multiple outpouches throughout the course of colon.

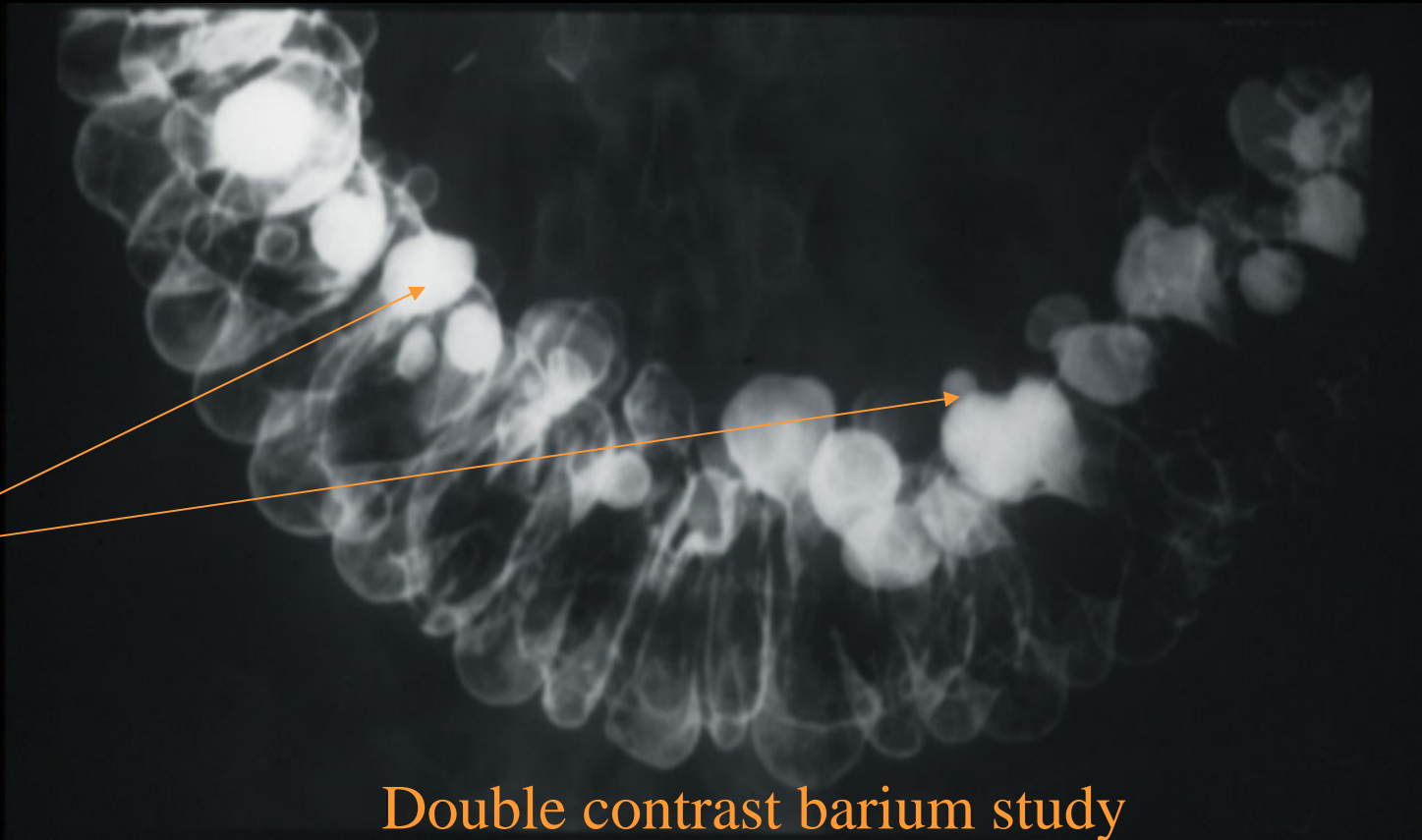


What fits  
the DDX  
for these?

She looks like an  
Aunt Minny  
(w/ diverticulosis)  
to me!



# Diverticulosis of the transverse colon

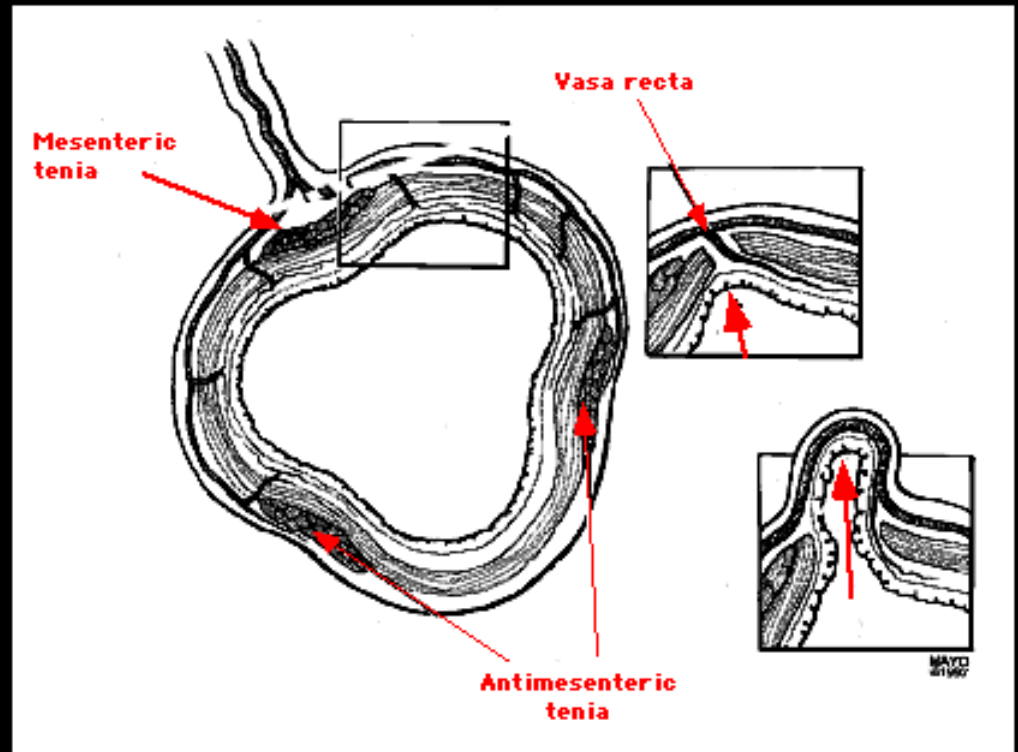




# Origins of diverticula

Note how the diverticula appear on the mesenteric side of the colon.

The Vasa recta penetrate the circular muscle layer of the colon, weakening the wall.



Source: © 2002 UpToDate

Originally from Textbook of Gastroenterology, Yamada, 95

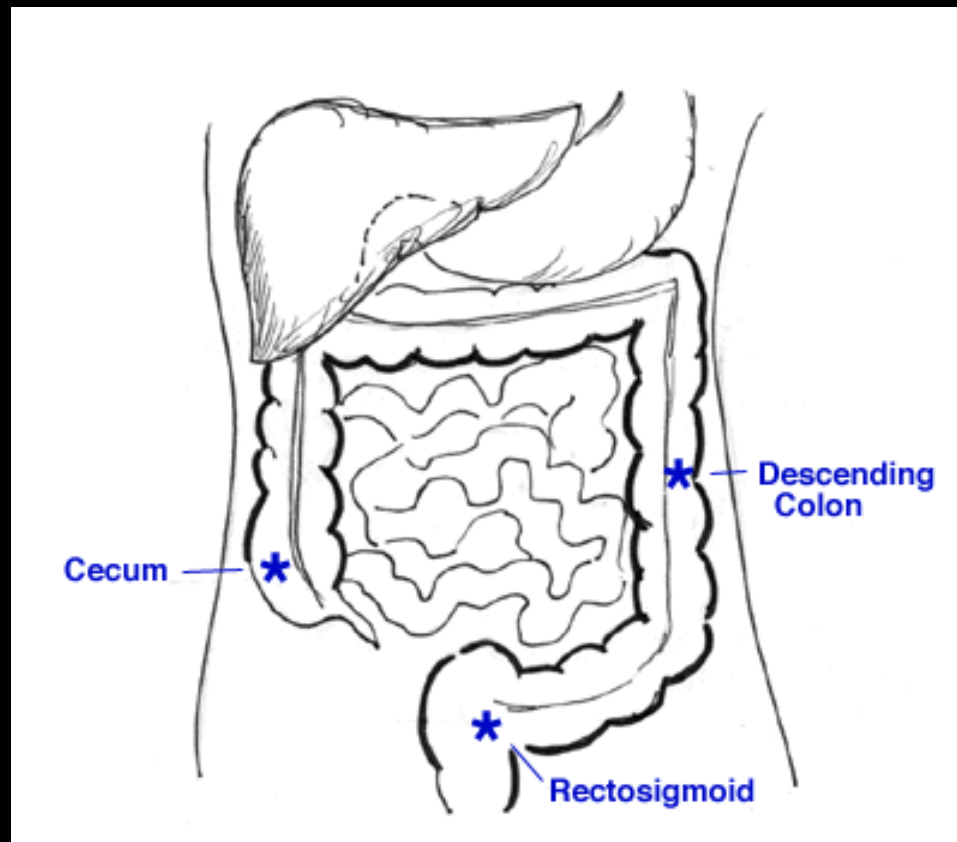


# Most common sites of GI Bleeds

- Sigmoid colon most common
- Rectum and bladder can mimic sigmoid

## Most Common Causes of Lower GI Bleeds

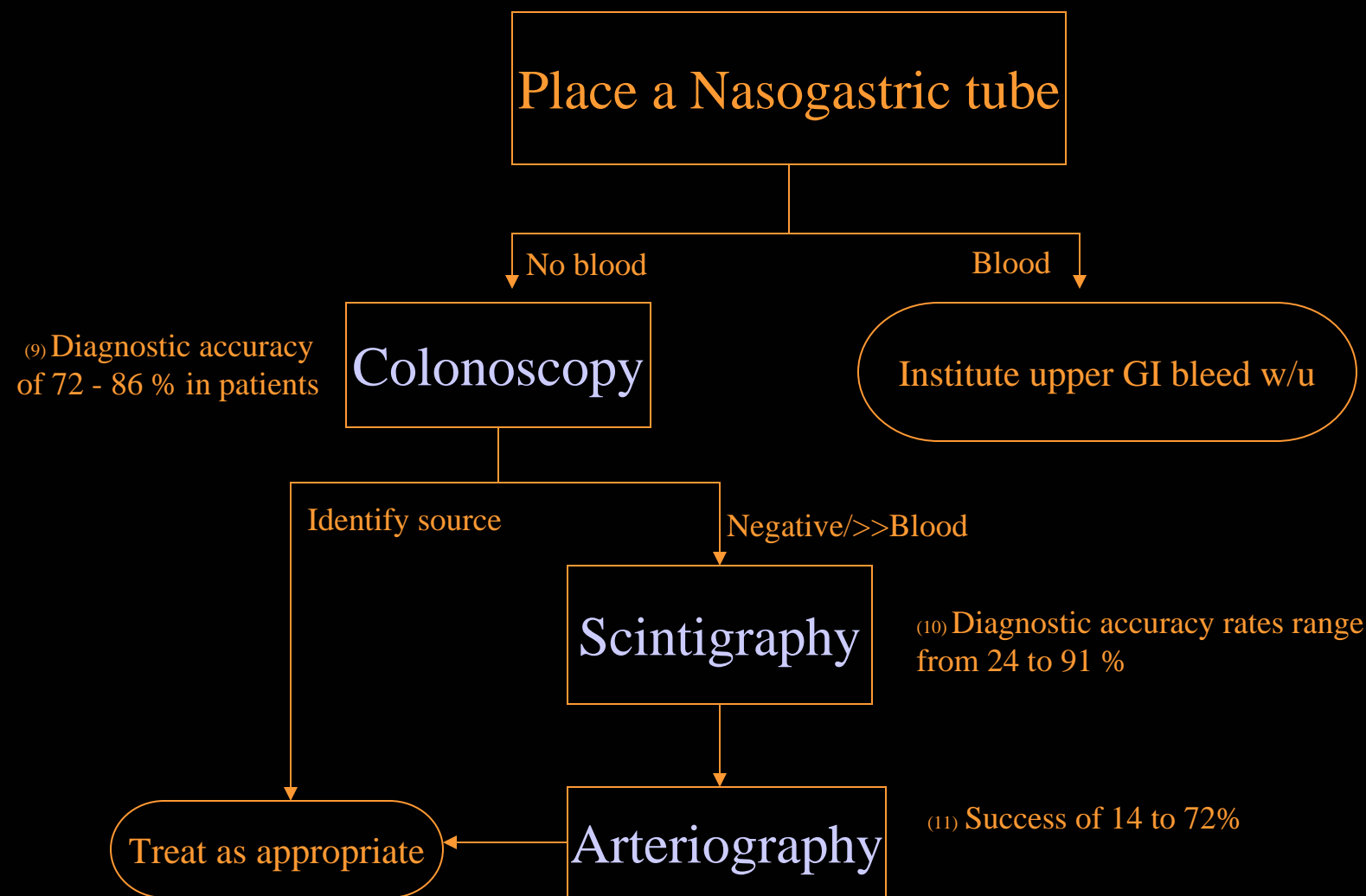
Diverticulosis  
Angiodysplasias  
IBD  
Ano-rectal disease  
Neoplasia



Source: <http://www.vh.org/Providers/Textbooks/ElectricGiNucs/AnatImages/BleedSites.html>

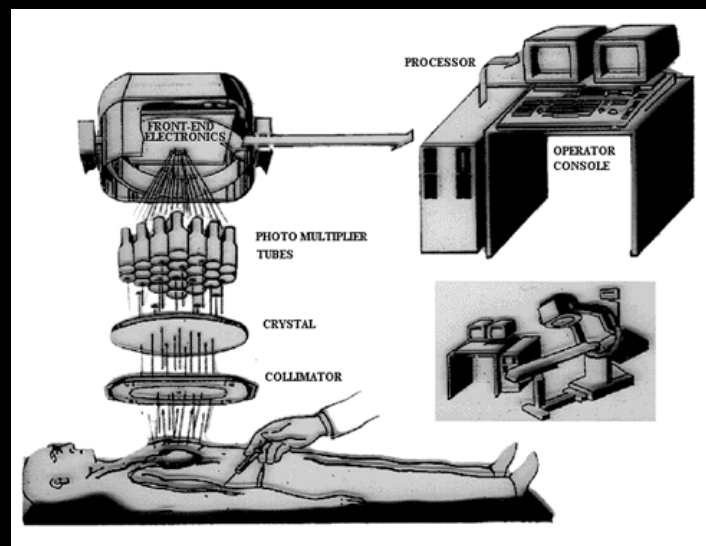


# Approach to locate a Lower GI Bleed





# Let us assume we find nothing on colonoscopy.. welcome to nuclear medicine



It can detect blood flow at .1cc/min

Source: Introduction to Nuclear Medicine, GE Medical Systems ([www.gemedical.com](http://www.gemedical.com))

Scintigraphy : radionuclide in, gamma particles out recorded by an external scintillation camera.

Scintillation is random fluctuation of EM field strengths about the mean.





# What type of Technetium do we use for medical imaging?

Isotope	Half Life
Tc-95	20.0 hours
Tc-95m	61.0 days
Tc-96	4.28 days
Tc-96m	51.5 minutes
Tc-97	2600000.0 years
Tc-97m	90.0 days
Tc-98	4200000.0 years
Tc-99	2.13E7 years
Tc-99m	6.0 hours
Tc-100	14.2 minute

Tc-99m 6.0 hours



Glenn Seaborg, the proposer of the *Actinide series* in the Period Table, co-discovered Tc-99m with Emilio Segre.

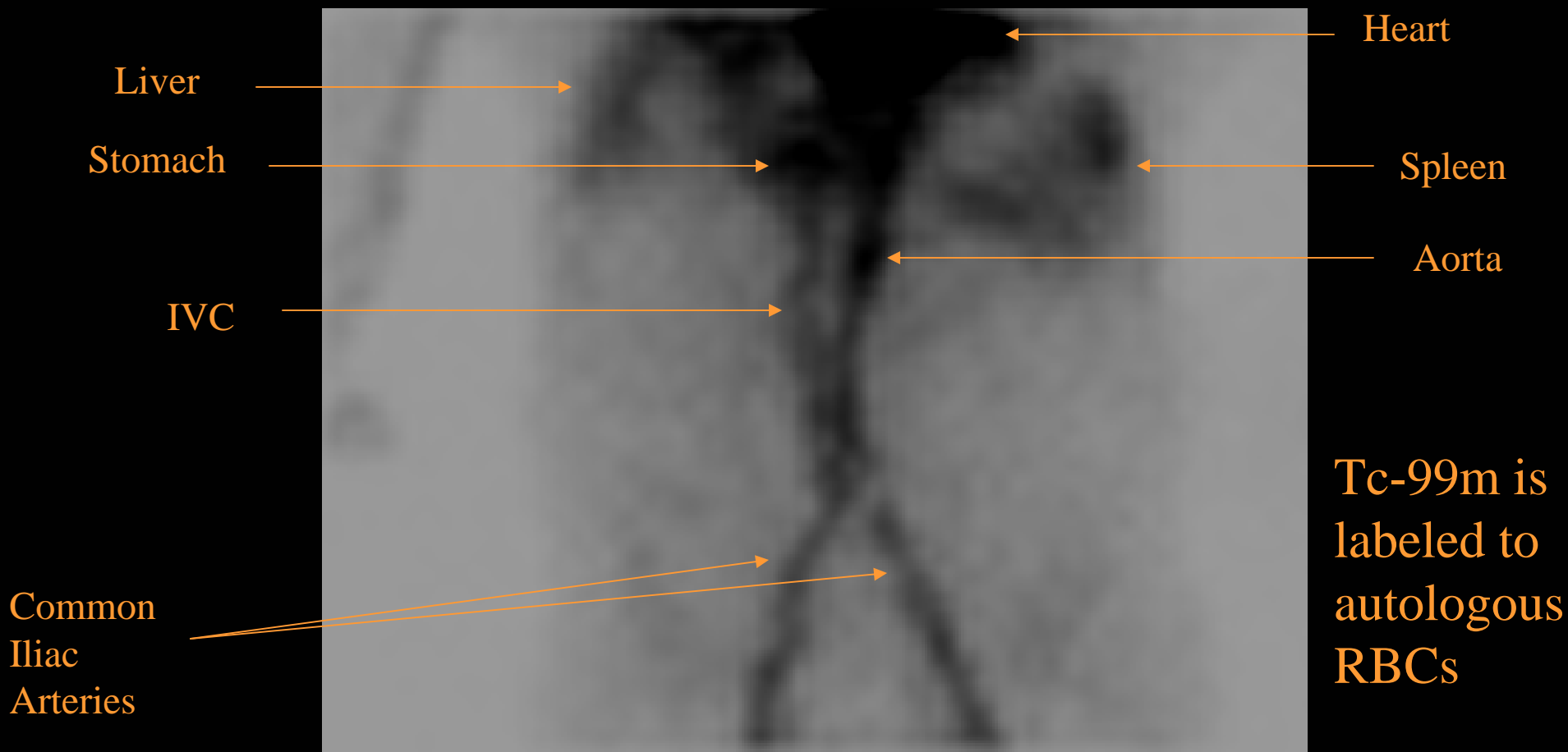


Source: <http://www.nobel.se/chemistry/laureates/1951/seaborg-bio.html>

Source: <http://www.atomicmuseum.com/tour/nuclearmedicine.cfm>

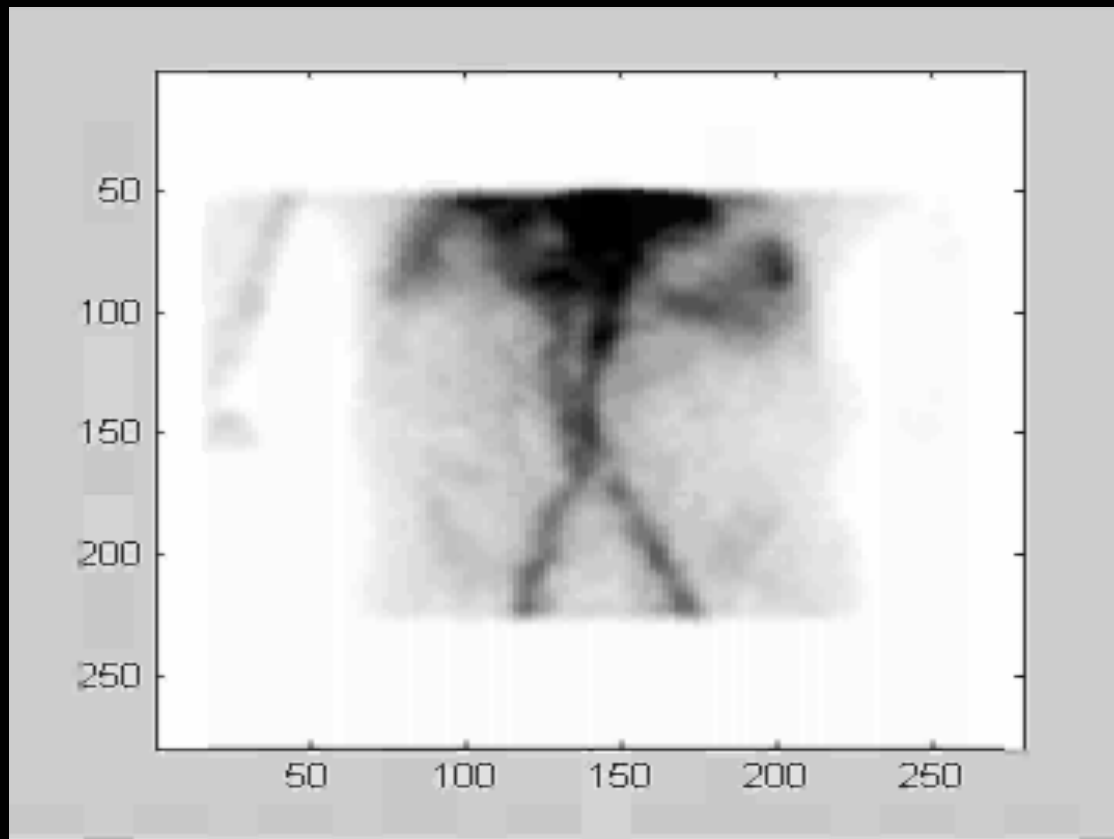


# Companion Patient 1: Mr. Y, a 77 year old man with ESRD, presents with bright blood per rectum





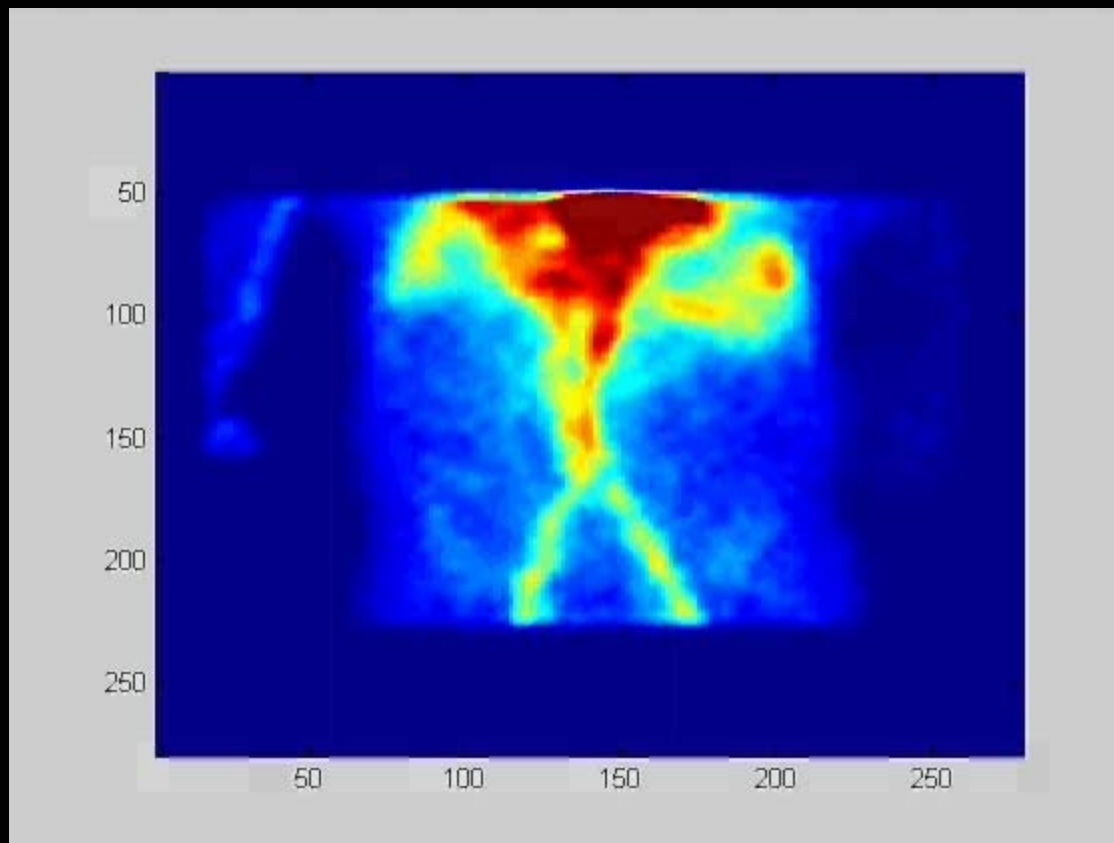
## Dynamic scintigraphy performed with a 1 frame/min resolution for 48 minutes



There is radioactive uptake ascending from the cecum to the colon.

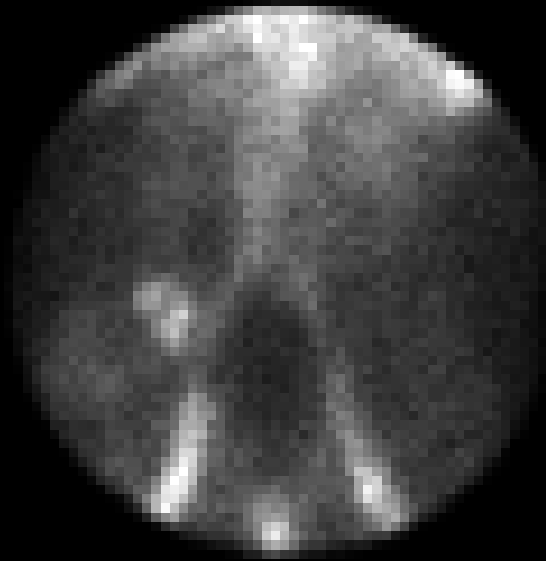


# Changing lookup color





Companion Patient 2: This patient had  
an ascending bleed from the cecum.





# Companion Patient 3: Notice the bleed through the small bowel





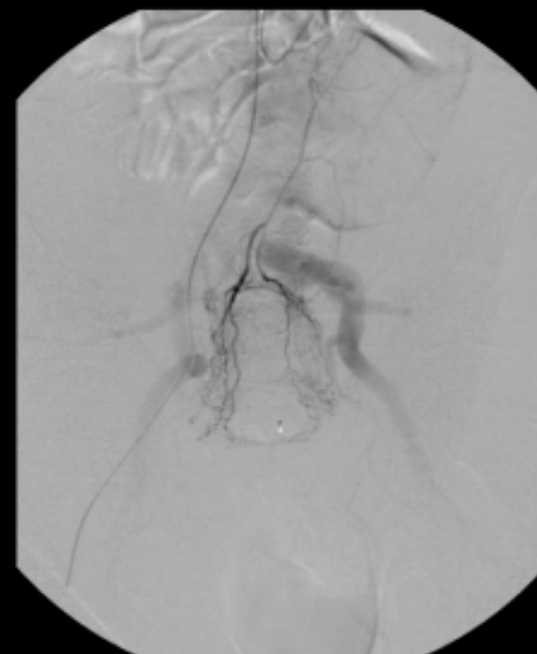
## Index case

Back to Mr. X. After a positive scintigraph, a mesenteric angiogram is performed



AP View Mask

Angio can detect blood flow  
at .5 cc/min

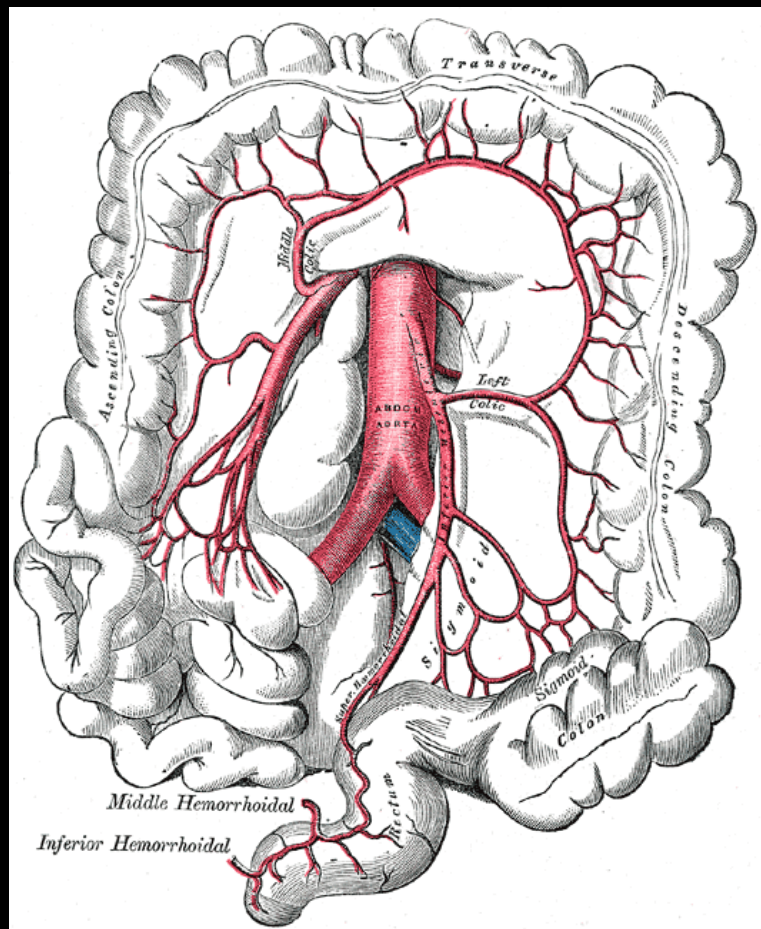


Mask subtracted

"78 year old man with hx of diverticulosis and right hemicolectomy now with recurrent LGIB of obscure source. Localize the source of GI bleed."



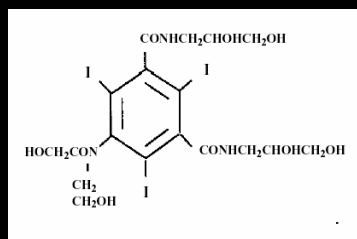
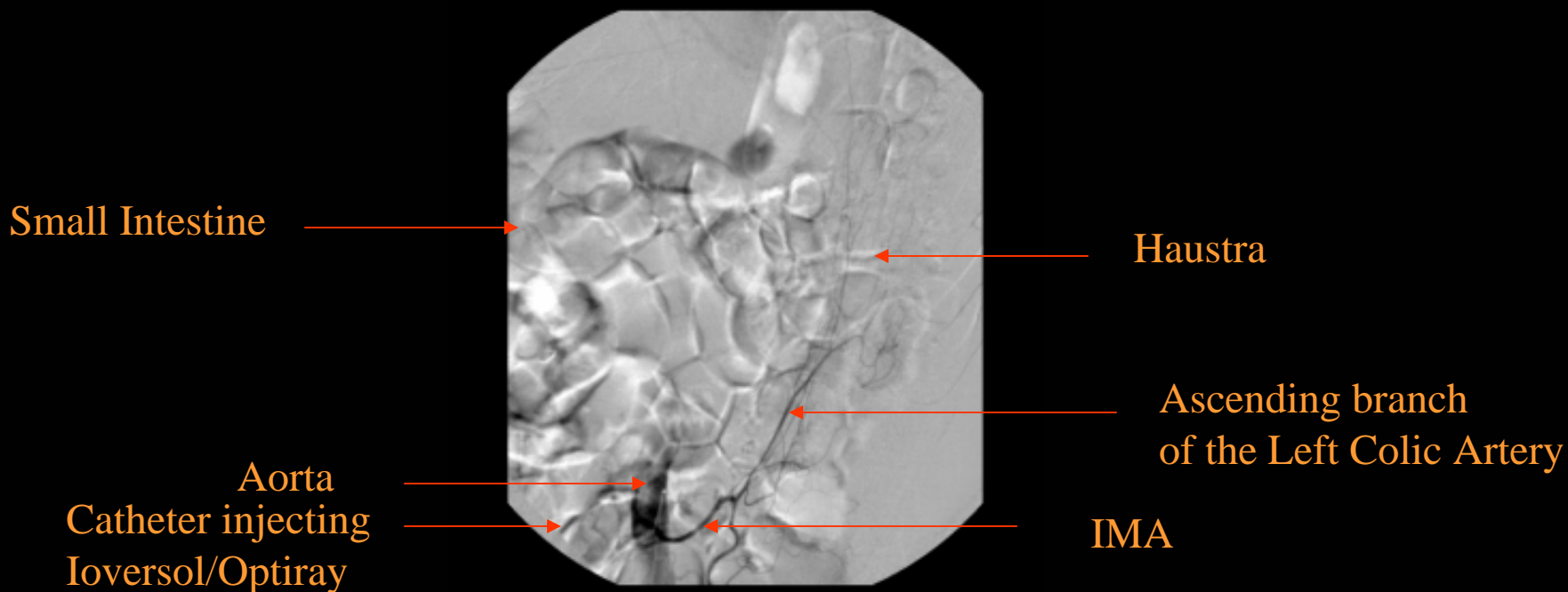
# A view of the IMA





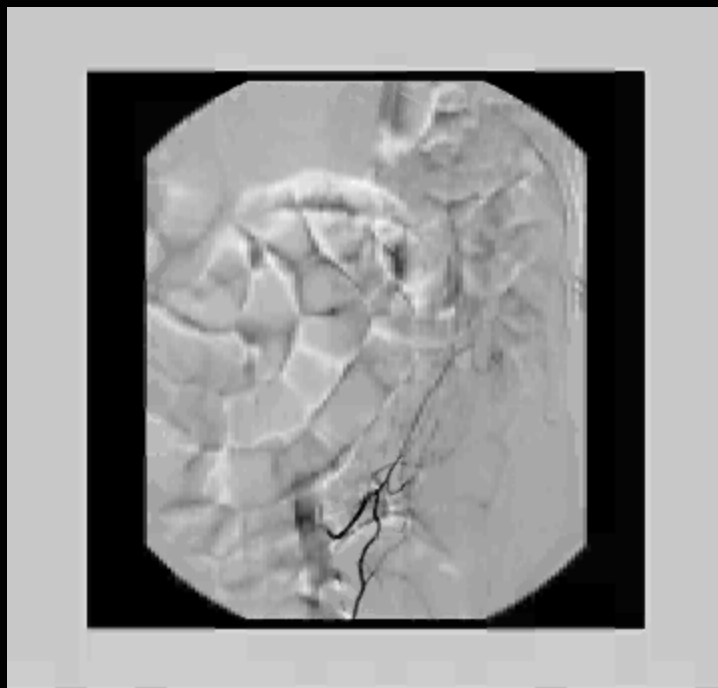


# An Angiographers view of the world



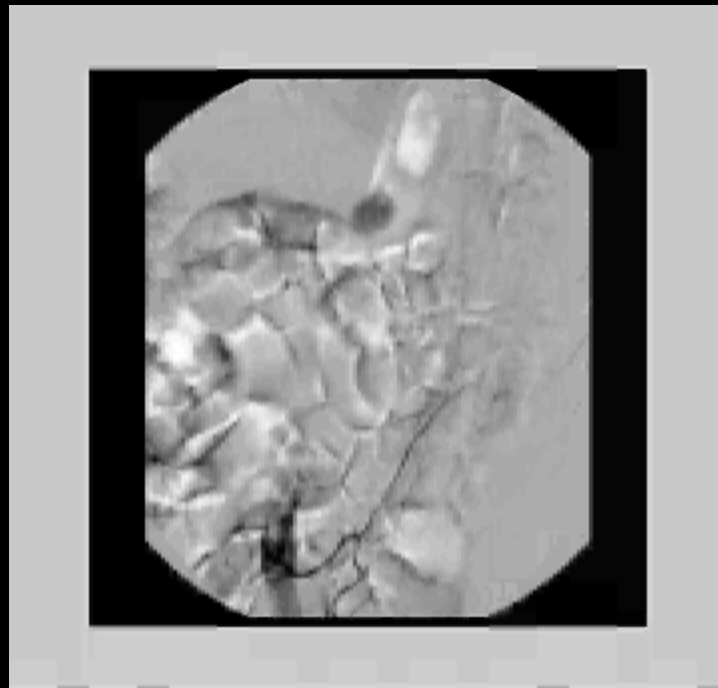


The mesenteric arteriogram was performed to localize the lesion.





# A more oblique view to focus in the area of suspected extravasation



Note the  
extravasation of  
contrast in the left  
side of the pelvis.  
This is the bleeding  
site.

Transcatheter infusion of vasopressin caused cessation of the  
bleeding with no recurrence on repeat angiogram.



# Summary

- Use your radiology knowledge to pin-point the etiology of a presentation.
- Rule out an Upper GI Bleed via NG aspirate.
- Order a colonoscopy to study the bowel and rule out carcinoma.
- Use scintigraphy to localize subtle bleeds.
- Follow up with angiography and tx.
- Do not be afraid to repeat tests if you are surprised by a result.



# References

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