GI

PBL

LEC no. 2 النصف الثاني

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Corrector:

Doctor:

1. ما ينطق به الدكتور من شرح سيكون داخل هذا الصندوق
2. يقوله الدكتور من كلام السلايدات نضع تحته خط underline
3. وما يكون مهم في شرح الدكتور يكون باللون البنفسجي
4. المعلومات الخارجية باللون الأزرق الفاتح

UGIB Bleeding forms

Melena: <u>occurs w/≥100mL blood is instilled into UGI tract</u>

Hematochezia: <u>occurs w/≥1,000mL blood is instilled into UGI tract</u>

(Hematochezia is a sign of severe bleeding (if associated w/red NGT aspirate (mortality ↑to ≈30%))

Coffee ground melena presents as black tarry stool, but sometimes this UGIB presents as fresh blood in the rectum called: Hematochezia, which is local bleeding. May happen because patient has anal fissure, hemorrhoids, proctitis, (inflammation of the rectum), or inflammatory bowel disease. MCC though, especially in the elderly is diverticular disease. Hematochezia is more common than Melena, especially if bleeding is severe. Because then, blood won't have the time to turn black, it will be evacuated directly.

How do I tell if hematochezia is because of UGIB or LGIB?

By the amount of blood.
When the blood is fresh, and in small amounts it's LGIB

When it's fresh, in big amounts, it's UGIB (as we said it occurs when more than 1 liter of blood is instilled into UGI tract). The patient would show signs of tachycardia and hypotension.

(Not required)
Another way to tell the source of bleeding is a special blood test (blood urea nitrogen).
When blood (proteins) gets digested in UGI it will be absorbed and so the urea will increase.
While that absorption won't happen in LGI.

PRBCs are Packed Red Blood Cells. They are blood products that were processed to remove plasma, leaving a higher concentration of RBCs.

Bleeding & Laboratory Values

One PRBC unit will raise the hematocrit of a standard adult patient by 3%

One PRBC unit has a standard vol. of 300 **mL**

One PRBC unit is expected to ↑Hb by 1g/dL

Bleeding & Laboratory Values

- Significant Hb drop 2ry to a bleeding:

- Hb ↓≥ 2g from baseline
- Hct ↓≥ 6% from baseline

A very important concept!
a cup of fresh juice (with no added sugar or water) is of 100% concentration. If I lost half the cup, the remaining half would still be of 100% concentration.

Our body though needs to preserve blood volume not concentration. So in response to loss of blood (due to bleeding), it dilutes the blood through plasma. That is In order to preserve the volume, because it cannot produce blood immediately.

- Don't use **Hb/Hematocrit to evaluate or monitor acute bleeding (Pt bleeds whole blood; hematocrit may not ↓immediately w/acute bleeding.**

- **Extravascular fluid will enter the vascular space → restore vol. for up to 72 hrs → subsequent ↓in hematocrit for few days after bleeding has stopped)**

If a patient lost 2 liters of blood and I measured his Hb after a very short time, will it have decreased?
The answer is no. Patient is still hypovolemic, I didn't give him any blood, and redistribution of fluids doesn't start right after bleeding.

Same thing, If I give IV fluids, Hb concentration won't go down right away because redistribution takes time.

A bleeding patient has 2 problems:

1. Lost volume
2. Fluids go from soft tissue to vessels —> dehydration… We give fluids to counteract the dehydration and go back to normal volume (volume is more important than hemoconcentration)

So we do not depend on any measure until redistribution fully takes place.

Hemodynamics

Orthostais is the most accurate non-invasive indicator of severity of Blood loss ≈20%

Orhtostasis = **↓Sys BP >20**

or

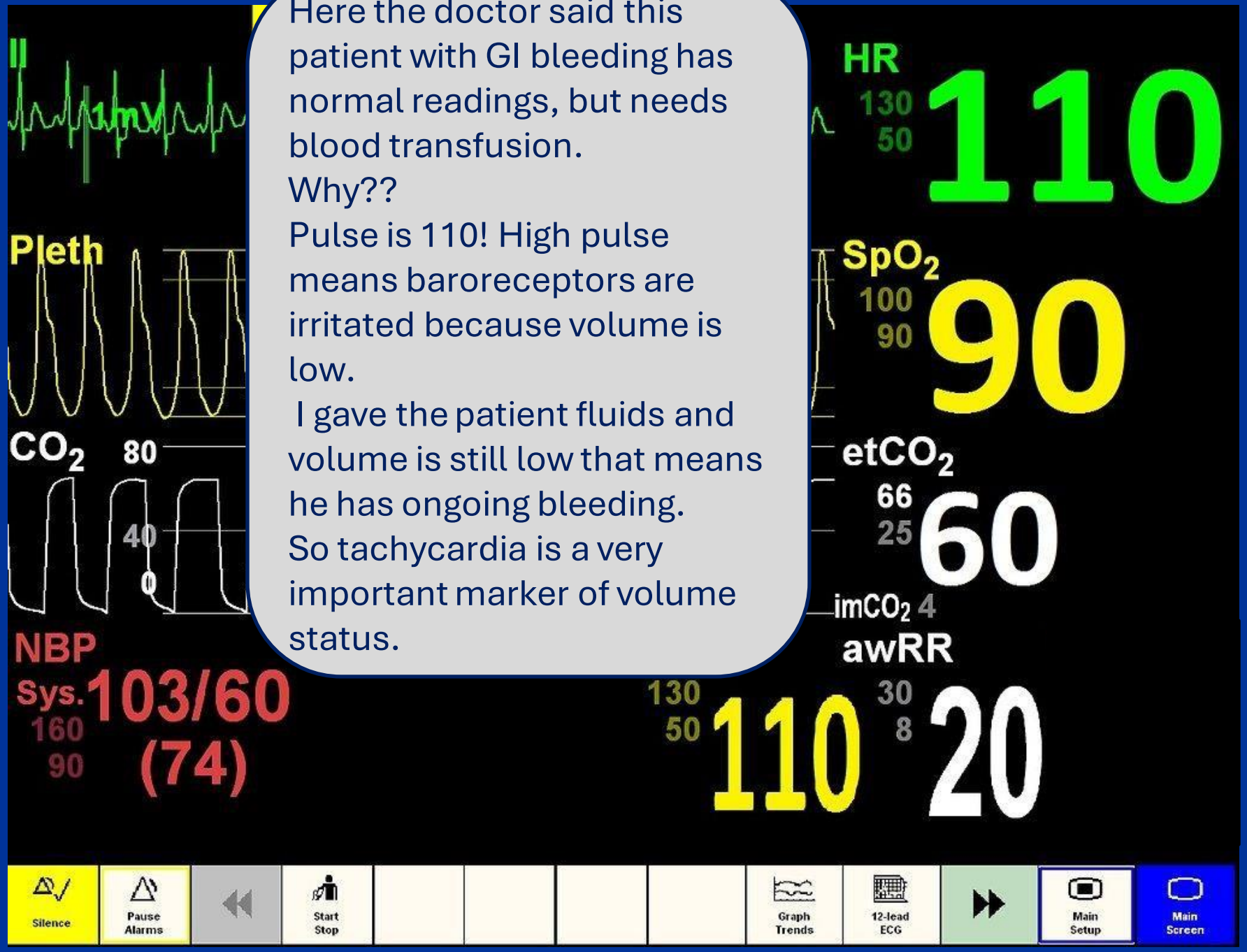
↓ Dias BP >10

or

↑HR >20

No need to memorize what happens exactly

w/in 3 minutes of standing



Here the doctor said this patient with GI bleeding has normal readings, but needs blood transfusion.
Why??
Pulse is 110! High pulse means baroreceptors are irritated because volume is low.
I gave the patient fluids and volume is still low that means he has ongoing bleeding.
So tachycardia is a very important marker of volume status.

Tachycardia

Main cause of UGIB

Bleeding Peptic Ulcer

- 250,000-300,000 admissions / year
- $2.5 Billion in costs
- Re-bleeding rate after hemostasis about 20%
- Mortality remains 5 – 14%

About 1% of USA's population, which is a big number.

Important

General Approach to the patient with Acute Upper GI Bleeding

- Guiding Principles
  - Restoration or maintenance of hemodynamic stability
  - Blood products if needed
  - Nasogastric lavage
  - Endoscopy with hemostasis if indicated
  - Antisecretory medications
  - Surgery if necessary

the only standards of care, the rest are optional

Volume resuscitation . Give normal saline fluids to restore blood volume

PPIs. (Antisecretion of gastric acid)

1) Hemodynamic Stabilization:

- **Adequate IV access**
- **Volume resuscitation**

Normal saline= 0.9% =similarity of blood

2) NPO

"NPO" stands for "nil per os," a Latin phrase meaning "nothing by mouth." In medical contexts, it indicates that a patient should abstain from oral intake of food or fluids for a specified period of time.

3) NGT Lavage

(NO proven Benefit)

(15% False⊖)

Nasogastric tube:
We put a tube filled with water to examine the presence of blood.
(Old method)

4) **Transfuse PRBCs if: Hb ≤ 7g/dL**

(Hct: <21%)

(Hb ≤ 9-10g/dL

(Hct: <30%) in CAD)

or

Shock

Signs of hemorrhagic shock:
Tachycardia.
So blood must be transfused to a tachycardia patient whatever his Hb is.

5) co-morbidities assessment:

- **Stabilization of other active co-morbidities before EGD**

(Rarely, massive bleeding cannot be stabilized adequately before EGD).

If patient is very hypovolemic, shocked, shows change in mental state, became drowsy, lost gag reflex, you have to protect the airway. We use a tube for mechanical ventilation. Because patients who are not fully awake might aspirate blood. How? . Gag reflex guarantees separation of GI contents from chest. Loss of gag reflex means they may start to vomit stomach contents//blood to trachae (lethal aspiration)

- **Intubation for airway protection should be considered w/ [(ongoing hematemesis) or (active bleeding w/↓ CNS or loss of the gag reflex)].**

6) Risk assessment

(see below)

Dr skipped

7) ± Prokinetics prior to EGD

(Erythromycine: 250mg IV (3mg/kg)

30-60min before EGD

Dr skipped

Bleeding usually stops on its own. Arteries undergo vasospasm. Then pressure goes up again and rebleeding occurs. We must take benefit of the period of time where blood stopped spontaneously. Where patient has been resuscitated, became more stable and thus endoscopy is more comfortable and outcome is better. (That's about 24 hrs)

We may only rush endoscopy for chronic liver disease patients. (12 hrs)

Sometimes we rush (endoscope within 6 hrs) whether with a liver disease or not.. Why? Because of massive bleeding

8) Urgent (Only when Stable)

EGD w/in 24hrs (↓ transfusion need, emergent Sx, rebleeding & Hospital stay)

(no change in mortality or ↓in the need for Sx if EGD done w/in 6hrs) specially if: Ca, cirrhosis, hematemesis, shock, Hb<8g/dL.

Endoscopy either repairs or fails. If you declare its failure you send patient either to surgery or interventional radiology

Acid is secreted in the stomach through acid proton pumps in the mucosa (ATPases), they push protons to lumen. If I interrupt these pumps I lower acidity and thus may damage mucosa.
The other major point is that PPIs hold the pumps for 24 hrs (they decrease in number) and stomach content becomes alkaline. —> Prevention of clot lysis —> stabilize bleeding
Also, platelets aggregation is enhanced in alkaline environment. —> stabilize bleeding

9) ± Initiate IV PPI infusion

(Bolus 80mg → 8mg/h) (to maintain)

↓ need for EGD ttt

(no change in: Re-Bleeding, need to transfuse, need for Sx, or Mortality)

↓high risk stigmata & need for EGD ttt

- **PPI → pH>6 →**

Prevent clot lysis (pH>5) & ↑Plts aggregation (pH>6)

- **pH >4: prevent Stress Ulcers).**

Causes of Acute Upper GI Bleeding

Dr only mentioned order, didn't focus on numbers at all

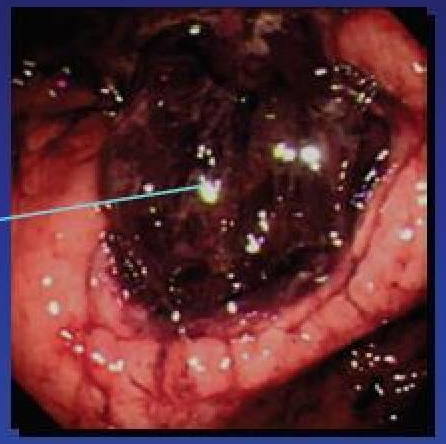
Cause	Frequency (%)
Peptic Ulcer	40
Esophagitis	10
Erosive disease	6
Other	6
Mallory-Weiss	5
Varices	5
Neoplasm	4
No cause identified	24

A small tear at the end of esophagus because of repeated vomitting (common in pregnant women)

Adapted from Dallal HJ, Palmer KR. *BMJ*. 2001;323:1115.

"Above your level"

Gastric ulcers presenting with acute upper GI bleeding



"Above your level"

Forrest Classification

Stigmata of hemorrhage	Forrest classification
Active spurting bleeding	IA
Active oozing bleeding	IB
Non-bleeding visible vessel	IIA
Adherent clot	IIB
Flat pigmented spot	IIC
Clean base	III

"Above your level"

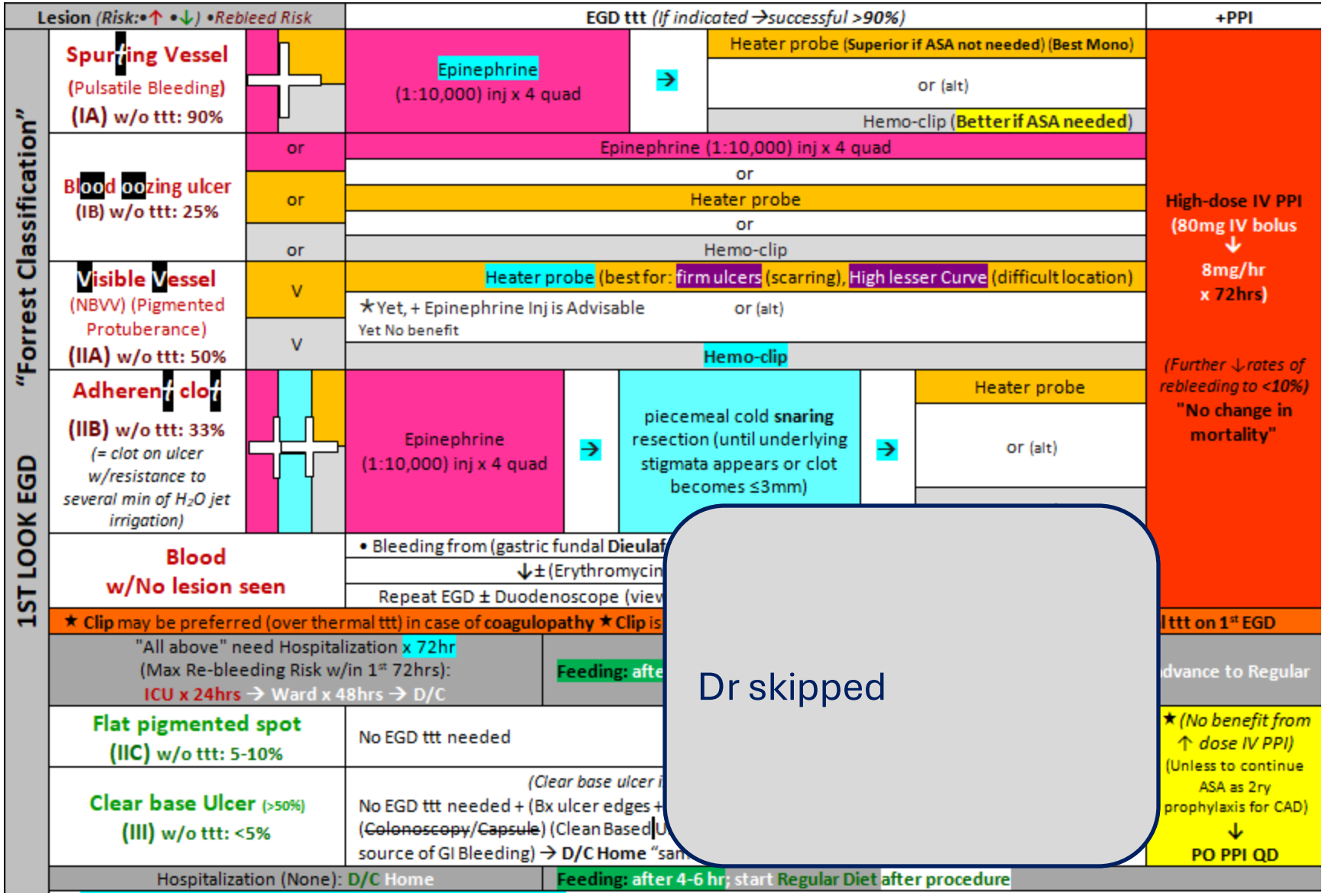
GI Bleed: Risk of Rebleeding

Prevalence (%)	42	20	17	17	18
Rebleeding risk (%)	5	10	22 †	43 †	55†
Mortality (%)	2	3	7	7	11

*Nonbleeding visible vessel. † Endoscopic therapy recommended.

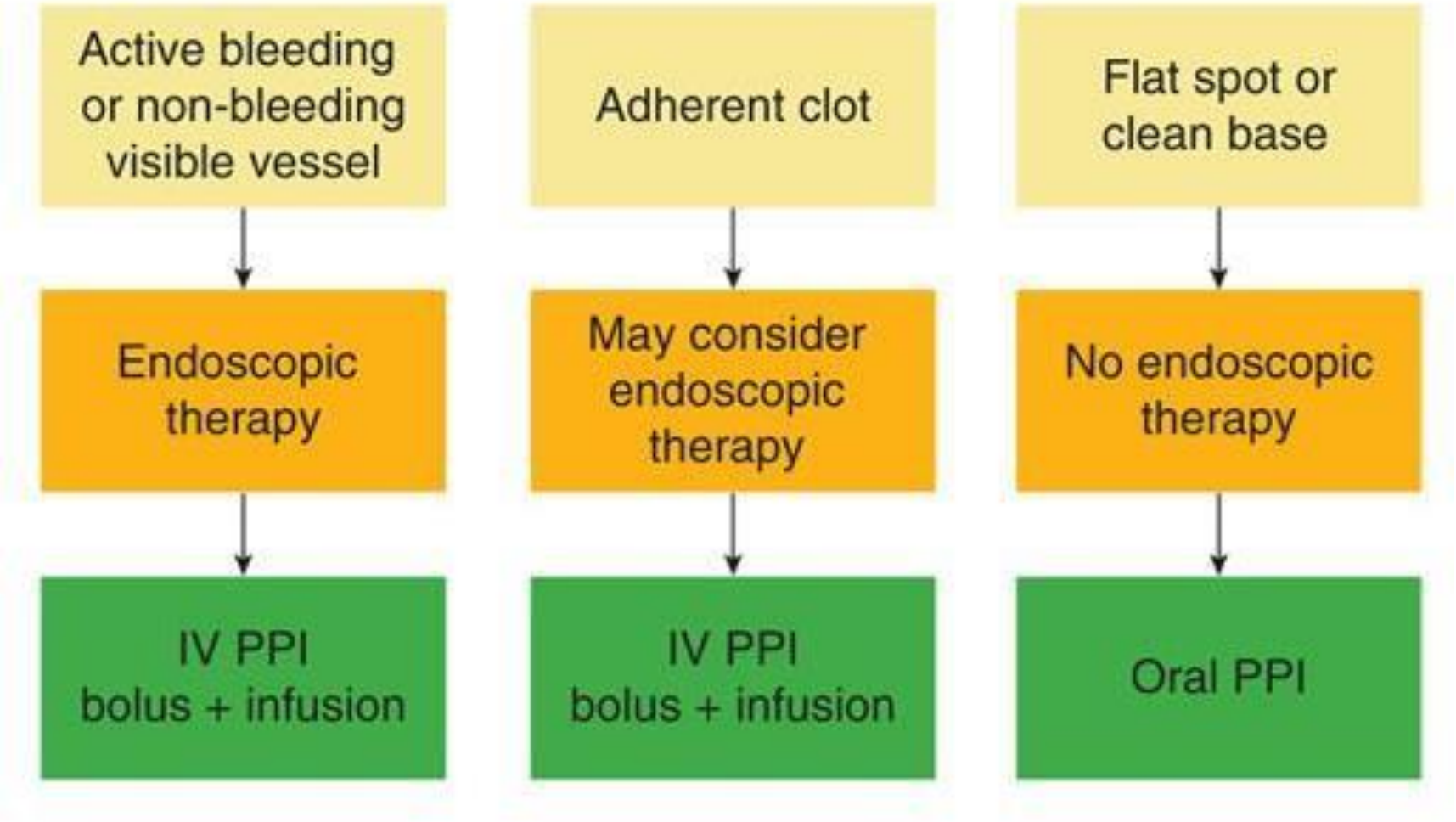
Adapted from Laine L, Peterson WL. *N Engl J Med*. 1994;331:717–727.

Endoscopic Therapy



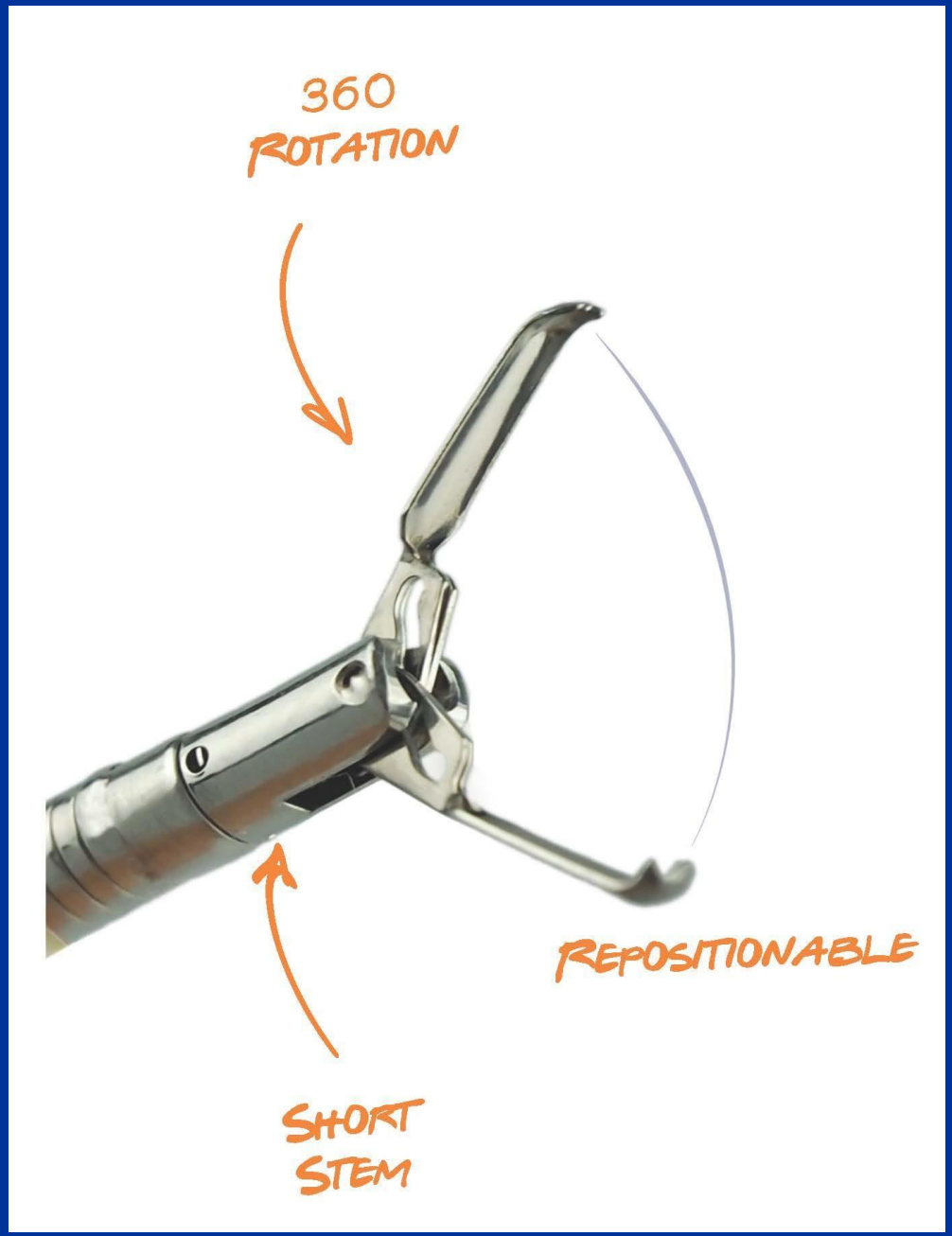
Dr skipped

Management



This is endoscope’s probe. We use it to inject adrenaline (vasoconstriction), stops bleeding. But this is temporary measure so we use a another modality (a clip shown in the nest slide)

We squeeze the artery (permanent vasospasm)



Or we use a heat probe for vasospasm.
وكأننا نكوي الشريان

Another method is using Argon, a flammable gas that sparks on the surface of mucosa —>makes a surface burn..
Same concept as heat probe