

EMORRAGIE DELLE BASSE VIE DIGESTIVE

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LOWER GI BLEEDING EPIDEMIOLOGY

- Lower-GI bleeding is defined as bleeding that emanates from a source distal to the ligament of Treitz
- 0.7%/5.1 millions admissions over 4 years
Vernava, Surg Res Commun 1996
- 21/100.000 admissions/year over 3 years
Longstreth, Am J GE 1997

The rate of lower GI bleeding increased > 200 fold from the third to the ninth decades of life

Paziente con ematochezia

Uomo di 59 anni giunge all'osservazione per:

Astenia profonda, pallore, tachicardia, inviato d'urgenza dal medico curante, a causa di una rettorragia.

Anamnesi prossima: Assunzione di FANS da circa due mesi , dopo ricovero in >UCIC per infarto del miocardio. Il paziente aveva eseguito , tre anni prima, un rx clisma opaco che aveva dimostrato la presenza di numerosi diverticoli del sigma.

Esami biumorali : GR = 3.600.000; Hb=9.5 ; MCV=92 Urea =9.1 mmol/l AST=12 Bil= 12 umol/l

Esame clinico: Mucose pallide e anche disidratate. PA 105/70. Non ipotensione posturale. Fc 96 /min. Rx torace neg

Colonscopia: Modesto gemizio ematico da un grosso diverticolo del sigma.

QUESITI

1. Quali sono le cause più comuni di emorragia del tratto gastrointestinale ?
2. Quali sono le indagini strumentali e radiologiche che si possono eseguire nei pazienti con emorragia del tratto gastrointestinale inferiore ?
3. Qual' è il ruolo delle indagini scintigrafiche?
4. Quando è indicata una angiografia addominale?
5. Quando è indicato un trattamento chirurgico d'urgenza

Presentazione clinica

Ematochezia o Rettorragia : *Emissione di sangue rosso vivo con le feci da solo o misto a coaguli*

- Sanguinamento da lesione del colon
- Grave sanguinamento > 1000 ml da lesione del primo tratto GI

Melena : *Emissione di feci nere, liquide semiliquide, maleodoranti. Il colore nero si ha se l' HB rimane a lungo nel tratto gastrointestinale > 12 ore (Hb → ematina)*

Sanguinamento occulto : *Rilevabile con la misurazione chimica del sangue nelle feci*

Segni clinici secondari alla perdita cronica di sangue : *Anemia sideropenica, ipotensione ortostatica, angina ...*

Presentazione clinica

- ***Acute***

Sono di recente durata (<3 giorni)

- Quadro clinico severo o lieve

- ***Croniche***

Si presentano con intermittenti e modeste piccole perdite ematiche o *sangue occulto fecale*.

- Segni clinici secondari alla perdita cronica di sangue (*anemia sideropenica, ipotensione ortostatica, angina..*)

Valutazione diagnostica


Severità dell'emorragia e stato del sistema cardiocircolatorio

- Misura della frequenza cardiaca e della pressione arteriosa (in clino e ortostatismo)

(Una riduzione della PA > 20 mmHg in ortostatismo indica una riduzione del volume circolante di circa il 20%)

- Valutazione di sintomi quali tachipnea, sudorazione fredda, estremità fredde → *perdita del volume circolante = 40%*
- Misure di rianimazione :Ripristino delle perdite ematiche e dei liquidi circolanti
- ***Storia clinica:*** Durata dell'episodio emorragico, precedenti sanguinamenti, portatori di patologie che possono causare sanguinamenti (diverticoli?) , precedenti colonscopie...

Storia clinica

- Età 
- Durata dell'emorragia
- Primo episodio o recidiva.
- Dolori addominali
- Modificazioni dell'alvo, di tenesmo rettale.
- Storia di malattia infiammatoria cronica intestinale
pregressi trattamenti per cancro o polipi del colon
- Precedente esecuzione di colonscopia.
- Assunzione di farmaci (FANS, aspirina, anticoagulanti) familiarità per neoplasia del colon.

Le più comuni sedi di sanguinamento acuto del tratto digestivo inferiore in relazione all'età dei pazienti



Adolescenti e ragazzi	Adulti < 60 anni	Adulti >60 anni
Diverticolo di Meckel	Polipi	Diverticoli
Polipi	Malattie infiammatorie croniche intestinali	Angiodisplasie
Malattie infiammatorie croniche intestinali	Coliti infettive	Neoplasie
	Diverticoli	Colite ischemica
	Neoplasie	
	Angiodisplasie	

Localizzazione della sede del sanguinamento

- **Posizionamento di un sondino nasogastrico**

(La fonte del sanguinamento è una lesione delle alte vie digestive ?)

Esplorazione rettale digitale

- **Anoscopia**

(Emorroidi ? , ragadi ?)

ENDOSCOPY IN LOWER GI BLEEDING

DIAGNOSTIC YIELD

COLONOSCOPY

89.2%

Schmulewitz 2003

95%

Jensen 1998

95%

Chaudhry 1998

78%

Kok 1998

ENTEROSCOPY

31%

Hayat 2000

RSS

26%

Kok 1998



PREPARAZIONE

1. Senza preparazione (effetto catartico del sangue)

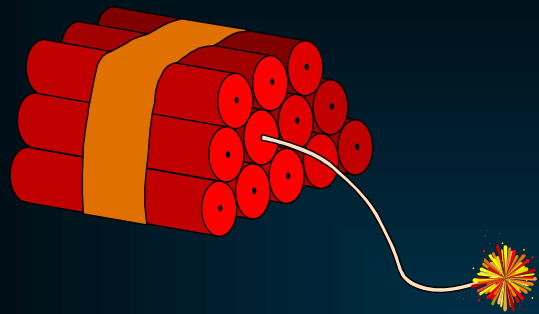
Chaudhry, AmSurg, 1998

1. Purgante salino
2. Mg solfato

4-15 L (media 5.5L), per 2-7 h (finchè l'effluente dal retto non è chiaro)

per os o SNG (incapace di bere la preparazione, SNG già in sede)

Jensen, Gastro, 1988



PREPARAZIONE: complicanze

- 4% scompenso cardiaco
- 1 risolto con diuretici
- 3 :(in dialisi cronica): dializzati in corso di preparazione

Jensen, Gastro, 1988

URGENT CS

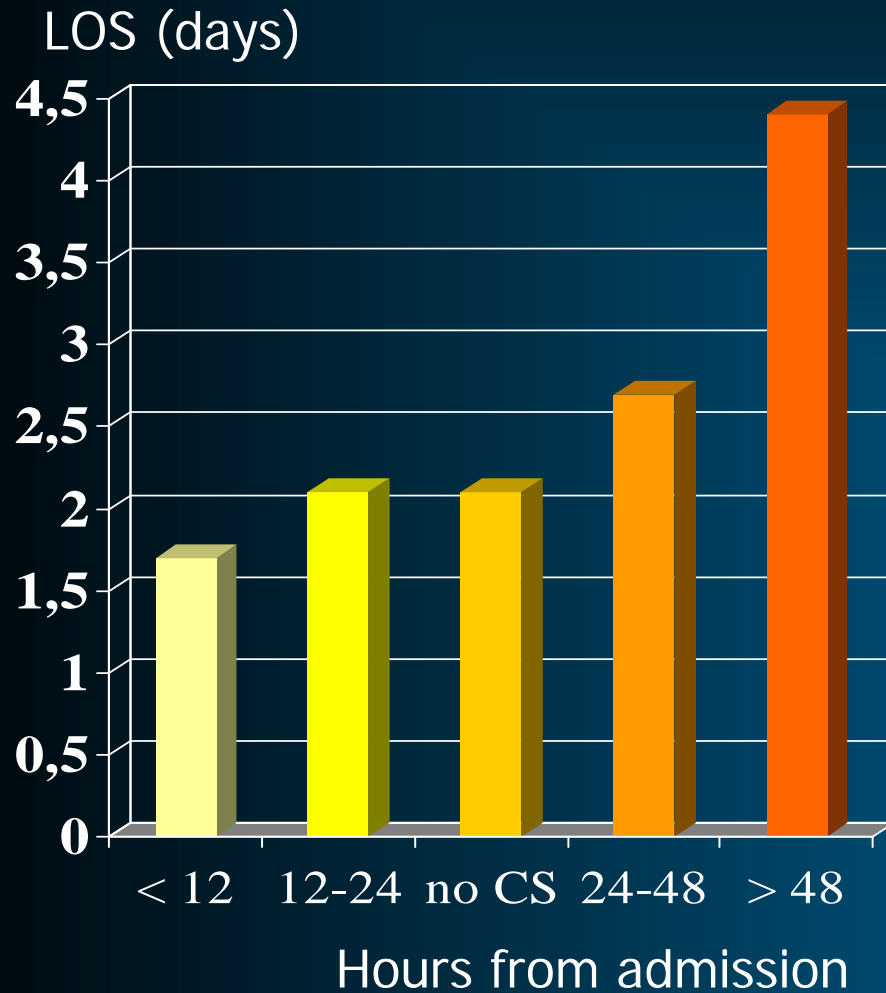
- SINGLE CENTER EXPERIENCE-

Ohyama, Digestion 2000

N° pts; mean age	345 50.7 years
Years	1976→ 1995
Urgent CS	< 24 h after bleeding episode
Preparation	Glycerine→ PEG
Diagnostic accuracy	89%
Ileo-cecal insertion	60%
Most frequent diagnosis	Ischemic colitis→antibiotic-hemorrhage; postpolypectomy
Endoscopic hemostasis	14%
Rebleeding	4.6 → 0% (hemoclip)
Complications	Fever (6.3%)

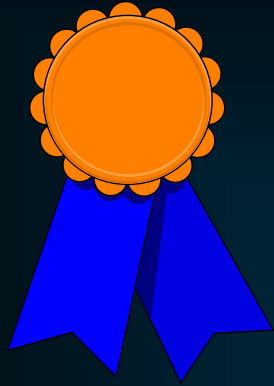
EARLY CS & HOSPITAL STAY (LOS)

144 patients admitted for LGI bleeding



- Time to CS is an independent predictor of hospital LOS
- The reduction in hospital LOS seems to be primarily related to improved diagnostic yield rather than therapeutic interventions

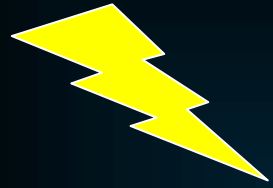
Strate, AmJGastro, 2003



PERFORMANCE

% di raggiungimento del cieco

♣ Ohyama, 2000	28.4% (345 pz)
♣ Chaudhry, 1998 preparazione	68% (85 pz) senza preparazione
♣ Jensen, 1988	100% (80 pz)



Definizione della LESIONE ENDOSCOPICA

- Riscontro di lesione con sanguinamento attivo
- Vaso visibile non sanguinante
- Coagulo aderente alla lesione

Jensen, NEJM, 2000

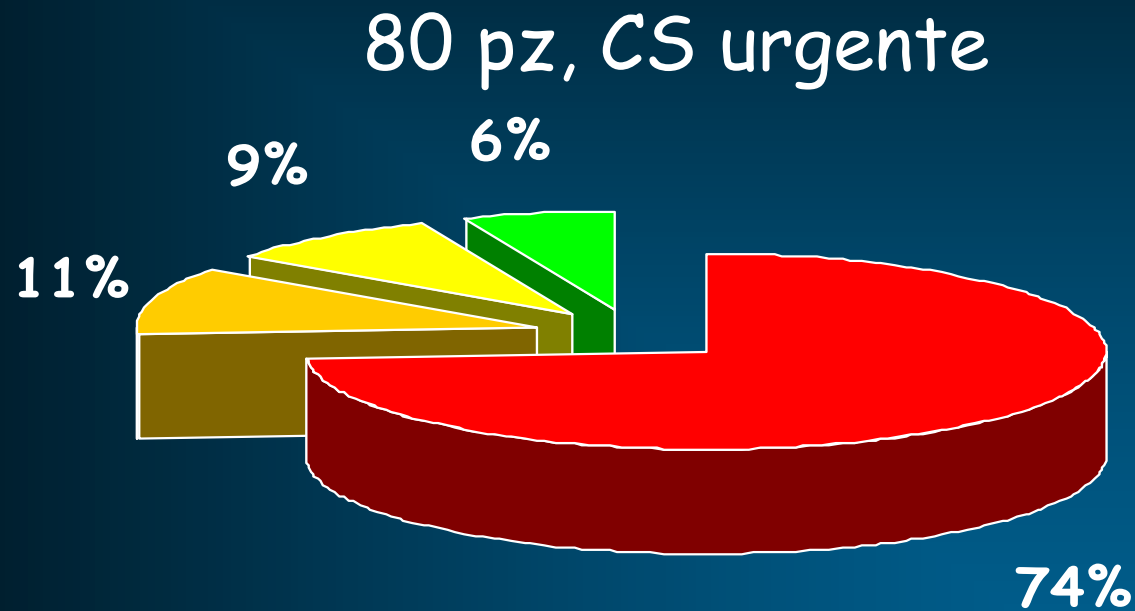
ACCURATEZZA DIAGNOSTICA

% identificazione della sede del sanguinamento



- Ohyama: 89 % (307/345)
- Jensen: 94 % (75/80)
- Chaudry: 99% (84 /85) senza preparazione
- Bloomfeld: 100% (13/13)
- Angtuaco: 7.6% (3/39); sede probabile 66% (26/39)

DIAGNOSI FINALE



■ colon ■ UGI ■ tenue ■ ?

Jensen, Gastro, 1988

DIAGNOSI

	Jensen,2000	Chaudhry,2000	Ohyama,2000
• Diverticoli (%)	23	20	5.2
• Angioma	23	10.5	1.2
• Polipi/K	14	8.2	2.9
• Colite Ischemica	12	17.6	18
• UGI	8		
• Lesioni rettali	5	20	9
• IBD	3	11.7	2.3
• Post-polipectomia	5	3.5	12.8
• Cl. Difficile		1.1	0.9

URGENT COLONOSCOPY -SUMMARY-

- Early (< 24 h)
- Complete intestinal preparation
- Endoscopical treatment
- Early hospital discharge

SUPERSELECTIVE ANGIOGRAPHIC EMBOLIZATION

27 patients (over 7 years)
angiographically documented LGI bleeding

Superselective angiographic embolization
(Diagnostic arteriography →
digital subtraction imaging, selective contrast injections
into sup and inf mesenteric arteries → embolization → repeat arteriogram)

Initial control of all bleeding

6 (22.2%)

Rebleed

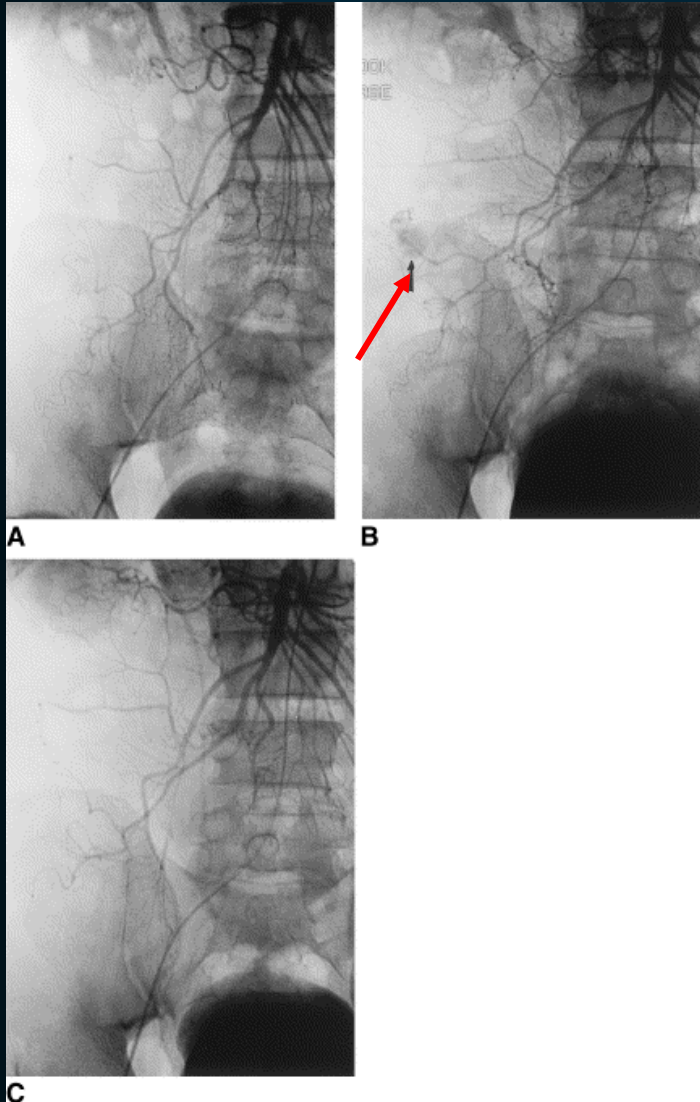
5 Surgery

2 (7.4 %)

Ischemia

1 Surgery

PROVOCATIVE ANGIOGRAPHY



7 procedures

Visceral angiogram +

Intraarterial administration of
TOLAZOLINA (vasodilator) +
HEPARIN (anticoagulant) +
UROKINASE (thrombolytic)

2 identifiable bleeding → surgery

No complications

Bloomfeld, AmJGastro, 2000

DELAYED ^{99m}Tc-labeled ERYTHROCYTE SCINTIGRAPHY

67 pts with LGI bleeding

Negative/equivocal initial findings

< 26 h after

Delayed ^{99m}Tc scintigraphy

No effect on clinical course or
outcome of LGI bleeding

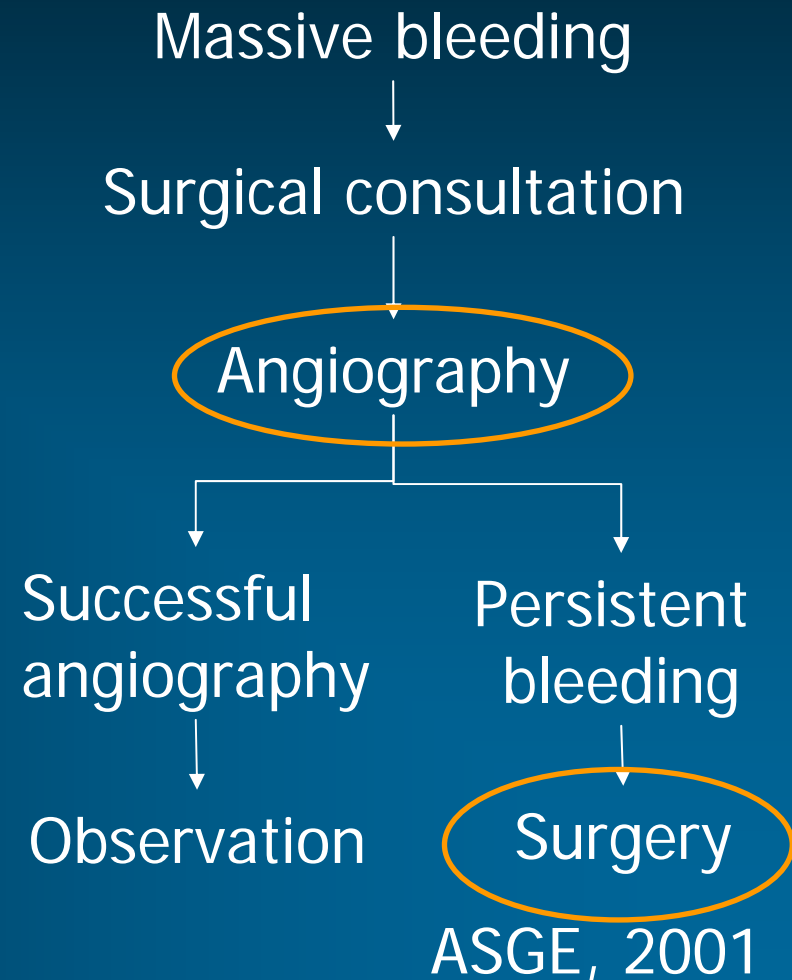
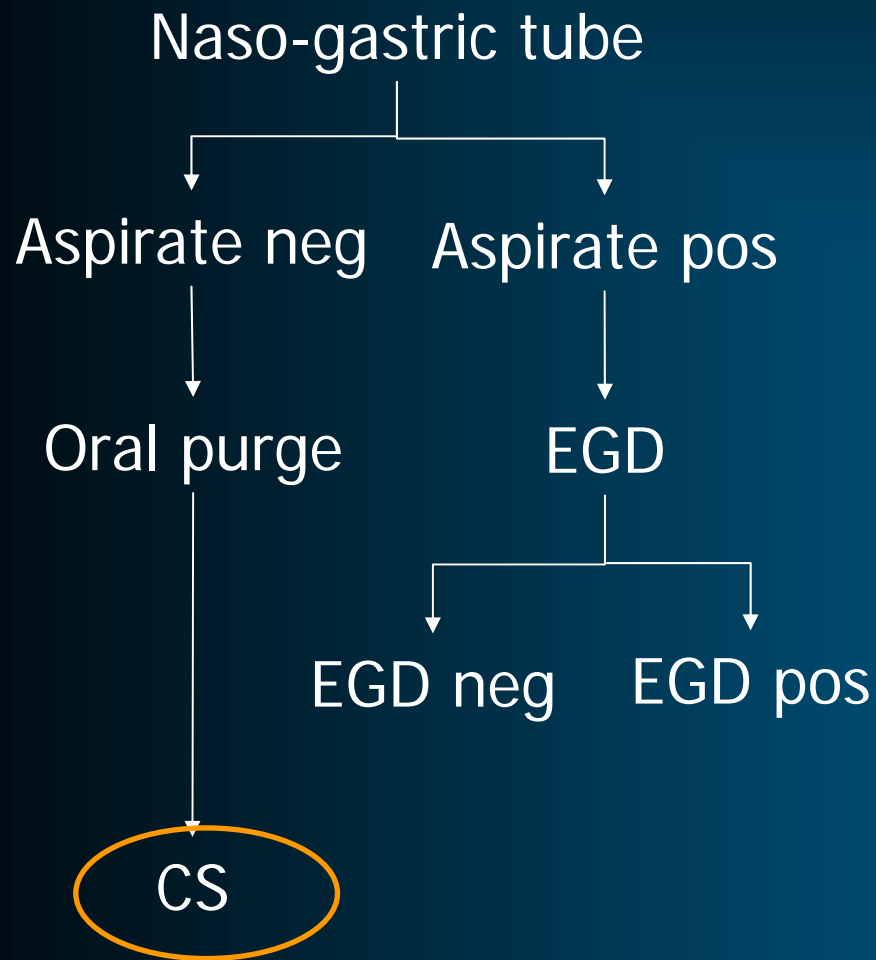


Kan, Acad Radiol, 2003

ACUTE LGI BLEEDING



Resuscitation & Evaluation, PE, CBC, BMP

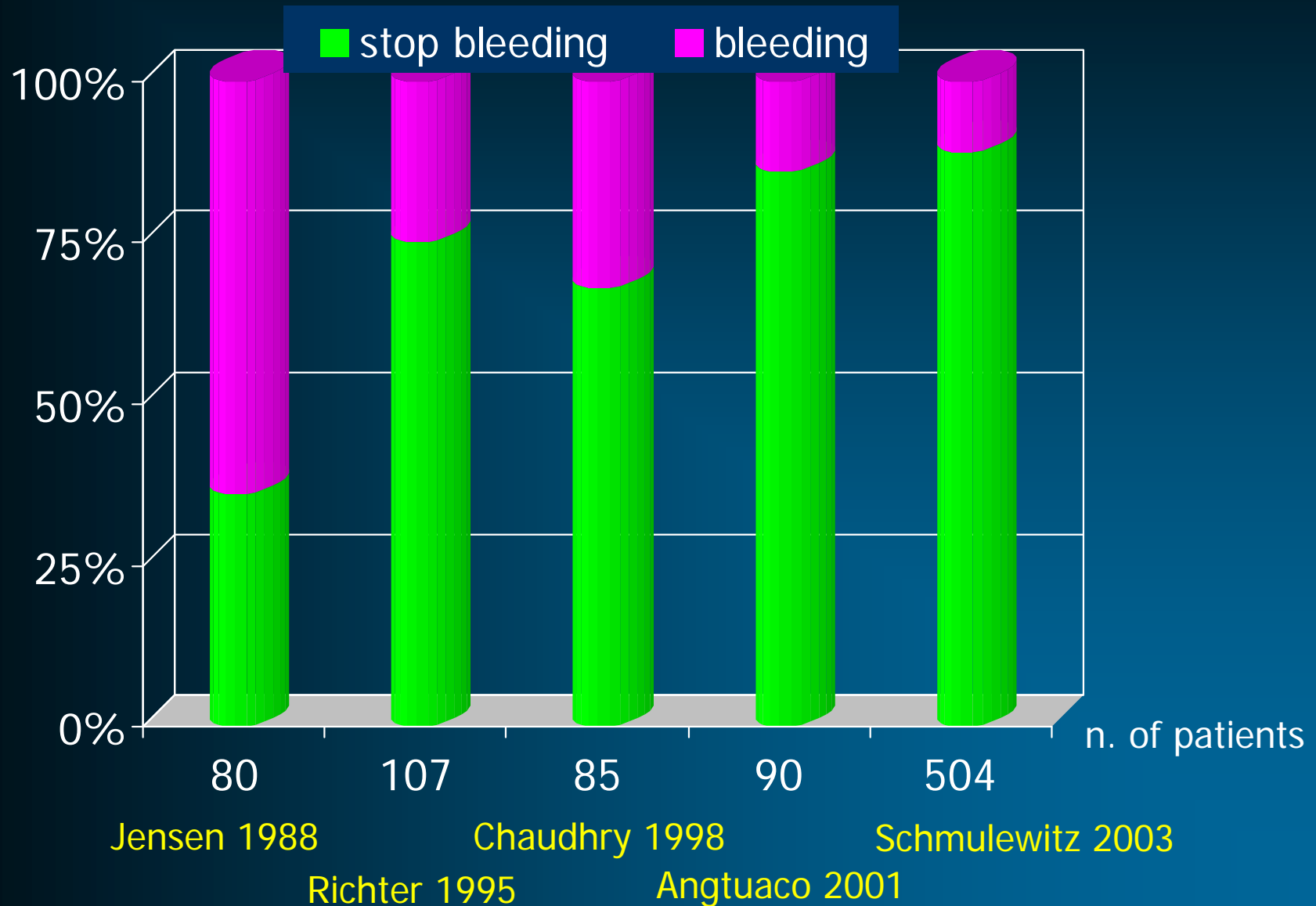


RISOLUZIONE SPONTANEA SANGUINAMENTO



- Angtuaco, 2001 80% CS; 92% non CS (90 pz)
- Chaudhry, 1998 68% (85 pz)
- Jensen, 1988 36% (80 pz)

SPONTANEOUS STOP OF BLEEDING



OCCULT

Initial presentation of a positive Fecal Occult Blood Test result and/or iron-deficient anemia (IDA) with NO EVIDENCE of passing fecal blood visible to the patient or physician

OBSCURE

Bleeding of unknown origin that persists or recurs after a negative initial or primary endoscopy result

DIFFERENTIAL DIAGNOSIS

OCCULT

- Mass lesions: K (any site), large adenoma (> 1.5 cm)
- Vascular: ectasia
- Inflammation: erosive esophagitis, ulcer, CD, RCU, celiac sprue
- Infectious
- Surreptitious: hemoptysis, oropharyngeal, pancreaticobiliary source

Slesinger,

DIFFERENTIAL DIAGNOSIS

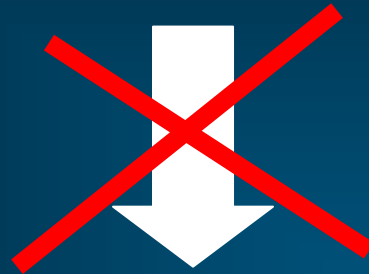
OBSCURE

- Vascular ectasias
- Small bowel neoplastic lesions
- Hemosuccus pancreaticus
- Hemobilia
- Aortoenteric fistula
- Dieulafoy lesion
- Meckel's diverticulum
- Extra-esophageal varices
- Diverticula

OCCULT GI BLEEDING

In up to 50% of occult bleeding NO source is identified at colonoscopy and upper GI endoscopy

Zuckerman, Gastroenterology 2000



OBSCURE GI BLEEDING

- ✓ 83% of IDA patients treated with oral iron do not rebleed over 20 months
- ✓ Recurrent bleeding rate ~1%

Rockey, NEJM 1993

Lau, Gut 1987; Bramley, Scan J GE 1996

OBSCURE GI BLEEDING POPULATION BASED STUDY

ANNUAL INCIDENCE/HOSPITALIZATION OF GI BLEEDING

UPPER GI
102/100.000

LOWER GI
21/100.000



OBSCURE ORIGIN

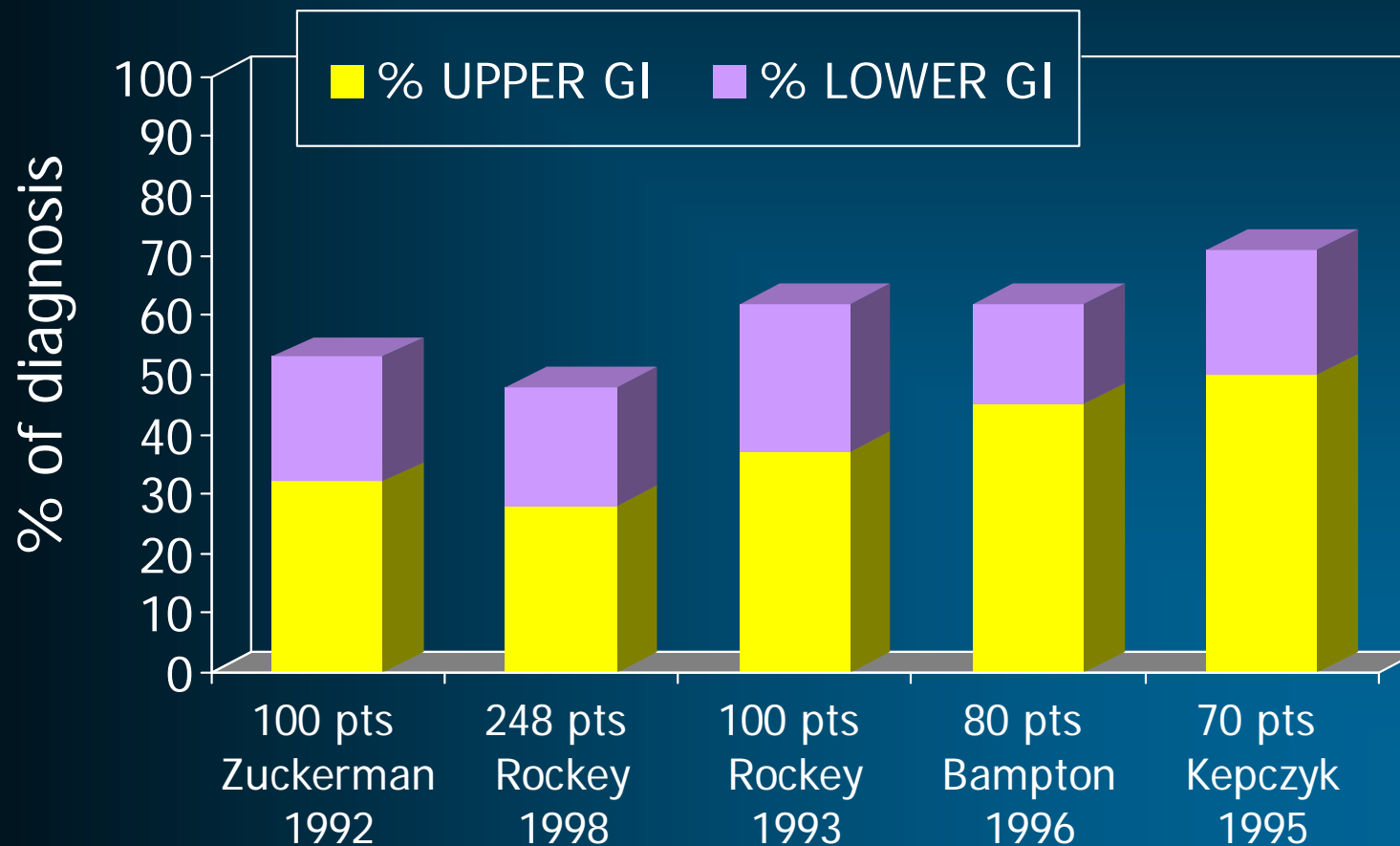


8%

12%

Longstreth, Am J GE 1995 & 1997

SITES OF OCCULT GI BLEEDING BY BIDIRECTIONAL ENDOSCOPY



WIRELESS CAPSULE ENDOSCOPY (WCE)

M2A® Capsule Endoscopy Given® Diagnostic System

M2A® Capsule Endoscopy is a non-invasive diagnostic device for use in the gastrointestinal tract. Natural peristalsis moves the M2A® Capsule smoothly and painlessly throughout the gastrointestinal tract, allowing up to 8 hours of continuous imaging. The passed capsule allows, allowing patients to continue daily activities throughout the endoscopic examination.

M2A® Capsule Endoscopy allows the GI team to gain key visual findings to identify or monitor small intestine. This diagnostic solution can assist physicians in the diagnosis and treatment of associated diseases.

Broad spectrum
of indications



Visualization of the
entire small intestine



Superior
diagnostic yield

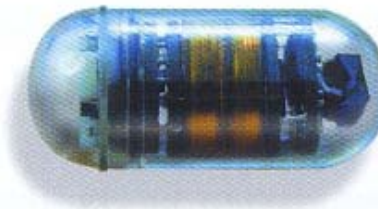


Patient-friendly,
non-invasive

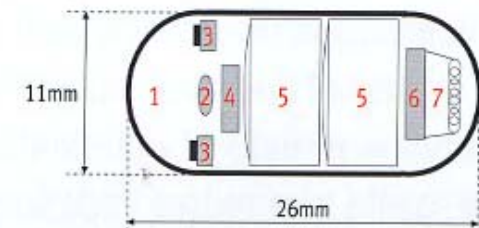


GIVEN
IMAGING
Expanding the scope of GI

A - External view



B - Schematic cross-section



Legend:

- 1 - Optical dome
- 2 - Short focal aspheric lens
- 3 - White LEDs
- 4 - CMOS imager
- 5 - Watch batteries
- 6 - ASIC transmitter
- 7 - Antenna

WCE IN OBSCURE GI BLEEDING

METHOD



EVALUATION TIME

30 –120 min at
25 frames/min

TRANSIT TIME

ORAL-DUODENUM
10 min (58 sec-210 min)

ORAL-CECUM

5 ± 2.5 hours

% REACHED CECUM

41-85%

WCE IN OBSCURE GI BLEEDING

- Potential to explore the ENTIRE small bowel

<i>Author</i>	<i>% bleeding sites</i>	<i>% lesion beyond the reach of PE</i>
Rossini, 2001	48%	58%
Lewis, 2002	55%	36%
Buchman, 2003	60%	60%

WCE vs PUSH ENTEROSCOPY

<i>Author</i>	<i>N of pts</i>	<i>WCE</i>	<i>PE</i>	<i>p</i>
Lewis, 2002	21	55%	30%	0.065
Eli, 2002	28	66%	28%	< 0.001
Mylonaki, 2003	50	68%	32%	< 0.05
Buchmann, 2003	20	60%	15%	< 0.02
Hartmann, 2003	33	75%	23%	--
Van Gossum, 2003	21	52%	61%	Ns
Mata, 2004	42	74%	19%	0.05

DIAGNOSTIC EFFICACY

60 pts with OBSCURE GI bleeding
(32 occult, 28 overt)

Saurin, Endoscopy 2003

- Blinded comparison between capsule endoscopy and push enteroscopy
- Only small bowel lesions (from the duodenal bulb)
- Lesion categories



» P0: NO POTENTIAL FOR BLEEDING (submucosal veins, diverticula, nodules)

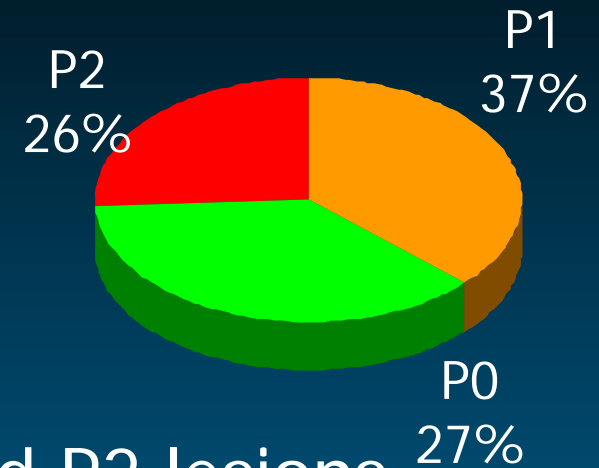
» P1: UNCERTAIN HEMORRAGIC POTENTIAL (red spots, small or isolated erosions)

» P2: HIGH POTENTIAL FOR BLEEDING (typical angiomata, large ulcerations, tumors, varices)

DIAGNOSTIC EFFICACY

Saurin, Endoscopy 2003

- 225 lesions in 43 patients

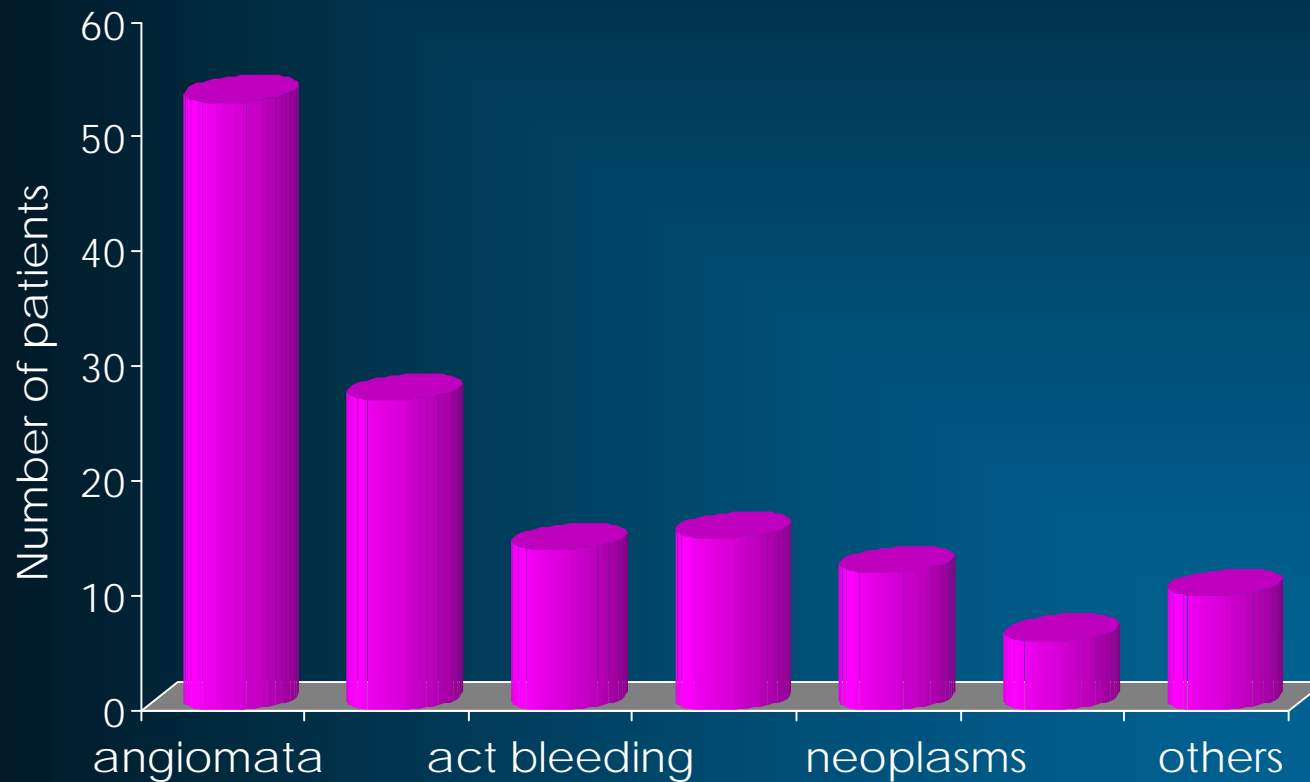


Diagnostic performance for P1 and P2 lesions

WCE+	WCE+	WCE-	p
PE +	PE-	PE +	
32.8%	36.2%	5.1%	0.04

WCE had 36.2% additional diagnostic value

OBSCURE OVERT/OCCULT BLEEDING (203 patients)



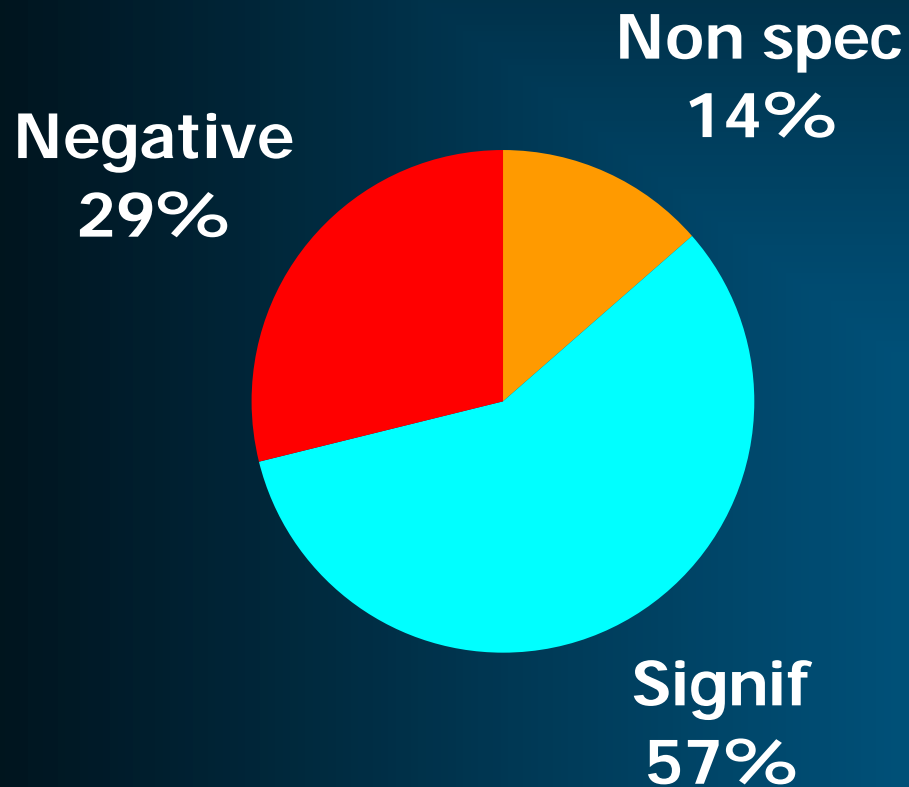
non specific

Crohn's Disease

polyps

Gastro, Padova

OBSCURE OVERT/OCCULT BLEEDING (203 patients)



DIAGNOSTIC YIELD
57%
Similar for overt and
occult bleeding

Gastro, Padova

WIRELESS CAPSULE ENDOSCOPY



Bleeding angiomata

WIRELESS CAPSULE ENDOSCOPY



Bleeding angiectasia

WIRELESS CAPSULE ENDOSCOPY



Bleeding lump
(pathology on surgical
specimen: adenok)

WIRELESS CAPSULE ENDOSCOPY



Ulcer



Varices

WIRELESS CAPSULE ENDOSCOPY



Ulcerated stenosis

BUT.....

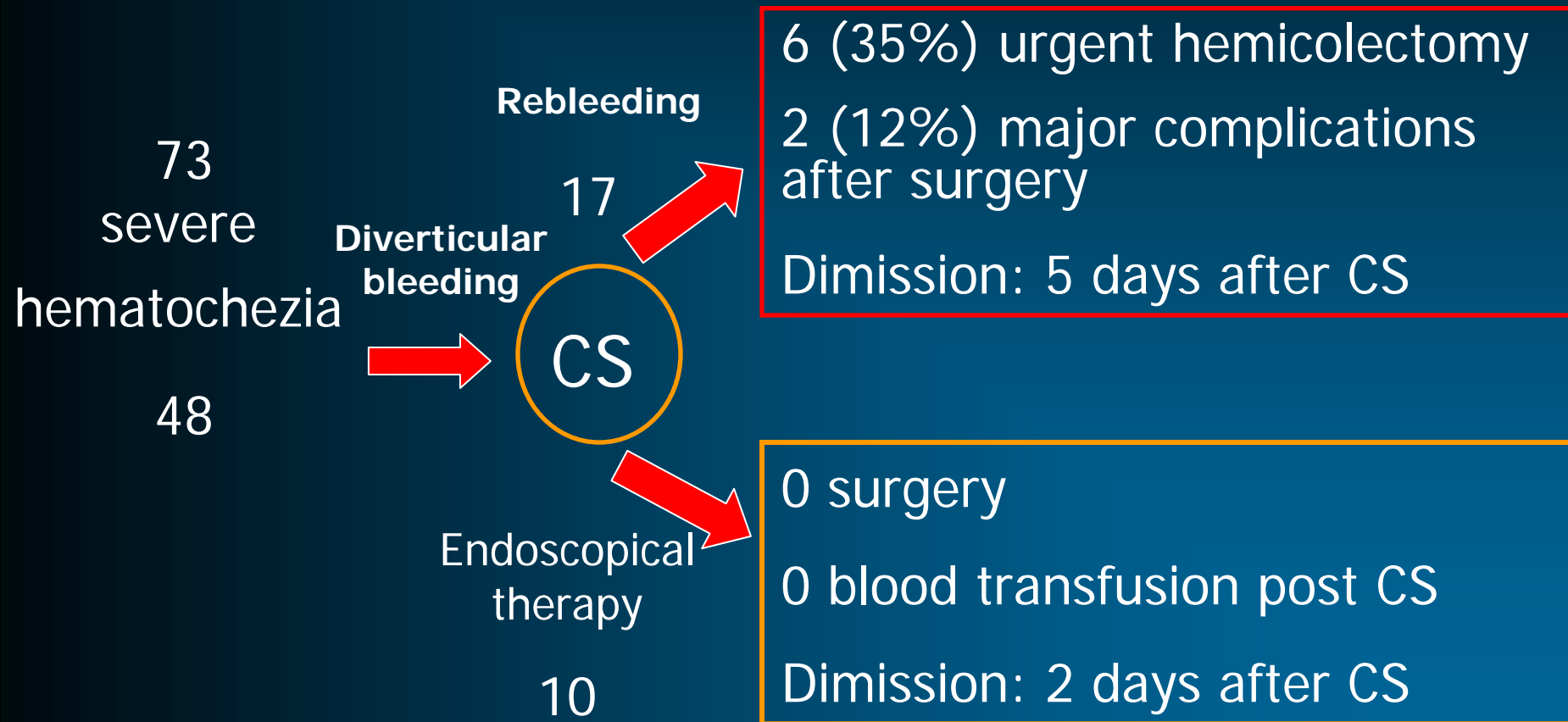
- TIME CONSUMING
- COSTS
- NO SAMPLES
- NO INSUFFLATION
- UNCERTAIN LOCATION OF LESIONS
- SUSPECTED STENOSIS

DD IN Fe DEFICIENCY ANEMIA

Lesion	Cook (n= 100)	McIntyre (n= 111)	Rockey (n= 100)	Kepeczyk (n= 70)	TOTAL (n= 381)
UGI	40	42	37	39	41%
LGI	23	15	26	21	22%
Small bowel	2	4	0	4	3%
UGI + LGI	7	0	1	12	5%
No GI lesion	35	50	37	6	34%

THERAPY & OUTCOME

Jensen, NEJM, 2000



TERAPIA & OUTCOME

Bloomfeld, AmJGE, 2001

13 pz: diverticolosi

CS urgente con terapia (adrenalina; contact coagulation)

5 risanguinamenti precoci

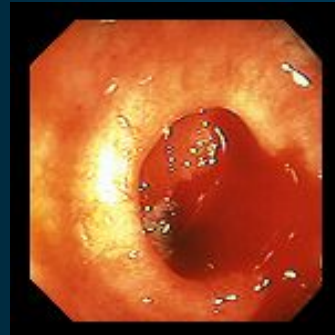
4 risanguinamenti tardivi

2 emicolectomia

DIVERTICULAR HEMORRHAGE

ENDOSCOPIC (10 pts) vs MEDICAL TREATMENT (17 pts)

Endoscopic treatment applied only in presence of major stigmata (major bleeding, nonbleeding visible vessels, adherent clots)

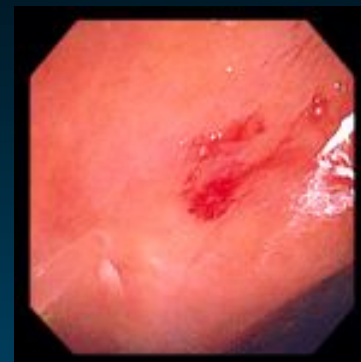


1. Epinephrine 1:20.000 injection
2. Bipolar coagulation of nonbleeding vessels
3. Epinephrine injection+ cold guilloting of adherent clots

None of the endoscopically treated patients had recurrent bleeding vs 50% of medically treated ones over 30 months FU

Jensen, NEJM 2000

ANGIODYSPLASIA



32 patients (84% located by colonoscopy, 9% by enteroscopy)

50% treated by endoscopic coagulation

→ 12.5% early re-bleeding

→ 30% re-bleeding over 15.5 months FU

All re-treated by
Endosc coagulation

Gupta, Dis Col Rect 1995

PROBLEMS

MULTIPLE SITES (small bowel)

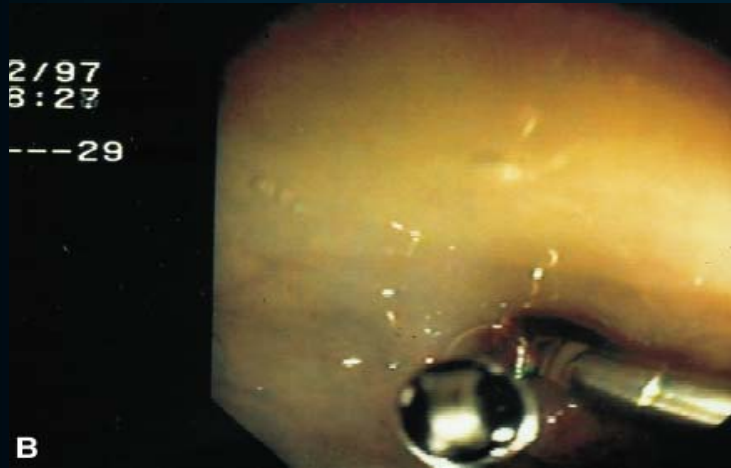
Heater probe ablation in 23 patients with small-bowel and gastric AVMs → 30% rebleeding

Hayat, Endoscopy 2000

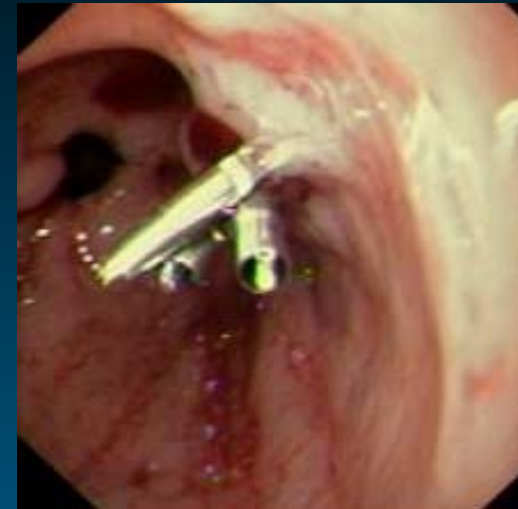
COMPLICATIONS

Perforations
Co-morbidity

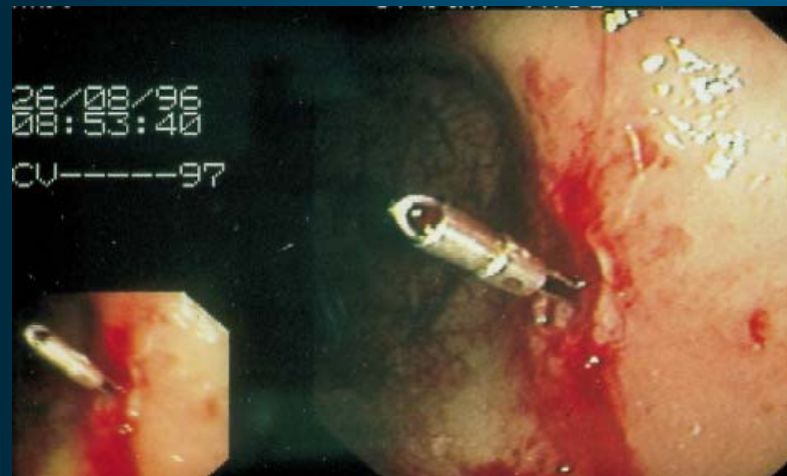
"CLIPPING IT"



Peridiverticular eroded vessel



Dieulafoy's lesion



Bleeding vessel after polypectomy

IN CONCLUSION

- ✓ Urgent Colonoscopy
 - 👍 Safe
 - 👍 Effective
 - 👍 Cost saving
- ✓ In lower GI bleeding endoscopic stigmata and therapy are similar to the upper GI ones
- ✓ Endoscopic therapy
 - ✗ Good efficacy
 - ✗ Safer than surgery
- ✓ For occult/obscure bleeding, after bi-directional endoscopy, use capsule!