

# Therapeutic Barium Enema:TBE against colonic diverticular bleeding

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# **Colonic diverticular bleeding:CDB**

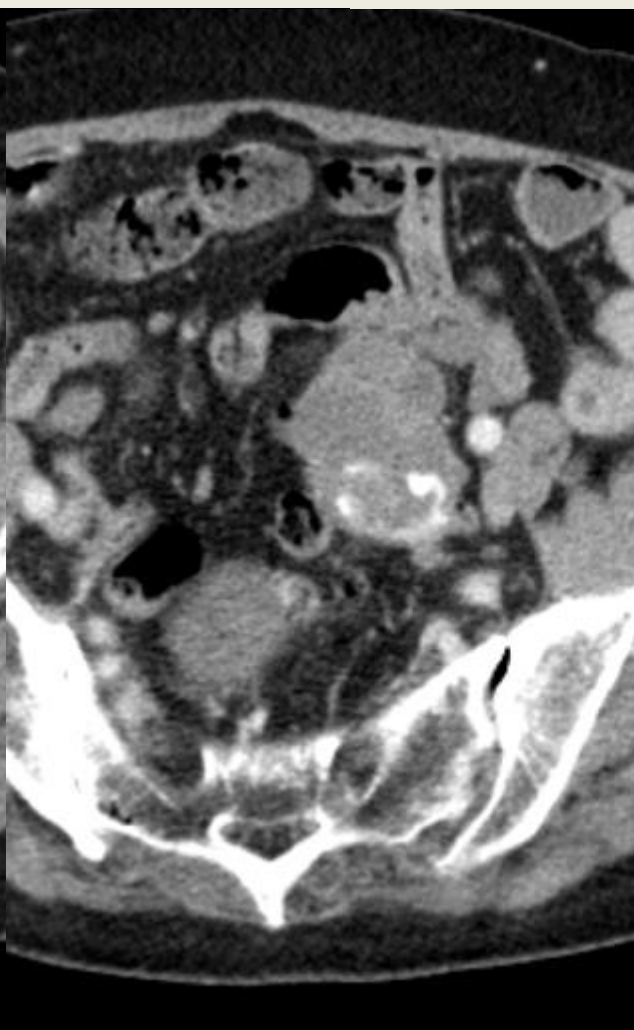
- **17-40% of lower GI tract bleeding**
- **The most common cause of LGI bleeding in the elder people over 60 yo.**
- **Mortality: 0.7%(62/8,422) in Japan**
- **Frequency of diverticular hemorrhage is increasing with the expanding use of**
  - **nonsteroidal anti-inflammatory drugs (NSAIDs)**
  - **antiplatelet agents**
  - **anticoagulants**

# Indication of TBE

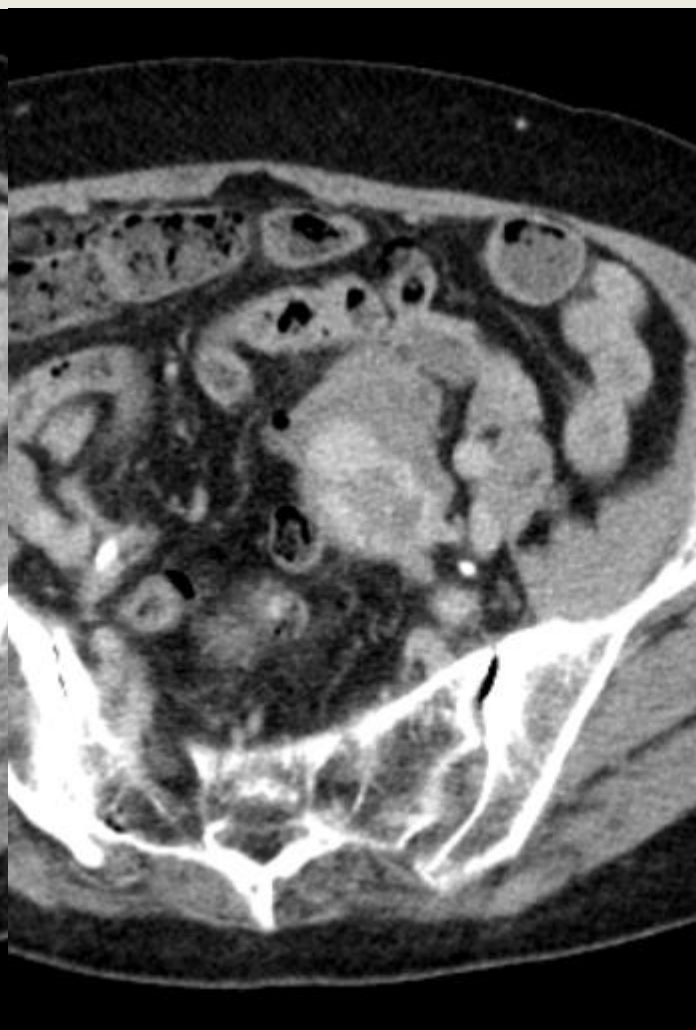
- **Diverticular bleeding**
  - **Diagnosis based on CT findings, excluding the other colonic diseases.**
- **w/o**
  - **Hemorrhagic shock**
  - **Disturbance of consciousness**
  - **Prohibiting changes in the patients' positions**



Non-contrast

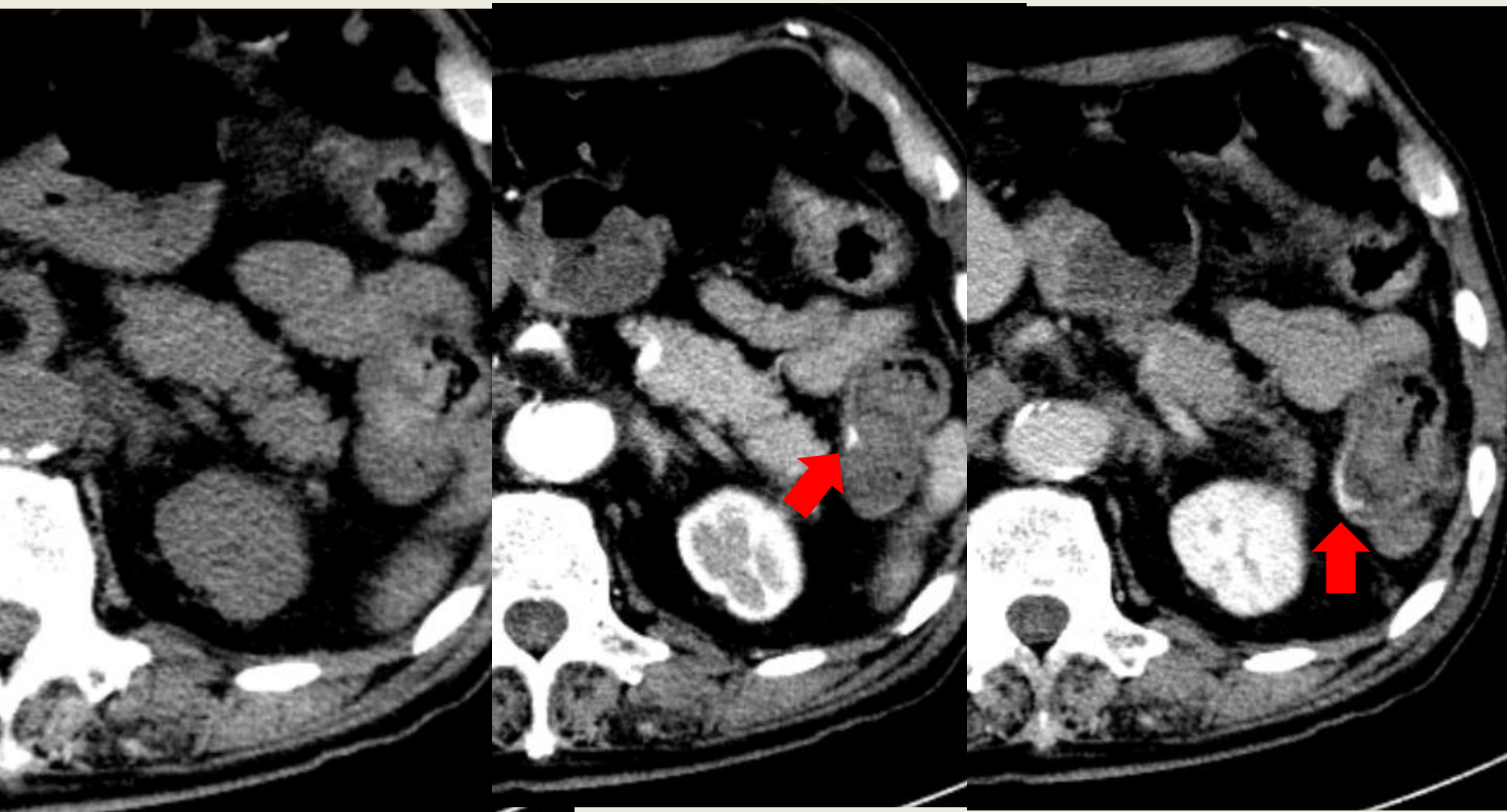


Contrast CT  
Early phase



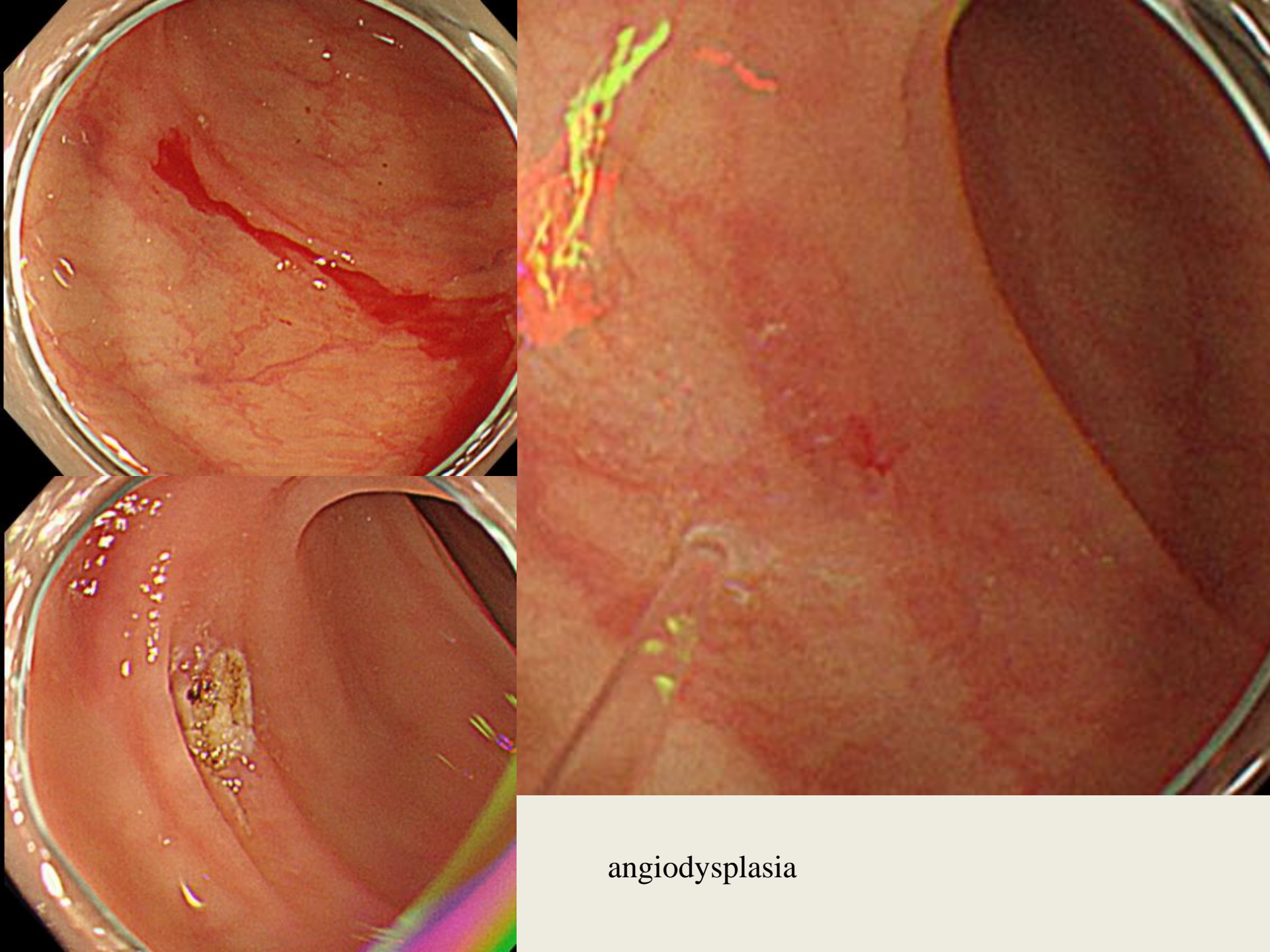
Contrast CT  
Late phase

77F bloody bowel discharge



Active bleeding is recognized in colonic lumen, but there is no diverticular structure.





angiodysplasia

# Methods (1) of TBE

**A 75% (w/v) barium sulfate suspension**  
(in accordance with the reimbursement rules)  
**was prepared, of which 800 mL was**  
**placed in an enema bag.**

**400 mL of a 75% (w/v) suspension or 300**  
**mL of a 100% (w/v) suspension was**  
**added when needed during the**  
**procedure.**



# Methods (2)

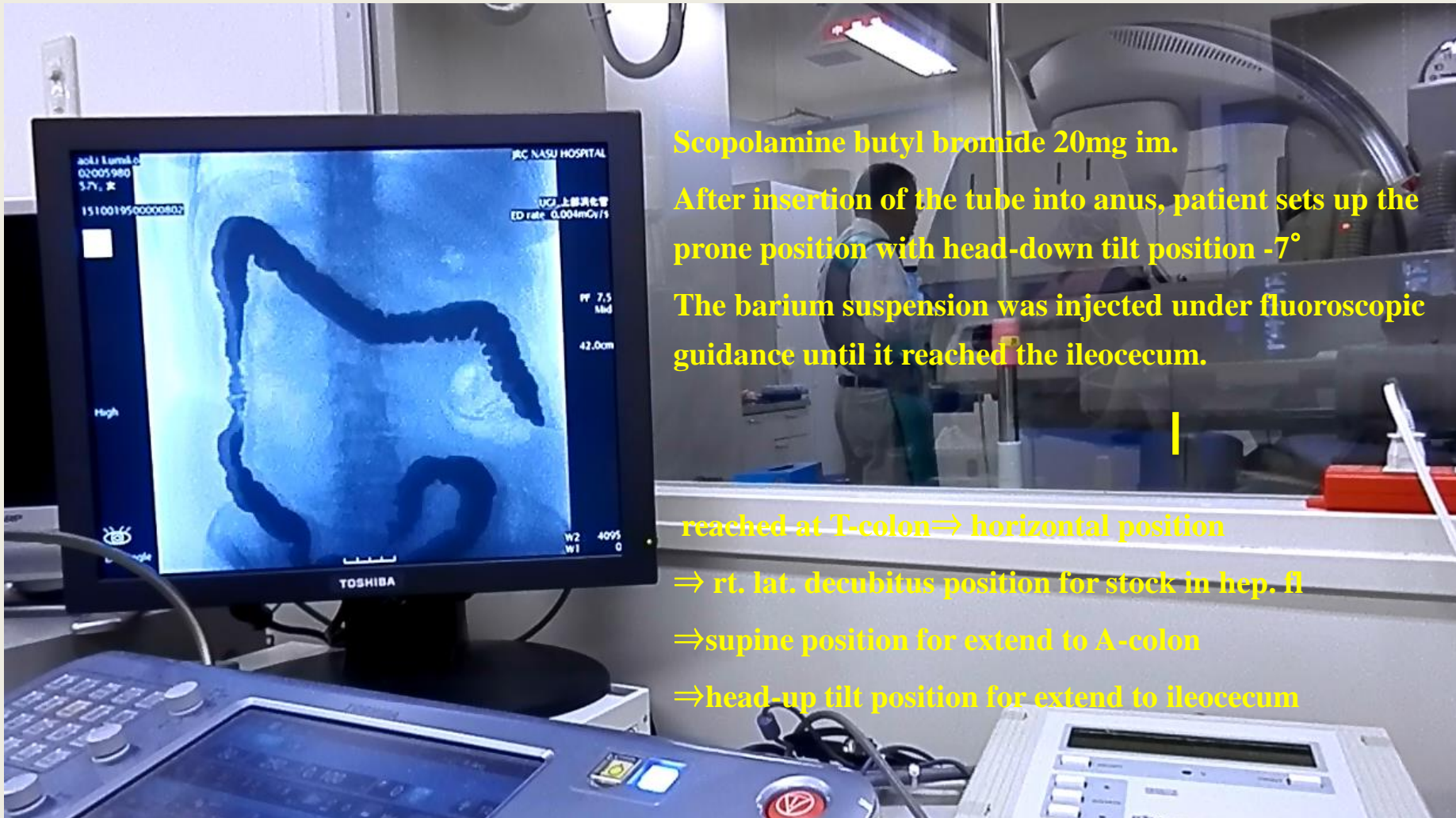
The enema bag was placed at a one-meter height from the patient to allow the intracolonic pressure to be maintained below the systolic blood pressure. Air was not injected, and a barium-filling method was used.

A urethral balloon catheter (24 Fr) was used as an enema tube when digital palpation confirmed anal dilation.





# Methods (3)



Scopolamine butyl bromide 20mg im.

After insertion of the tube into anus, patient sets up the prone position with head-down tilt position  $-7^{\circ}$

The barium suspension was injected under fluoroscopic guidance until it reached the ileocecum.

reached at T-colon  $\Rightarrow$  horizontal position

$\Rightarrow$  rt. lat. decubitus position for stock in hep. fl

$\Rightarrow$  supine position for extend to A-colon

$\Rightarrow$  head-up tilt position for extend to ileocecum

Supine



Prone



**The contrast agent was retained for 15 min each in the supine position and the prone position and finally recovered from the rectum.**

# Results (hemostasis)

	Extravasation		W/O CE	Total
	+	—		
Success	<b>24**</b>	<b>19</b>	<b>6</b>	<b>49</b> <i>90.7%</i>
Failure	<b>1</b>	<b>4(3)*</b>	<b>—</b>	<b>5</b>
Total	<b>25</b>	<b>23</b>	<b>6</b>	<b>54</b>

\* Hemostasis was achieved by the second TBE.

Remaining two cases in failed 5 cases had the spontaneous hemostasis.

\*\*One case occurred the re-bleeding by the restart of anticoagulant.

w/c CE: iodine contraindication

# Pre-TBE Endoscopy & admission days

hemostasis	endoscopy		Av
	+	-	
Success	31.7(n=12)	13.1(n=23)	19.5(n=35)
rebleed	-	29(n=1) *	29(n=1)

\* by the restart of anticoagulant. Colectomy was performed



# Results (Complications)

- Complications : 0 case

Perforation, Intestinal obstruction, Diverticulitis, appendicitis, Rectal laceration by tube insertion, Allergies etc...

\* To the best of our knowledge, only one case of ileus and one case of perforation have been reported after TBE<sup>4</sup>

# Dx of CDB

Dynamic CT > Colonfiberscopy  
(within 2 hrs)

sensitivity	95%	85.2%
specificity	95%	92.1%

Guideline of colonic diverticulosis (diverticular hemorrhage & diverticulitis)  
Japanese Gastroenterological Association 2017

# Therapy of CDB

- Endoscopic hemostasis:EH
  - Clipping
  - Ligation (complication:perforation, D-itis)
- Percutaneous hemostasis (IVR)
  - Against not effective cases by endoscopic therapy
  - Until 3 vasa recta
- Colectomy(surgery)
  - EH & IVR not effective or impossible

# Evaluation of TBE on JGA guideline

- TBE should not be done.
- Hinder the performance of endoscopy, IVR & surgery.



# The 1<sup>st</sup> paper of TBE

- **Adams JT:**

**Therapeutic barium enema for massive diverticular bleeding.**

***Arch Surg 1970;101:457-460.***

Since its first report in 1970, the hemostatic efficacy of therapeutic barium enema (TBE) using a barium sulfate contrast agent has been demonstrated.

- **Koperna T, Kisser M, Reiner G, et al. :Diagnosis and treatment of bleeding colonic diverticula. *Hepato-Gastroenterology* 2001;39:702-705.**
- **Iwamoto J, Mizokami Y, Shimokobe K, et al.: Therapeutic barium enema for bleeding colonic diverticula: Four case series and review of the literature: *World J Gastroenterol* 2008;14:6413-6417.**
- **Nagata N, Niikura R, Shimbo T, et al. High-dose barium impaction therapy for the recurrence of colonic diverticular bleeding. A randomized controlled trial: *Annals of Surgery* 2015;261:269-275.**
- **Matsuura M, Inamori M, Nakajima A, et al.: Effectiveness of therapeutic barium enema for diverticular hemorrhage: *World J Gastroenterol* 2015;21:5555-5559.**

# Advantage of TBE

- High success rate of hemostasis
- No complications
- Can repeat
- Less invasive

- **Correct Dx of CDB**
- **Stable general status**

TBE is the 1<sup>st</sup> choice of CDB therapy.

