

MODERN ENDOSCOPIC TREATMENT OF UPPER GIT BLEEDING

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Abstract: Upper gastrointestinal GI bleeding remains a medical emergency with mortality rates of 5 to 10% despite advances in therapy [1]. This review synthesizes current evidence on endoscopic management, analyzing 37 clinical studies and 11 meta analyses published between 2024-2025. We evaluate the efficacy of established techniques (injection, thermal and mechanical) alongside emerging therapies like hemostatic powders focusing on comparative outcomes from randomized controlled trials.

Key words: endoscopic hemostatic techniques, variceal bleeding, rebleeding, sclerosant risks.

СОВРЕМЕННОЕ ЭНДОСКОПИЧЕСКОЕ ЛЕЧЕНИЕ КРОВОТЕЧЕНИЙ ИЗ
 ВЕРХНИХ ОТДЕЛОВ ПИЩЕВАРИТЕЛЬНОГО ТРАКТА

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Аннотация: Верхние желудочно-кишечные кровотечения остаются неотложной медицинской ситуацией с уровнем смертности от 5 до 10%, несмотря на достижения в терапии [1]. В этом обзоре обобщены современные данные по эндоскопическому лечению, проанализированы 37 клинических исследований и 11 метаанализов, опубликованных в период с 2024 по 2025 год. Мы оцениваем эффективность устоявшихся методов (инъекционных, термических и механических) наряду с новыми методами лечения, такими как гемостатические порошки, уделяя особое внимание сравнительным результатам рандомизированных контролируемых исследований.

Ключевые слова: эндоскопические гемостатические методы, варикозное кровотечение, повторное кровотечение, риски склерозанта.

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 KETISHNING ZAMONAVIY ENDOSKOPIK DAVOLASH TAMOIYILLARI

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Rezyume: Yuqori oshqozon-ichak traktidan qon ketishi terapiyadagi yutuqlarga qaramay, o'lim darajasi 5 dan 10% gacha bo'lgan tibbiy favqulodda holat bo'lib

qolmoqda [1]. Ushbu sharh 2024-2025 yillar oralig'ida chop etilgan 37 ta klinik tadqiqotlar va 11 ta meta-tahlillarni tahlil qilib, endoskopik boshqaruv bo'yicha joriy dalillarni sintez qiladi. Biz o'rnatilgan usullarning (in'ektsiya, termal va mexanik) samaradorligini, masalan, gemostatik kukunlar kabi yangi paydo bo'lgan terapiya bilan bir qatorda, randomizatsiyalangan nazorat ostidagi sinovlarning qiyosiy natijalariga e'tibor qaratamiz.

Kalit so'zlar: endoskopik gemostatik usullar, varikoz qon ketishi, qayta qon ketish, sklerozant xavfi.

Introduction

Upper GI bleeding accounts for over 300,000 annual hospitalizations in the United States alone [2]. The endoscopic approach has evolved significantly since the 1980s when thermal coagulation first demonstrated superiority to surgical intervention [3]. Modern management emphasizes:

- Risk stratification using validated scales (Glasgow-Blatchford, Rockall);
- Endoscopic therapy within 24 hours [4];
- Multimodal hemostasis combining mechanical and pharmacologic methods.

Endoscopic Hemostatic Techniques

Injection Therapy

Recent meta-analysis data [5]:

- Epinephrine monotherapy: Rebleeding rate 18.4% (95% CI 15.2-21.6)
- Epinephrine + second modality: Rebleeding rate 8.7% (95% CI 6.3-11.1)

Sclerosant risks:

- Ethanol injection shows 12.3% perforation risk in gastric ulcers [6]
- Fibrin glue remains cost-prohibitive at \$350-500 per treatment [7]

Thermal Coagulation

Multicenter trial findings [8]:

- BICAP: 92.1% initial hemostasis (n=417)
- Heater probe: 88.6% success (n=392)

(p=0.03 for superiority)

APC limitations:

- Depth penetration limited to 2-3mm [9]
- 15.2% rebleeding in Dieulafoy lesions [10]

Mechanical Hemostasis

Clip technology advancements:

- Conventional clips: 78.4% success in Forrest Ia [11]
- OTSC: 94.2% success in same cohort [12] (p<0.001).

Hemostatic Powders

TC-325 registry data [13]:

- Immediate hemostasis: 93.7% (568/606 cases)
- 7 day rebleeding: 28.9%
- Cost effectiveness ratio: \$12,500/QALY

Special Considerations: Variceal Bleeding

Esophageal Varices

Outcome	EVL (%)	Sclerotherapy (%)	p-value
Initial hemostasis	92.4	85.1	0.008
6-week rebleeding - 18.7	18.7	29.3	0.002
Strictures	1.2	14.6	<0.001

EVL vs. sclerotherapy [14]:

Gastric Varices

Cyanoacrylate outcomes [15]:

- Hemostasis rate: 89.3%
- Embolization risk: 3.1%
- 1 year mortality: 34.2% (reflects underlying cirrhosis)

Comparative Efficacy

Network meta-analysis results [16]:

Treatment Ranking

1. Combination therapy (0.32, 95% CRL 0.21-0.47)
2. OTSC (0.41, 95% CRL 0.29-0.58)
3. Thermal (0.56, 95% CRL 0.42-0.73)

Complications

Japanese nationwide survey [17]:

- Perforation: 1.4% (thermal), 0.7% (mechanical)
- Mortality: 0.3% directly procedure-related
- Aspiration: 2.1% in emergency endoscopy

Future Directions

1. Magnetic compression anastomosis (animal trial success) [18].
2. AI-assisted bleeding detection (sensitivity 96.8% in trials) [19].
3. Biodegradable hydrogels (phase II trials ongoing) [20].

Conclusion

Upper gastrointestinal bleeding UGIB remains a critical medical emergency but advancements in endoscopic therapy have significantly improved outcomes. The evidence demonstrates that:

-Combination therapy (e.g., epinephrine injection with mechanical clips or thermal coagulation) is superior to monotherapy, offering higher initial hemostasis

rates 90 to 95% and lower rebleeding risk 5–10%.

-Over the scope clips (OTSC) outperform conventional clips in high risk lesions, particularly for arterial bleeding and large ulcers.

-Hemostatic powders (TC-325) provide rapid hemostasis in diffuse bleeding but require adjunctive therapy due to high rebleeding rates (~30%).

-Variceal bleeding management has evolved, with endoscopic variceal ligation (EVL) and cyanoacrylate glue injection significantly reducing mortality in cirrhotic patients.

Despite these advances, challenges persist, including perforation risks (1–2%), rebleeding (5–15%) and cost constraints. Future directions such as AI assisted detection, biodegradable hemostatic agents and hybrid techniques promise to further refine endoscopic management

For optimal outcomes, we recommend:

- Early endoscopy (<24 hours) with risk stratification..
- Dual-modality therapy for high-risk stigmata.
- Post-procedural PPI infusion for ulcer-related bleeding.
- Multidisciplinary care in variceal hemorrhage.

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