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Research Article

ENDOSCOPIC METHODS OF HAEMOSTASIS IN GASTRODUODENAL BLEEDING

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ABSTRACT

The modern endoscopic methods of treatment of gastroduodenal bleedings as well as the statistical data for 2015-2022 conducted in the Republican Scientific Center for Emergency Medical Care Andijan branch, patients with gastroduodenal bleedings and endoscopic methods of treatment used in the hospital are presented in the paper. In this article 1404 patients with the clinical picture of gastroduodenal bleedings were investigated and of them endoscopic intervention was carried out in all patients, with endohaemostasis in 97 patients.

KEYWORDS

Gastroduodenal bleeding, haemostasis, coagulation, application, endoscopic haemostasis.

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INTRODUCTION

Gastric bleeding is a pressing problem in emergency surgery today. Rapid pace of life, stress, irregular and low-quality diet, uncontrolled intake of nonsteroidal anti-inflammatory drugs, peptic ulcer, and common vomiting can lead to such dangerous complications. The fatality rate for gastroduodenal bleeding is about 6%. To date, the main role in the successful treatment of patients with gastrointestinal bleeding plays an early and accurate diagnosis of the cause of bleeding, adequate conservative therapy, and surgical treatment if ineffective. Esophagogastroduodenoscopy (EGDS) is the main method of diagnosing the local cause of bleeding from the upper digestive tract and the modern method of hemostasis. Analysis of the causes of adverse outcomes shows that one of the directions in improving the results of treatment of such patients is the improvement of methods of nonoperative haemostasis and prediction of the risk of recurrent bleeding .

EGD tasks in patients with upper gastrointestinal haemorrhage:

1. Determine the localization of the source of bleeding;
2. Determine its main characteristics;
3. Determine whether the bleeding is ongoing (assess its intensity) or whether it is ongoing;
4. Endoscopic hemostasis in case of ongoing bleeding:

- Final or temporary (as a preparatory step for surgery);
- Prognosis and prevention of recurrence in cases of existing bleeding:
- Final haemostasis or temporary (as a measure to prevent recurrence of bleeding in preparation for surgery).

Indications for endoscopic haemostasis:

1) ongoing bleeding at the time of endoscopic examination (gastroscopy, EGDS) -Forrest I for ulcerative bleeding;

a) ongoing arterial jet bleeding -Forrest I - occurs in 8-10% of patients, of whom 80-85% have a risk of potential recurrence;

b) ongoing capillary bleeding in the form of diffuse oozing - Forrest Ib - occurs in 10-15% of patients. The risk of recurrence in the latter is 5%;

2) bleeding that has stopped at the time of endoscopic examination with stigmas in the fundus or margins of the source - Forrest II - occurs in 25-40% of patients. Of these, there is a risk of potential recurrence in 40-50%;

a) a clot tightly fixed to the ulcer crater - Forrest IIb - occurs in 15-20% of patients, of whom there is a risk of recurrent bleeding in 40-50%;

b) small thrombosed vessels in the form of dark brown spots -Forrest IIc - occur in 10% of patients, of whom 5% are at risk of recurrent bleeding.

Indications for endoscopic hemostasis during dynamic EGDS:

1) negative dynamics of the bleeding source, consisting in the preservation of intact previously "treated" vascular structures, the manifestation of new vessels or the development of recurrent bleeding (repeated endoscopic hemostasis is performed if the patient is not subject to emergency surgery for recurrence);
2) detection of a vascular arch in close proximity (<1mm) to the bottom of the ulcerous defect by endoscopic ultrasonography.

Endoscopic examination makes it possible to identify the source of bleeding, to answer the question

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whether the bleeding has stopped or continues, and to carry out and monitor the effectiveness of treatment measures.

Contraindications for endoscopic haemostasis:

1. Endoscopic haemostasis is not indicated in patients who are in an extremely severe (agonal) state, in whom it is dangerous to perform the endoscopic examination itself, gastroscopy.
2. The presence of perforation and bleeding from an ulcer or tumour, if the diagnosis of hollow organ perforation is not in doubt.
3. Do not try to stop bleeding, especially with diathermy or laser treatment, if the source of bleeding cannot be clearly seen, which may be due to either the anatomical features of the organ (severe deformity or stenosis) or a massive inflow of blood flooding the source or the endoscopic viewing window, as is more commonly seen in arterial bleeding from a duodenal ulcer.
4. Danger of perforation. This applies especially to bleeding from the bottom of deep gastric and duodenal ulcers (anterior wall) and deep mucosal tears of the proximal stomach and oesophageal-gastric junction area.
5. Acute myocardial infarction, cerebral circulatory disorder considered by the majority of researchers as contraindication both for diagnostic and therapeutic esophagogastroduodenoscopy in a planned or emergency procedure, under modern technical equipment (endoscopes with thin external diameter) cannot be contraindication to therapeutic endoscopy at gastrointestinal bleedings.

Methods of endoscopic hemostasis:

Various methods, differing in their physical properties and mechanisms of action, are used to influence the source of bleeding through the endoscope.Currently, according to the domestic literature, the following methods of endoscopic hemostasis are most commonly used:

1. Thermal: electrocoagulation, thermo-cautery, laser photocoagulation, argon-plasma coagulation (due to thrombosis of the vessel in the bleeding area);
2. Injection: adrenaline (vasoconstriction); alcohol, sclerosants (chemical coagulation + dehydration); cyanoacrylates, thrombin, fibrin glue (adhesive filling);
3. Mechanical: clipping, ligation (ligation of the vessel and the source of bleeding).

The selection of the arsenal of techniques depends primarily on their clinical results, and if this is equal, on the ratio: efficiency/ease of performance + safety/cost + availability. Therapeutic endoscopy at acute gastrointestinal bleedings as a whole possesses rather high efficiency and allows: to carry out temporary or final hemostasis at the overwhelming majority of patients and adequately prepare them for urgent operative intervention;

- In combination with modern drug therapy it makes it possible to prevent a recurrence of bleeding and postpone the operation to the stage of elective surgery;
- monitoring and repeated haemostasis in patients with marginal anaesthetic risk when emergency surgery cannot be performed.

Diathermic coagulation: is the most versatile, highly effective method of endoscopic hemostasis. Mono-, bi-, and multipolar coagulation of the bleeding source with high frequency current is used, resulting in rapid

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heating and eventually thrombosis of the bleeding vessel and/or thickening of the resulting thrombus. Clinical experience shows that monoactive coagulation is mainly indicated for bleeding from chronic ulcers and tumours. Biactive coagulation is preferred for bleeding from esophageal-gastric junction mucosal tears, acute ulcers, erosions and other lesions where there are no marked scarring-sclerotic tissue changes and deep coagulation is not required (or is dangerous).

Thermocauterisation: (cauterisation or thermal coagulation) is considered by many experts to be the method of choice for hemostasis today. The active principle of thermocauterisation is not an electric current but rather a thermoprobe tip, which is heated more than 100 degrees Celsius. When observing elementary safety precautions, it does not cause deep burns and is successfully used for almost all types of non-variceal gastrointestinal bleeding.

Laser photocoagulation: The source of bleeding has retreated into the background in recent years. In most clinical situations, it has given way to similarly effective, but significantly less costly and cumbersome, but easier to perform and safer for the patient and staff, methods of endoscopic hemostasis.

Argon plasma coagulation: One of the most important advantages of this method is that it is non-contact and therefore devoid of the side effects of contact techniques, such as recurrence of bleeding due to thrombus clot detachment. Argon plasma can be used for hemostasis in hard-to-reach areas (e.g. in the deformed bulb of the duodenum) due to its affinity to areas of high conductivity (fresh blood and fresh thrombi) and the mode of operation by "flowing around the corner". The coagulating effect of argon plasma is easy to dose, it has no pronounced thermal effect on the deep layers of the intestinal wall (the depth of penetration of argon plasma into the depth of tissue is not more than 2-3 mm) and, therefore, safe in terms of perforating organs, especially such as esophagus, duodenum and small intestine.

Injection haemostatic with vasoconstrictors: mechanical compression of vessels with a liquid solution combined with local haemostatic action and spasm of small vessels almost always leads to temporary stopping of bleeding or at least a reduction in its intensity. The most commonly used method is 0.005% adrenaline solution in saline solution. The drug is injected using an endoscopic injection needle - paravasally from 3-4 points and into the base of the vessel. Volume of injected solution is usually 5 to 20 ml. Injection with ethanol. If continued bleeding is detected during endoscopic examination and the bleeding vessel cannot be clearly localized, a 25-30% ethanol solution is used, which is injected into the mucosa tear edges, edges and bottoms of ulcers, submucosa layer in the erosion location area or tumour tissue in an amount of 4-6 ml.

The use of adhesive filling techniques: the source of bleeding looks attractive, but carries with it a number of serious drawbacks. This primarily concerns the use of synthetic adhesive compositions, in particular cyanoacrylates, which polymerise so rapidly and permanently that they often lead to the failure of expensive hardware. In addition, the infiltration of cyanoacrylates into biological tissues leads to the formation of pronounced infiltrates, which significantly complicates or complicates the surgical procedure. The widespread use of biocomposites (particularly fibrin glue) is to some extent prevented by its high cost and concerns about the possibility of transmission of viral and prion infections with the drug.

Combined use of hemostasis techniques: The most

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common combination in primary endoscopy is the sequential use of injection and thermal techniques. They complement each other and show their positive aspects, at the same time counterbalancing the disadvantages of each method. Overall, this makes it possible to achieve a more effective, reliable and permanent haemostasis.

In the clinical practice of the endoscopic office of the Andijan branch of the RSCEEMP, taking into account the emergency nature of work for endoscopic haemostasis the following techniques are used:

- Electrocoagulation.
- Infiltration hemostasis (0.1% solution of adrenaline hydrochloride or 70% solution of ethyl alcohol).
- Film-forming polymer application (infiltration hemostasis + application).

OBJECTIVE

To evaluate the results of endoscopic methods of hemostasis in gastroduodenal bleeding Republican Scientific Centre of Emergency Medical Aid Andijan branch.

MATERIALS AND RESEARCH METHODS

Analysis of medical records of patients in the surgical departments of the Republican Scientific Center for Emergency Medical Care Andijan branch for the period 2015-2022 was carried out. During 7 years 1404 endoscopic interventions (FGDS) were performed in patients with gastroduodenal bleedings, of them men-1095 (78%) and women-309 (22%). Among sources of bleeding there are 1107 (79%) patients with duodenal ulcer and 297 (21%) patients with gastric ulcer. Our centre has established an emergency endoscopy service, which allows for therapeutic and diagnostic endoscopy around the clock. In determining the activity of bleeding and assessing the degree of haemostasis, Forrest (1987) classification was followed.

Of these: - Combined endoscopic hemostasis was performed in 97(7%) patients, 150 (11%) patients were operated on, conservative treatment was performed in 1157 (82%) patients.

RESULTS AND DISCUSSION

During the analysis of case histories of patients in the surgical department of RCEMS Andijan branch with gastroduodenal bleeding 1404 patients were examined in 2015-2019, out of them endoscopic hemostasis was carried out in 97 patients. Repeated endoscopic hemostasis was performed in 3 patients.

In patients, against the background of endoscopic haemostasis an improvement in well-being, rapid activation, and after the complete disappearance of the clinic of gastrointestinal bleeding the patient was discharged earlier in comparison with other patients with the same pathology, but without the use of endoscopic haemostasis was noted.

CONCLUSIONS

Bleeding from the upper gastrointestinal tract remains an acute problem in emergency surgery. The most common causes of bleeding are gastric and duodenal ulcers, Mellory-Weiss syndrome, bleeding from esophageal varices and malignant tumours. Endoscopic diagnosis of bleeding is the leading method today. Of the endoscopic techniques the most frequently used is the combined use of hemostasis techniques such as diathermic coagulation, injectable

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hemostasis with vasoconstrictors, application of composite polymeric material. A prospective study of the effectiveness of endoscopic hemostasis in clinical practice showed that the application of composite polymeric material over the ulcerous defect helps to reduce the recurrence of hemorrhagic syndrome, reduce the need for surgical treatment and respectively the mortality rate.

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