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## Spontaneous Rupture of Aneurysms of the Gastroepiploic Artery

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**ABSTRACT** We report a rare clinical case of spontaneous rupture of the aneurysm left gastroepiploic artery with life-threatening intra-abdominal haemorrhage  
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**Conflict of interest** Authors declare lack of the conflicts of interests

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## INTRODUCTION

Aneurysms of the gastric and gastroepiploic arteries account for 4% of all aneurysms of the visceral arteries. Usually they are random findings during surgery or at autopsy, as their diagnosis has certain difficulties. Spontaneous ruptures of aneurysms of the visceral arteries of the abdominal cavity are extremely rare [1-3]. Moreover, in 70% of cases there are life-threatening bleedings in the organs of the gastrointestinal tract, in 30% - bleeding in the abdominal cavity [4, 5]. The diagnosis is usually confirmed during emergency surgical interventions.

We report a clinical case of the spontaneous rupture of the aneurysm of the left gastroepiploic artery.

A 53-year-old male patient M. was taken to the emergency resuscitation department 2 hours after the onset of the disease with complaints of severe weakness, abdominal pain without clear location. The patient denied any trauma.

The condition was serious. Conscious, contact, adequate. Pale skin. No trauma. Breathing was heard on both sides, respiratory rate 26 per minute, heart rate 120 per minute. Blood pressure 80/50 mm Hg. Painful abdomen during palpation without clear location of pain. No peritoneal signs. *Per rectum* - feces of normal color. Light urine was obtained through the installed urethral catheter.

Instrumental studies were performed simultaneously with intensive therapy. Chest x-ray: clear lung fields and diaphragm with no abnormalities. Free sinuses.

Abdominal ultrasound: separation of peritoneal layers in the right subdiaphragmatic area - 1.8-2.2 cm, along the right lateral channel - 3.5-4 cm, left subdiaphragmatic area - 3 cm, the left lateral channel - 1.7-2, 4 cm, in the pelvic cavity - 5-7 cm, interloop - 0.5-1 cm, anechogenic contents with structures of medium echogenicity, a clot about 6x11.3 cm in size. The wall of the stomach is swollen along the large curvature, thickened decreased echogenicity. Loops of the small intestine were not dilated, the walls were swollen, peristalsis was extremely tender. The colon was pneumatized. Free fluid in the pleural cavities was not detected. No data were obtained for aortic aneurysm.

In the blood test: Hb - 68 g / l, Ht - 23%, no inflammatory changes and signs of coagulopathy .

Given the clinical picture and instrumental examination data, intra-abdominal bleeding was suspected, which was an indication for emergency laparotomy. In the abdominal cavity we found 3500 ml of liquid blood and clots. It was revealed that the source of bleeding was a ruptured aneurysm of the left gastroepiploic artery. There were marked changes in the fat of the omentum around the aneurysm with its increment to the wall of the left bend of the colon (Fig. 1). Resection of the greater omentum with aneurysm, hemostasis, debridement, drainage of the abdominal cavity were performed. Intraoperative reinfusion of the autacellular component was 1800 ml with Ht - 75%.

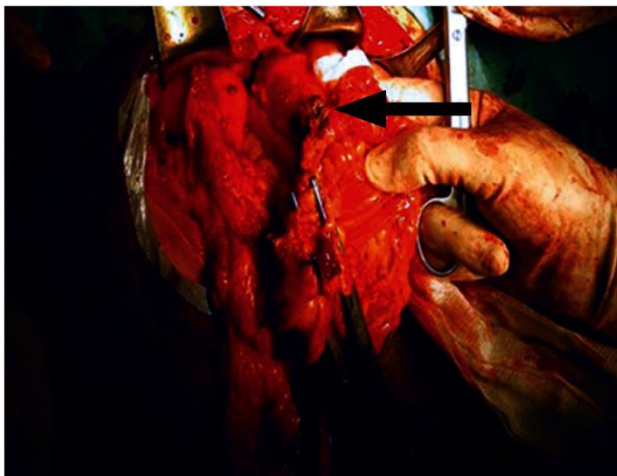


Fig. 1. Intraoperative photo: mobilized fragment of the greater omentum with aneurysm of the gastroepiploic artery (indicated by the arrow)

The postoperative course was uneventful. The drainage from the abdominal cavity was removed on the 3<sup>rd</sup> day. The wound healed by primary intention. During the repeated X-ray and ultrasound examinations of the abdominal cavity no gas and liquid, infiltrative changes were detected. The patient was discharged in satisfactory condition on the 9<sup>th</sup> day after the operation.

Fibrous adipose tissue with extensive areas of hemorrhagic impregnation was sent for histological examination. There was a fragment of the arterial wall of the muscle-elastic type with severe perivascular sclerosis (Van Gieson stain ) (Fig. 2). The adventitia: fresh exfoliating hemorrhage in adjacent adipose tissue, focal lymph plasmotsitarnye inflammatory infiltrates, to the intima of the arterial wall adherent fibrin. Special coloring on elastic revealed violations of the integrity of the internal elastic membrane (Gram-Weigert staining, x100) (Fig. 3).

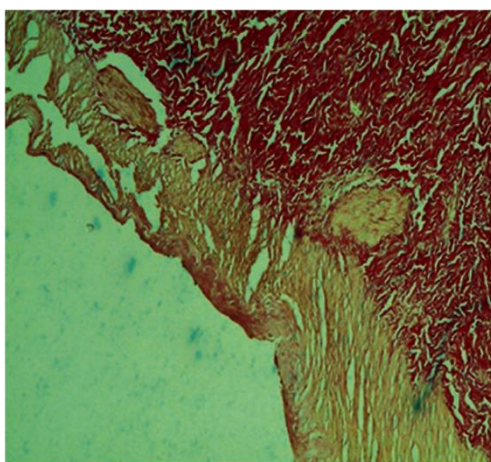


Fig. 2. The same. Van Gieson staining, x100

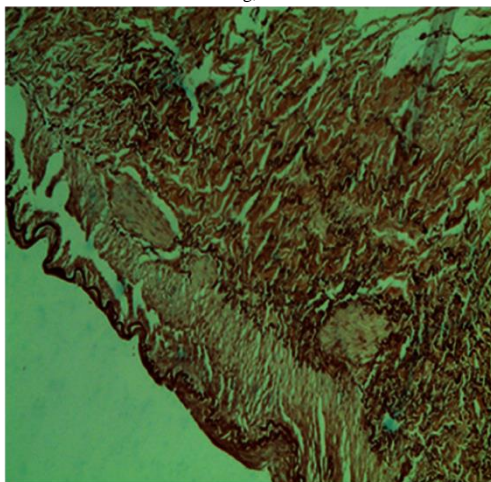


Fig. 3. The arterial aneurysm wall with impaired integrity of the internal elastic membrane. Gram-Weigert stain, x100

## DISCUSSION

Based on morphological data, a true arterial aneurysm was verified, which develops mainly under the influence of pathological changes that occurred in the vessel wall itself. The altered artery wall cannot withstand blood pressure and gradually stretches or

bulges. A true aneurysm is characterized by the presence in its shells of residues of structural elements of the normal vascular wall, which was found in our clinical case.

In contrast to the true arterial, stratifying aneurysm is formed in the arteries (most often in the aorta) due to the destruction of the media of the vascular wall with the formation of an intramural hematoma, communicating with the lumen of the vessel.

Acquired aneurysms can also be caused by a pathological process that occurred in the vessel wall itself: atherosclerosis, syphilitic lesion, nonspecific infection (mycotic or septic aneurysms), or suppuration or neoplasm that transferred to the artery from surrounding tissues (arrosion aneurysms), which were not evident in our case.

The traumatic aneurysm (history of trauma) in the vast majority of cases is false, that is, it is an encapsulated hematoma that communicates with the cavity of the vessel.

Depending on the clinical type, Ehlers-Danlos and Marfan syndromes (hereditary systemic dysfunctions of the connective tissue), which are also accompanied by the formation of aneurysms, can be manifested by hypermobility of the joints, extraordinary vulnerability and stretching of the skin, a tendency to hemorrhage and bleeding, deformations of the spine and chest, myopia, strabismus, ptosis of internal organs and other symptoms that were not observed in our case.

## CONCLUSION

Aneurysms of the visceral arteries of the abdominal cavity are an infrequent but serious vascular disease. In most cases, the first clinical manifestation of previously asymptomatic aneurysms occur due to rupture and is manifested by the clinical picture of intra-abdominal or gastrointestinal bleeding. The rare clinical case that we have reported also indicates the likelihood of life-threatening intra-abdominal bleeding, including during spontaneous rupture of aneurysm of small branches of visceral arteries. The only treatment is surgical, and, as a rule, a diagnosis is made.

In patients with a clinical picture of intra-abdominal bleeding in the absence of trauma, the rupture of the aneurysm of small visceral arteries as a source of bleeding cannot be excluded.

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