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An aortoenteric and a graft-enteric fistulae – A severe acute abdominal event

J. Moláček^{a,c,*}, V. Třeška^{a,c}, B. Čertík^{a,c}, J. Baxa^{b,c}, K. Houdek^a, V. Opatrný^a^a Department of Surgery, University Hospital and Faculty of Medicine in Pilsen, Charles University in Prague, alej Svobody 80, 304 6, Pilsen, Czech Republic^b Department of Imaging Methods, University Hospital and Faculty of Medicine in Pilsen, Charles University in Prague, alej Svobody 80, 304 60, Pilsen, Czech Republic^c Faculty of Medicine in Pilsen, Charles University in Prague, Husova 3, 306 05, Pilsen, Czech Republic

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ABSTRACT

Introduction: An aortoenteric or a graft-enteric fistulae refers to a severe acute abdominal event always resulting in the patient's death unless immediate therapy is provided. Early diagnostics and the corresponding acute therapy are of key importance.

Methods: The authors represent the experience they gained in relation to the therapy of primary aortoduodenal fistulae and secondary graft-duodenal fistulae from a set of 8 patients who underwent treatment in the Department of Surgery of the University Hospital and Faculty of Medicine in Pilsen in the period from January the 1st 2008 to December 31st 2013. Seven patients were treated by open resection and vascular reconstruction (5 cases in situ, 2 cases by axilobifemoral bypass). In one case we opted for the endovascular solution (a stent graft implantation). The treatment of the duodenum was performed by suture (in 4 cases) or by resection and anastomosis (in 2 cases). In one case the resection of the sigmoid colon was performed. The average follow-up after surgery in the set is 3.5 years (± 0.5).

Results: The 30-day mortality in the set was 12.5% (1 patient), morbidity 62.5% (5 patients) and in one case we diagnosed infection of the in situ reconstruction.

Conclusion: The aortoenteric communication is a condition representing imminent serious danger to the patient's life. In the case of optimal and early treatment in specialized centres very good results can be achieved.

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Introduction

Communication between the aorta or its prosthetic graft suture line and the digestive system is a severe “acute vascular

event” with significant mortality [1]. It is indicated in most cases by haemorrhage into the upper gastrointestinal tract that must be solved immediately. The most frequently occurring case is a secondary aorto-duodenal (graft-duodenal) fistula, which means communication between a vascular

* Corresponding author at: Chirurgická klinika FN v Plzni, Karlova Univerzita v Praze, Czech Republic.

E-mail address: molacek@fnplzen.cz (J. Moláček).

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Table 1 – Characterization of the set.

Patient	Type of fistula	Type of anastomosis	Symptomatology	Therapy	Result	Microbiology	Complication
1	Prim. aortoduodenal (AAA, aortitis)	0	Hematemesis, fever, abdominal pain	Aortic resection, AA graft, suture of duodenum	Alive	Salmonella enteritidis	0
2	Prim. aortoduodenal (aortitis)	0	Hematemesis, abdominal pain	Aortic resection, AA graft, suture of duodenum	Alive	Salmonella enteritidis	Loss of lower limb (ischaemia)
3	Secondary graft-duodenal	ETE	Hematemesis	Graft resection, in situ reconstruction, suture of duodenum	Alive	0	Respiratory and renal failure
4	Secondary graft-duodenal I	ETS	Hematemesis	Graft resection, in situ reconstruction, suture of duodenum	Death 12. postop. day (MOF)	0	MOF
5	Secondary graft-duodenal I	ETS	Meleana	Graft resection, in situ reconstruction, resection of duodenum	Alive	Candida albicans	Ischaemic colitis, graft infection
6	Secondary graft-duodenal I	ETS	Hematemesis, meleana	Graft resection, in situ reconstruction, resection of duodenum	Alive	Stafylococcus aureus	Respiratory and heart failure
7	Secondary graft-duodenal I	ETS	Meleana	Endovascular therapy, stentgraft	Alive	0	0
8	Secondary graft-sigmoideal I	ETS	Enterorhagy	Graft resection, in situ reconstruction, resection of sigmoid colon	Alive	Mixed flora	0

prosthesis (mostly region of suture line) and the gastrointestinal tract. The so-called primary aorto-enteric fistula, communication between the aorta and the gastrointestinal tract is observed much more rarely [2–4]. The communication occurring between a stent-graft after a previous endovascular solution of the abdominal aortic aneurysm (EVAR) and the gastrointestinal tract is rare in the same manner [5]. The authors present their experience with the diagnostics and treatment of this severe complication.

Methods

During the period from January the 1st 2008 until December the 31st 2013, a total of 8 patients suffering from communication between the aorta, or, where applicable, a vascular prosthesis in the aortoiliac area and the gastrointestinal tract were treated in the Department of Surgery University Hospital in Pilsen. In all cases a complete fistula indicated by gastrointestinal haemorrhage was concerned. The average age of the patients was 72 years and the male to female ratio was 6:2. In 6 cases a secondary fistula was concerned, which means communication between a vascular prosthesis (usually anastomosis or present false aneurysm) and the gastrointestinal tract (5 cases of graft-duodenal, 1 case of graft-sigmoideal). The cases concerned patients after aortobifemoral (ABF) bypass (5 cases) or after the resection of abdominal aortic aneurysm – AAA (1 case). In two cases a primary aortoduodenal fistula were present. We arrived at the diagnosis of aortoenteric fistula, or, where applicable, to the suspicion thereof based on the past patient's history, clinical examination (in some cases herald bleeding, in fewer cases massive bleeding into the gastrointestinal tract) and in most cases by computed tomography angiography (CT AG). In 3 cases we performed esophagogastroduodenoscopy (EGDS). In

7 patients we decided for surgical treatment, which means the resection of the aorta (or a removal of the vascular prosthesis), vascular reconstruction of the aortoiliac region (5 cases of in situ reconstruction using a silver-impregnated graft, 2 cases of extra-anatomic reconstruction – axilobifemoral bypass) and the treatment of a gastrointestinal defect (4 cases of duodenum suture, 2 cases of resection and the ETE anastomosis of the duodenum and one case of the resection of the sigmoid colon). In one case in a polymorbid patient, we choosed for endovascular approach, which means the stent graft implantation in the case of a graft-duodenal fistula with pseudoaneurysm (PSA) in proximal anastomosis. All patients were secured by antibiotic (ATB) therapy, at first empirically and later based on the cultivation of the material from the operation field (Table 1).

Results

The thirty-day postoperative mortality was 12.5% (1 patient). The patient underwent the surgery of a graft-duodenal fistula and died on the 12th postoperative day of multiorgan failure. Morbidity was very high as it is usual in the case of such severe events. In our group of patients it amounted to 62.5%. In 5 patients we had to manage postoperative respiratory, blood-circulatory or renal failures. A one female patient lost one of her lower extremities due to postoperative ischaemia, in one case we registered ischaemic colitis that we were able to manage by the conservative treatment. In 5 cases we received a positive cultivation finding from the operation field (2 cases of Salmonella Enteritidis, 1 case of Staphylococcus Aureus, 1 case of Candida Albicans and 1 case of mixed flora). During the postoperative follow-up we recorded in one case the infection of the implanted vascular graft (the patient 4 months after the surgery of a graft-duodenal fistula managed by the resection of

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