

## CASE REPORT

# Aorto-Caval Fistula as a Complication of Ruptured Infrarenal Aortic Aneurysm

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**W**e present a case of 71 year old man operated in our clinic for ruptured abdominal aneurysm complicated with aorto-caval fistula, which was revealed during the surgery and successfully repaired by direct sutures within the aorta. This is the first record of the aorto-caval fistula that was so far noticed in our clinic. Urgent surgery and repair of the defect connecting aorta and vena cava by direct sutures within the aorta followed by ruptured aneurysm repair with tube graft is only way of treatment. Despite its infrequent occurrence, aorto-caval fistula should always be considered in any case of ruptured abdominal aneurysm. **KEY WORDS:** AORTO-CAVAL FISTULA, ABDOMINAL AORTA ANEURYSM, RUPTURE.

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## 1. INTRODUCTION

Aorto-caval fistula (ACF) is a rare complication of rupture of an infrarenal abdominal aortic aneurysm (AAA) and it is found in 0,22% of cases to 6,04% of cases (1). The rupture of AAA to the lower vein cava is unusual, rare, and often undiagnosed before the surgery (2). The percentage of elective AAA is from 2 to 3 while the percentage of ruptured AAA is 6, 97 (3). In cases of isolated ACF mortality rate is 40% and it increases up to 66,7% in casees of joined rupture of AAA (1). The ACF syndrome consists of continuous vascular murmur in abdominal area, clinical picture of heart deterioration, stomach ache and backache. Despite all modern diagnostic techniques, the accurate pre-operative diagnosis of ACF is difficult. Therefore, ACF often remains undiag-

nosed (2). The clinical signs of this condition may vary from discrete to dramatic. In order to diagnose ACF correctly it is important to think of ACF on time and to have previous knowledge about this condition.

## 2. CASE REPORT

A 71-year-old patient was admitted urgently at our clinic because of stomach-ache which deteriorated and which was extending to lower spine. The first signs of stomach-ache appeared the day before as a sudden and severe pains extending to the back. With the time the pain became worse and intolerable.

The patient was conscious, but with present slow psychomotor skills, disoriented, hardly communicative, pale, with cold sweat and was taking the

forced position. Blood pressure was not measurable. After i.v saline infusion was applied blood pressure raised up to 110/50 mmHg. During the physical examination abdomen was above the chest level, tensed, painful, and there were murmurs at the lateral sides. Pulsation of femoral arteries at both sides was palpable but the femoral arteries were hardly pumped with blood. Computerised tomography (CT)-angio of aorta was urgently done and it showed that AAA had the biggest transversal diameter of 105 mm, beginning from the hilum of a kidney to aortic bifurcation. The CT showed the presence of contrast in abdominal aorta and lower vein cava in the same phase of contrast circulation ( Figure 1).

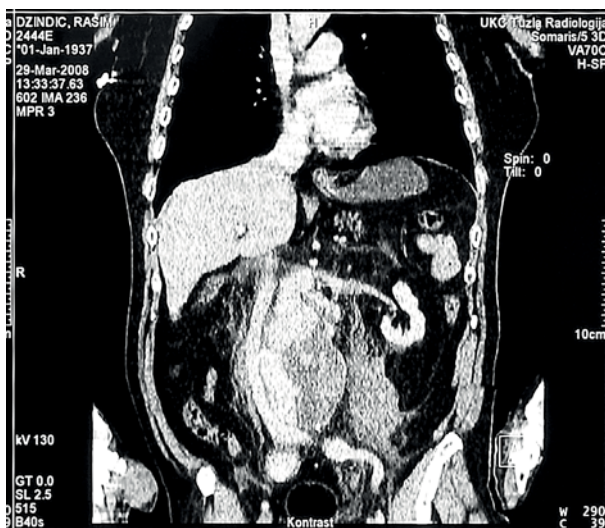
The urgent operation was performed. Aorta was accessed by transperitoneal median lapartomy. Retro peritoneum was completely filled with hematoma as well as the major part of colon transverse. An infrarenal aortic aneurysm was detected. It was surrounded by hematoma and it was approximately 11 to 12 cm large. Three centimetre large aortic neck, which was located behind the left renal vein and under the left renal artery, was dissected free same as both iliac arteries respectively. The left one was 2, 5 cm large. After we had clamped the neck of the aneurysm and both iliac veins we have opened the aneurysm. There

we found a lot of detritus and coagulum. After the cleaning of the aneurysm, the complete lack of posterior wall of aneurysm with destruction of surrounding muscles was noticed. Therefore, the front side of the spine was damaged. At the lower part of posterior wall of aneurysm the major vein bleeding was detected. This bleeding had been explored and completely damaged 1 to 1,5 cm large wall of lower vein cava was found. This was

the place where ACF was formed. The bleeding part was sewed with Prolen 3.0 stitch and covered with the part of the surrounding wall of aneurysm.

After replacing the aneurysmatic part of aorta with Dacron allograft the operation was terminated in a regular way. The patient was then transferred to intensive care unit with stable blood pressure of 120/80mmHg. The patient had normal renal function and urea and creatinine concentration were normal. Two days after the operation the patient was transferred to the regular hospital department. During the early recuperation the patient was stable, with normal kidney function and without any signs of deep vein thrombosis of lower extremities.

The patient was discharged after ten days from the hospital. The patient was feeling good. The laboratory analysis on the discharge day was: Htc=0,335; RBC=3,32; Hgb= 110g/l; WBC= 7,8; glucose= 6,5mmol/l; K= 4,8mmol/l; Na= 144mmol/l; Urea= 13,1mmol/l; Creati-



**FIGURE 1.** The presence of contrast in abdominal aorta and lower vein cava in the same phase of contrast circulation is depicted by arrow

nine= 118 $\mu$ mol/l; pH= 7,39; pCO<sub>2</sub>= 5,7 kPa; pO<sub>2</sub>= 6,80 kPa; HCO<sub>3</sub>= 26mmol/l. The operative wound was healed.

### 3. DISCUSSION

We have presented the case of the patient who was operated in our hospital for ruptured AAA. During the urgent operation ACF was diagnosed and successfully treated by direct sutures within the aorta for lower vein cava through opened AAA. The operation and postoperative period went very well. The patient was discharged without clinical signs of heart deterioration and without signs of dysfunction of abdominal organs. The patient had normal kidney function. The function of arteries and deep vein system was also normal.

No one case of aorto-caval fistula complicating the ruptured AAA was noticed in our clinic so far, neither in chronic nor acute form.

ACF as a complication of ruptured

AAA was described by Syme in 1831 for the first time. The first attempt of repair of ACF was done by Legman in 1935, but it was unsuccessful. The first successful repair of ACF was done by Cooley in 1954 (4). The survival depends on quick diagnosis and immediate surgery. The common method is endo-aortic venorrhaphy of the defectuous vein. Beside the urgent and adequate treatment of ACF the mortality rate is high (25%) and it is increasing if the ACF is complicated by ruptured AAA to retroperitoneal area (5).

### 4. CONCLUSION

Urgent surgery and fixing the defect, connecting aorta and vena cava, by direct sutures within the aorta followed by ruptured aneurysm repair using tube graft is the adequate way of treatment of ACF. No matter how rare, in any case of ruptured abdominal aneurysm, aorto-caval fistula should always be considered.

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