

Conservative Approach in a 47-Year-Old Male Patient with Incidental Extensive Splenic Arteriovenous Fistula

Recep Erçin SÖNMEZ,^a
Ali Fuat Kaan GÖK,^b
Aykhan ABBASOV,^b
Mehmet İLHAN,^b
Cemalettin ERTEKİN^b

^aDepartment of General Surgery,
İstanbul Medeniyet University
Faculty of Medicine,

^bDepartment of General Surgery,
İstanbul University
İstanbul Faculty of Medicine,
İstanbul, TURKEY

Received: 08.05.2018

Received in revised form: 06.08.2018

Accepted: 08.08.2018

Available online: 05.12.2018

Correspondence:

Recep Erçin SÖNMEZ
İstanbul Medeniyet University
Faculty of Medicine,
Department of General Surgery,
İstanbul, TURKEY
sonmezercin@gmail.com

ABSTRACT Splenic arteriovenous fistula (SAVF) is a rare clinical entity which occurs due to congenital or acquired causes. Among mostly seen etiologies are trauma, splenectomy, splenic artery aneurysm rupture into the veins and vascular degenerations like atherosclerosis and fibrodysplasia. A 47-year-old male patient was brought to our Trauma and Emergency Surgery Department after an in-vehicle traffic accident, he had extensive splenic arteriovenous fistulas (SAVF) identified on his computed tomography (CT) scan with contrast. His management was handled conservatively throughout his hospitalization period until discharge by close follow-up of his hemodynamic parameters and serial clinical evaluations. Splenic arteriovenous fistula was diagnosed by CT angiography. He did not have any complaint at control. Selected patient groups with hemodynamic stability can be followed-up conservatively. By preventing unnecessary interventions, overall morbidity and mortality rates would be less.

Keywords: Incidental; splenic arteriovenous fistula; conservative approach; hemodynamic stability

Splenic arteriovenous fistula (SAVF) is a rare disease which often occurs as a complication of splenic aneurysm. It can also be seen due to a rupture after blunt trauma.^{1,2} The disease mostly manifests itself with abdominal pain, nausea-vomiting and gastrointestinal bleeding, and it causes portal hypertension due to increased blood flow in the splanchnic region.³

Herein we report, a 47-year-old male patient who was brought to our Trauma and Emergency Surgery Department after an in-vehicle traffic accident is discussed. Diffuse splenic arteriovenous fistula (SAVF) was detected in the splenic parenchyme on triple phase CT-angiography, and later on conservative follow-up decision was taken.

CASE REPORT

A 47-year-old male patient was brought to our Trauma and Emergency Surgery Department by an in-vehicle traffic accident statement. His blood pressure was 140/80 mmHg and had an average pulse rate of 90 bpm. He had no history of a known disease nor previous surgery. The patient who had GCS (Glasgow Coma Score) 15/15 was conscious, cooperative and orientated.

Later on, fluid resuscitation with crystalloid fluids was given to replace possible intravascular volume depletion. On his physical examination; there was abrasion on extremities, tenderness on the left shoulder and right hips, and ambiguous tenderness on the left upper abdomen. Due to multiple traumas, he had been consulted by related clinical branches.

FAST was performed by the radiologist on duty in the resuscitation room. Minimal fluid was seen around the perisplenic area. Routine blood tests together with urine analysis was sent. His hemoglobin/hematocrit values were seen as 14/41 g/dl. He was evaluated as hemodynamically stable. IV contrast-enhanced thorax and abdominal CT was evaluated by the radiologist as; “Left 3-5-6 rib fracture + left scapula fracture, grade 2 splenic laceration, right hip posterior protrusion and right acetabulum fracture” (Figure 1).

The patient was hospitalized for further detailed examination and treatment. There was no decrease in control Hb/htc values, and his clinical course did not deteriorate throughout the follow-up period. On the fourth day of hospitalization, control triple-phase CT angiography was performed. It was evaluated by radiologist as; “Appearance of splenic grade II infarct and diffuse splenic arteriovenous fistula (SAVF)” (Figure 2). The patient was followed up regularly by the laboratory tests and radiological examinations. The



FIGURE 1: IV contrast-enhanced CT after trauma: Grade II splenic laceration.

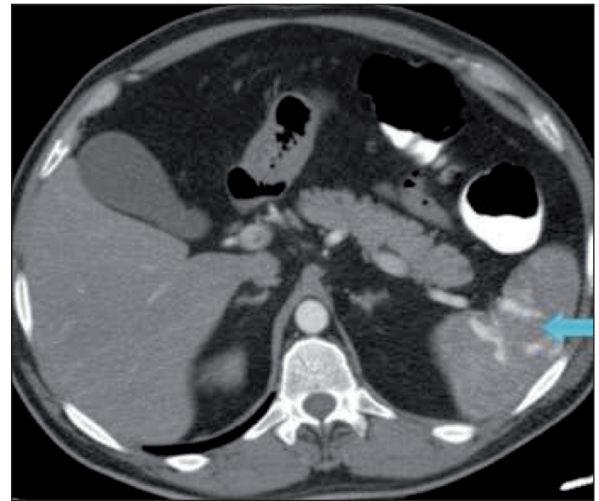


FIGURE 2: Triple-phase CT angiography taken on the 4th day of development-Arterial phase: Common arteriovenous fistulas in the spleen.

case was also discussed at the council of radiologists and surgeons. Since it was thought as an incidental SAVF other than post-traumatic, we decided to follow-up conservatively.

No blood replacement was needed throughout the follow-up, and the patient was clinically stable. At the end of ten days, the patient was discharged with the appointment of CT angiography for 3 months later to be evaluated at control check-up. There was no problem during the long term controls after discharge. On the control CT-angiography; the previous SAVF and the perisplenic fluid appearance had disappeared.

Informed consent was obtained from the patient for being included in the study.

DISCUSSION

Splenic arteriovenous fistula was first reported by Weigart in 1886. They are most frequently encountered secondary to trauma, pregnancy, aneurysm, and fibrodysplastic vascular degenerations.⁴ In this study; we discussed an adult male with extensive splenic arteriovenous fistula (SAVF) which had been discovered incidentally. The diagnosis was made by triple-phase (Arterial, Venous, and Portal) CT angiography; which is accepted as the most sensitive imaging modality for this clinical entity.

It was first described by Hang and colleagues that SAVF occurs as a result of rupture of the splenic artery into the splenic vein due to various etiologies, which indirectly causes portal hypertension due to an increase in splanchnic flow. Among the most common seen symptoms are; abdominal pain, nausea-vomiting, diarrhea, splenomegaly, ascites, and bleeding. Variceal bleeding has the highest morbidity and mortality rate as an infrequent (45%) complication of the splenic arteriovenous fistula. Although, up to 33.5% mortality rate has been reported in the literature for variceal bleeding.^{5,6}

For our case, there was left epigastric tenderness on the physical examination of the abdomen. By doing interval physical examinations throughout the hospitalization period, it had been noticed that abdominal complaints of the patient had decreased within the days. No gastrointestinal bleeding was detected during admission and the follow-up period.

In the literature; excision of the fistula, splenectomy or endovascular interventions are stated as among the treatment options of SAVF [7]. Although the general approach may vary depending on the clinical characteristics of the patient and the experience of the responsible physician and the center, surgical methods are generally associated with higher morbidity and mortality risks compared with minimally invasive methods such as open or laparoscopic when compared with each other.

Close clinical follow-up was performed with detailed observation during the hospitalization period. It was decided by us to handle the management of the patient conservatively relying upon the experience of our institute, since the patient had no deterioration of hemodynamic criteria (blood tension, heart rate, laboratory analysis etc.) and his complaints gradually regressed within days. As a matter of fact, there were no problems in the long term controls performed after his discharge.

The case was evaluated as “incidental” other than a post-traumatic fistula by us. Since the appearance of extensive fistula of the parenchyma

was not correlated with the other findings of the CT which were nearly normal other than a minimal fluid collection around the perisplenic area, and more importantly with the clinical course of the patient. Moreover, it was thought as a congenital fistula, which was there for years probably. So, that was one of the main reasons why we had chosen the non-operative approach for this case instead of surgery or minimal intervention which had to be done without any doubt if this was thought as a post-traumatic situation.

SAVF; is a rare vascular entity which mostly represents itself with abdominal pain, bleeding, and portal hypertension. Since most of these symptoms can be seen also with other disorders, the clinician must be cautious during its management not to miss diagnosis. For experienced, multidisciplinary and with high patient volume centers; most of these patients having SAVF clinic with hemodynamic stability can be followed-up conservatively. By preventing unnecessary interventions, overall morbidity and mortality rates may be less.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Recep Erçin Sönmez, Cemalettin Ertekin; **Design:** Ali Fuat Kaan Gök, Mehmet İlhan; **Control/Supervision:** Cemalettin Ertekin, Mehmet İlhan; **Data Collection and/or Processing:** Recep Erçin Sönmez, Aykhan Abbasov; **Analysis and/or Interpretation:** Ali Fuat Kaan Gök, Mehmet İlhan; **Literature Review:** Recep Erçin Sönmez, Aykhan Abbasov; **Writing the Article:** Recep Erçin Sönmez, Aykhan Abbasov; **Critical Review:** Cemalettin Ertekin, Ali Fuat Kaan Gök; **References and Findings:** Cemalettin Ertekin; **Materials:** Ali Fuat Kaan Gök.

REFERENCES

1. Orrego M, Vargas HE, Balan V, Wells C, Harrison ME, Larson J, et al. Portal hypertension due to a splenic arteriovenous fistula: a case report. *Dig Dis Sci* 2006;51(6):1113-6.
2. Chalasani N, Kahi C, Francois F, Pinto A, Marathe A, Bini EJ, et al. Impaired patient survival after acute variceal bleeding: a multicenter, cohort study. *Am J Gastroenterol* 2003; 98(3):653-9.
3. Cichoż-Lach H, Celiński K, Słomka M, Kasztelan-Szczerbińska B. Pathophysiology of portal hypertension. *J Physiol Pharmacol* 2008;59 Suppl 2:231-8.
4. Garrett HE Jr, Mack L. Coil embolization of spontaneous splenic arteriovenous fistula for treatment of portal hypertension. *Am J Case Rep* 2017;18:386-90.
5. Tun TN, MMed, FRCR and Sundeep Punamiya, MBBS, FAMS. Gastric variceal bleeding precipitated by a mycotic splenic arteriovenous fistula in a cirrhotic patient: radiological diagnosis and endovascular treatment. *Singapore Med J* 2014;55(11):e180-3.
6. Chen B, Tang CW, Zhang CL, Cao JW, Wei B, Li X. Melena-associated regional portal hypertension caused by splenic arteriovenous fistula. *World J Gastroenterol* 2012;18(16): 1996-8.
7. Madsen MA, Frevert S, Madsen PL, Eiberg JP. Splenic arteriovenous fistula treated with percutaneous transarterial embolization. *Eur J Vasc Endovasc Surg* 2008;36(5):562-4.