A pancreatic fistula as a complication of left radical nephrectomy

Grzegorz Zarzycki, Marek Długosz
Department of Urology, County Hospital in Ostrowiec Świętokrzyski, Poland

KEY WORDS
kidney ◗ nephrectomy ◗ pancreatic fistula

ABSTRACT

A case of a 68-year-old patient who underwent left radical nephrectomy by transperitoneal approach due to a kidney tumor is presented. On the 22nd day after the surgery, a retroperitoneal, pancreatic fluid cistern occurred because of pancreatic fistula formation. The treatment, which comprised percutaneous drainage, somatostatin analogs and total parenteral nutrition (TPN), led to a closure of the fistula 6 days after therapy.

INTRODUCTION

Renal cell carcinomas (RCC) make up approximately 3.6% of all cancers in men and 2.6% in women. The gold standard therapy for RCC is transperitoneal radical nephrectomy. In the selected cases tissue-sparing surgeries, as well as laparoscopic surgeries and nephron sparing surgeries are performed. The surgery of a kidney tumor, especially of large-diameter one, is a challenge for a urologist. One should remember about possible complications: intra- and postoperative bleeding, damage to large vessels and neighboring organs, i.e. colon, small intestine, spleen, and the tail of pancreas. A case of a 68-year-old patient, in whom a cutaneous pancreatic fistula was observed postoperatively, is presented. The formation of a fistula is caused by the damage of pancreatic ducts and formation of a canal connecting pancreatic tissue with the cutis. The conservative treatment that was employed led to a closure of the fistula.

CASE REPORT

A patient, S.F. (aged 68, No. of Patient's History 6010), was admitted to the department in February 2008 with the primary diagnosis of a left kidney tumor. Ultrasound examination revealed a tumor of a 6-cm diameter in the central part of the left kidney. Urography was within norm. Computed tomography visualized a tumor of a 7-cm diameter in the central part of the renal cortex and, apart from that fact, was within norm (Fig. 1). In laboratory tests, the creatinine level reached 1.37 mg%. The patient was qualified for transperitoneal radical nephrectomy. Intraoperatively, a large inflammatory infiltration in the retroperitoneal area was observed, which impeded surgical dissection. During a release of the colon's splenic flexure, a massive hemorrhage from the splenic hilus occurred and the decision to perform splenectomy was made. The postoperative period was without complications. The patient received 2 units of packed erythrocytes because of anemization. He was discharged from hospital on the 8th day in a good general condition. The result of pathological examination was as follows: *Carcinoma clarocellulare renis solidum, focal microcysticum NG3. Capsula fibrosa renis, hilus renalis et ureter in margine resectionis sine infiltratione carcinomatosa. Glandula suprarenalis sine laesionibus pathologicus* (No. of pathological examination 919995-920002, NZOZ Department of Pathology, dr Marlena Rylska-Mościcka). On the 22nd day, during the postoperative period, the patient was readmitted presenting with severe abdominal pain. On admission, physical examination revealed meteorism and pain on pressure in the left half of the abdominal cavity. Ultrasound examination showed a cistern of 14-cm diameter at the site of nephrectomy. Computed tomography visualized post-splenectomy and post-left nephrectomy state. In the postoperative site, two liquid areas with smooth walls having connection with each other were observed. The upper one 100x140 mm caused the diaphragm's elevation and atelectasis of the basal segments of the left lung. The lower one 110x145 mm embraced the tail of pancreas. A small amount of liquid was observed in the left pleural cavity. The remaining organs were within norm (Fig. 2).

The patient was qualified for percutaneous drainage of the left retroperitoneal area under the control of ultrasonography and about 1700 ml of clear rosy liquid was collected. The drainage in the following days resulted in the collection of 200-400 ml of liquid per day. The amylase level in the liquid was assayed and it

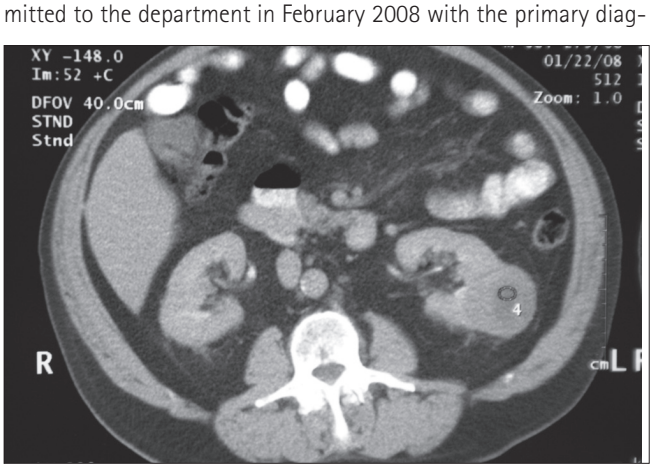

Fig. 1. A tumor of the left kidney.

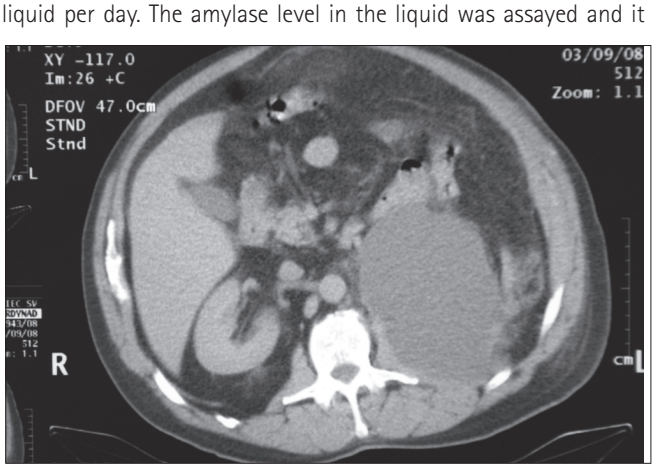

Fig. 2. Pancreatic juice in the left retroperitoneal area.

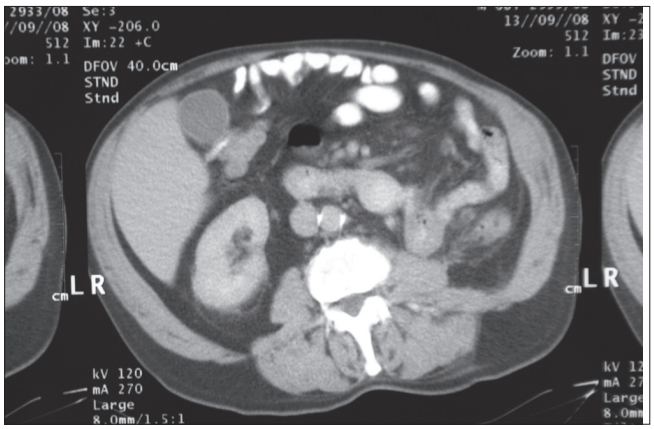

Fig. 3. The abdominal cavity after the treatment of a pancreatic fistula.

reached 24,000 units. A pancreatic cistern was diagnosed. After the introduction of a fat-free diet, a proton pump inhibitor and antibiotic therapy based on the microorganism species diagnosed, the drainage decreased gradually to 100 ml/24 hrs. Then, the general condition of the patient improved significantly, but the drainage remained active. A constant intravenous somatostatin analog was engaged in order to inhibit pancreatic secretion (Somatostatin UCB 6 mg/24 hrs. for 7 days), but the therapy failed to close the fistula. Subsequently, the patient was qualified for total paraenteral nutrition with a single bag and in the sixth day the closure of the fistula was obtained. The drainage system from the retroperitoneal area was removed and oral nutrition was introduced gradually. The patient was discharged in a good general condition. Four months later a panel of control accessory investigations was performed. CT result was as follows (Fig. 3): liver without lesions; post-splenectomy and post-left nephrectomy state; the head and corpus of pancreas were not enlarged; the tail of pancreas was enlarged up to 43mm being heterogeneous; no other abnormalities were detected; results of laboratory tests were within norm. The patient remains under follow-up in the urological out-patients' unit.

DISCUSSION

Pancreatic cutaneous fistulas are rare, but a possible complication of a kidney surgery [1]. The anatomical proximity of the pancreas to the left kidney plays a key role in this matter. The relevant factors are also the size of the kidney tumor and the coexisting inflammatory infiltration as well. The reason of fistula formation is the imperceptible intraoperative damage to pancreatic tissue and opening of pancreatic ducts [2]. The most important in diagnostics is the increase (at least threefold) of amylase level (usually over 20,000) in the liquid collected from the fistula [3]. The exact localization of the fistula may be revealed during the ERCP and then it is predominantly combined with the procedure of Wirsung's duct drainage.

In the treatment, conservative therapy is common as well as more and less invasive methods, which are in favor of inhibition of pancreatic liquid formation and its outflow to the duodenum. A spontaneous closure of the fistula due to the drainage was observed on the 33rd-55th day [2]. In 30-50% of cases conservative treatment is successful, which is based on enabling appropriate outflow of pancreatic liquid (in our case with drain J 9 Fr in the retroperitoneal area), discontinuing oral nutrition, antibiotic therapy based on microorganisms species diagnosed [4], and administering somatostatin analogs, which decrease exoteric secretion of the pancreas [5]. Total parenteral nutrition (TPN) usually turns out to be effective in a conservative therapy of pancreatic fistulas, which proved to be successful in our patient as well (a closure of the fistula on the 6th day since TPN introduction). More invasive methods of treatment are endoscopic ones – sphincterectomy, extension of pancreatic duct, or prosthetic restoration of Wirsung's duct. This is an effective therapy for pancreatic fistulas resistant to somatostatin analogs and TPN [6]. The prosthesis in the lumen of Wirsung's duct enables free outflow of the pancreatic fluid to the duodenum instead of to the canal of the fistula. The time of closure in such a method of treatment is 15-39 days [7]. The endoprosthesis should be changed every 3 months. In some cases a few methods need to be combined simultaneously, e.g. long-acting somatostatin analogs (somatuline subcutaneously 1 dose every 14 days) and prosthetic restoration of the pancreatic duct [7]. If after 6-8 weeks the fistula remains active, surgery is indicated. Usually a drainage surgery is necessary and is most commonly in the form of a fistulojejunostomy [8]. Depending on the localization of the fistula, a resection of the pancreas may be necessary.

CONCLUSIONS

Pancreatic fistula is a rare, but possible complication of a left radical nephrectomy dependent on the anatomical proximity of both organs. The risk of such a complication increases in cases of large tumors and large inflammatory lesions of kidneys and perirenal tissues. In the majority of cases, conservative treatment is successful.

REFERENCES

1. Spirnak JP, Resnick MI, Persky L: *Cutaneous pancreatic fistula as a complication of left nephrectomy.* J Urol 1984; 132 (2): 329-330.
2. Masuda F, Hishinuma H, Ihzuka N: *Pancreatic cutaneous fistula as a complication of left nephrectomy.* Hinyokika Kiyo 1985; 31 (9): 1619-1621.
3. Lampe P: *Chirurgia trzustki (Surgery of the pancreas)* In: Podstawy Chirurgii: Szmidt J, Gruca Z, Krawczyk M, Kużdżał J, Lampe P, Polański J, MP 2006, vol. 1, pp. 991-992.
4. Tunidor Bermudez AM: *Pancreatic fistula after left nephrectomy.* Arch Esp Urol 2005; 58 (7): 682-684.
5. Ramos-De la Medina A, Sarr MG: *Somatostatin analogues in the prevention of pancreas-related complications after pancreatic resection.* J Hepatobiliary Pancreati Surg 2006; 13 (3): 190-193.
6. Dobosz M, Dymecki D, Babicki A et al: *Postępowanie z pooperacyjnymi przetokami trzustkowymi opornymi na leczenie oktreotydem (The management of the postoperative pancreatic fistulas resistant to octreotid therapy).* Lek Wiad 2001; 54: 380-385.
7. Smoczyńska M, Marek I, Dubowik M et al: *Endoskopowe leczenie przetok trzustkowych zewnętrznych (Endoscopic treatment of the external pancreatic fistulas).* Gastr Pol 2007; 14 (3): 191-195.
8. Zhao YF, Wu Y, Sun WR: *Binding fistulojejunostomy for the treatment of external pancreatic fistula.* Zhonghua Yi Xue Za Zhi 2006; 17; 86 (38): 2721-2722.

Correspondence
Grzegorz Zarzycki
8, Przytulna Street
27-400 Ostrowiec Świętokrzyski, Poland
phone: +48 60 505 18 28
grzegorz.zarzycki@gmail.com