TTS 2024

Correction of portal vein stenosis in patients following living donor liver transplantation

Konstantin Semash[1,2], Timur Dzhanbekov[1,2]

1 – National Children's Medical Center, Tashkent, Republic of Uzbekistan
2 – V. Vakhidov Republican Specialized Scientific and Practical Medical Center of Surgery, Tashkent, Uzbekistan

Background

Observation period: October 2021 to December 2023

Object: to evaluate the results of treatment of patients with portal hypertension and liver graft dysfunction that occurred in the long term after living donor liver transplantation against the background of portal vein stenosis.

Materials and Methods

From February 2021 to December 2023, 40 living donor liver transplants were performed at our center.
Among these patients, two (2.5%) developed late-onset clinically significant portal vein stenosis after transplantation.
Also, during this period, we treated 4 more patients who had undergone living donor liver transplantation in other countries with a similar diagnosis. Thus, totally six patients were observed.
Patient data and treatment outcomes were retrospectively analyzed.

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Patients characteristics

Variables	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6
Age, years	42	44	24	17	34	37
Sex	female	male	male	female	male	male
Indication for transplant	HBV	HBV	HBV	Wilson disease	HBV	HBV
Complications after liver transplant	Rejection	Bile stricture	no	no	Bile leakage	no
Time after transplant at admission, months	10	12	9	14	8	14
Clinical presentation of PVS	bilirubinemia, increased ALT and AST levels, ascites, splenomegaly, cytopenia	bilirubinemia, increased ALT and AST levels	bilirubinemia, splenomegaly, cytopenia	ascites, splenomegaly, cytopenia	ascites, splenomegaly, cytopenia	bilirubinemia, increased ALT and AST levels splenomegaly, cytopenia
ALT/AST levels, U/L	134/111	99/113	35/31	39/22	34/30	241/125
Bilirubin level, μmol/L	110	161	214	21	28	99
Immunosuppression	Tacrolimus, mycophenolate, methylprednisolone	Tacrolimus	Tacrolimus, mycophenolate	Tacrolimus, mycophenolate	Tacrolimus	Tacrolimus
Portal vein pressure gradient before plasty, mm. Hg	24	19	18	20	19	23
Portal vein pressure gradient after plasty, mm. Hg	3	2	2	3	1	2
Platelet count (*10^9) before plasty	41	181	86	101	94	50
Platelet count (*10^9) 7 days after plasty	63	183	100	105	97	71
Platelet count (*10^9) 30 days after plasty	110	212	117	199	135	140
Platelet count (*10^9) 90 days after plasty	132	194	218	192	184	197
Complications after balloon plasty/PVS recurrence	no	no	no	no	no	no
LOS, days	6	4	7	6	4	5
Follow up, month	15	14	11	10	10	9

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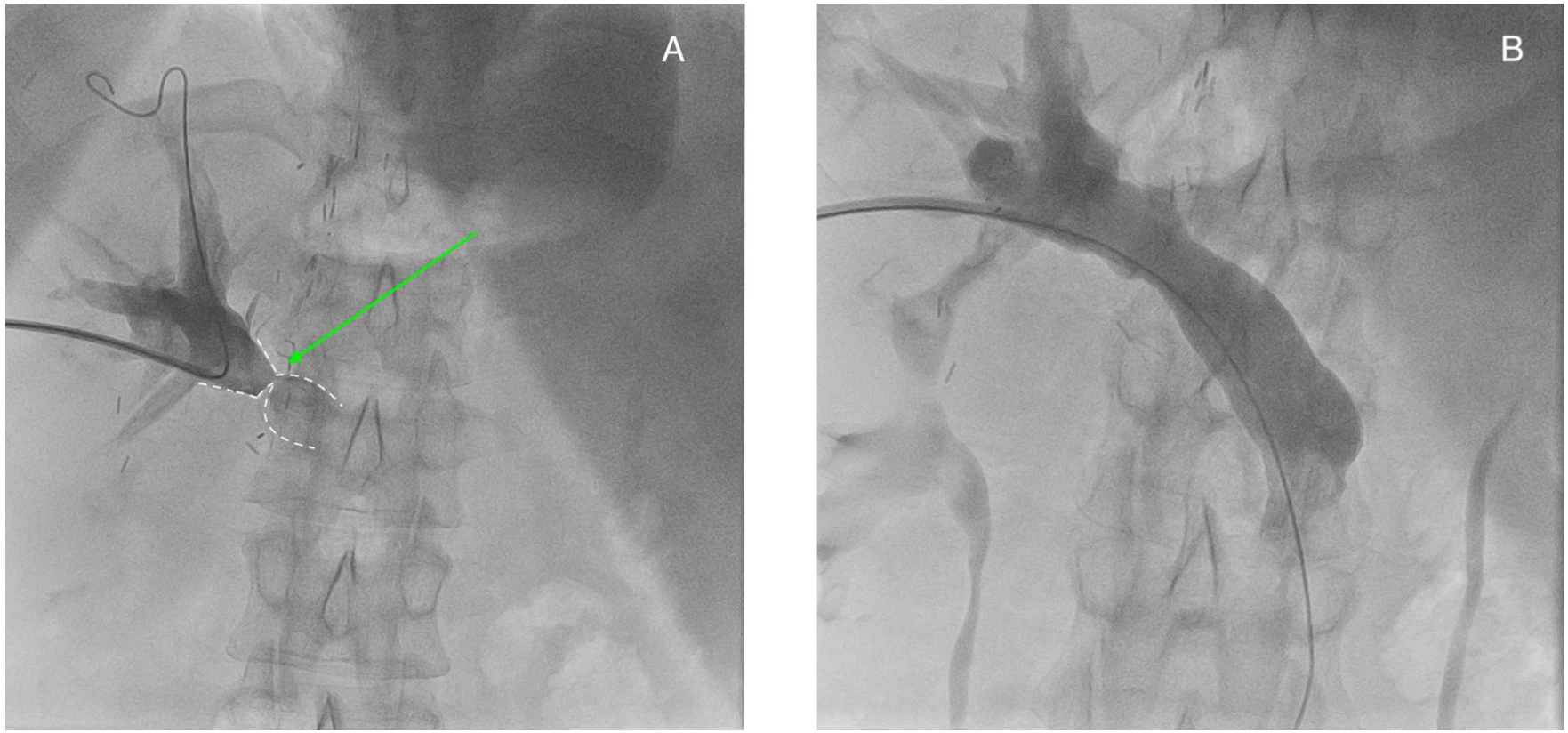
Surgery



Percutaneous transhepatic portography. A – arrow indicates the site of portal vein stenosis. B – effect after balloon angioplasty.

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Results

All patients were treated with percutaneous transhepatic correction of portal vein stenosis with balloon venoplasty. In all cases, an ultrasound-guided percutaneous approach to the portal vein was performed. Balloon venoplasty was performed in all cases, no stents were used. No postoperative complications occurred. Signs of portal hypertension and graft dysfunction regressed after an average of one month of observation. There were no recurrences during 12 months of follow-up.

Conclusion

These case series highlight the importance of considering portal vein stenosis in the differential diagnosis of late-onset portal hypertension or liver graft dysfunction symptoms following liver transplantation. The optimal treatment method is endovascular intervention