TTS 2024

Management of arterial complications following living donor liver transplantation

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

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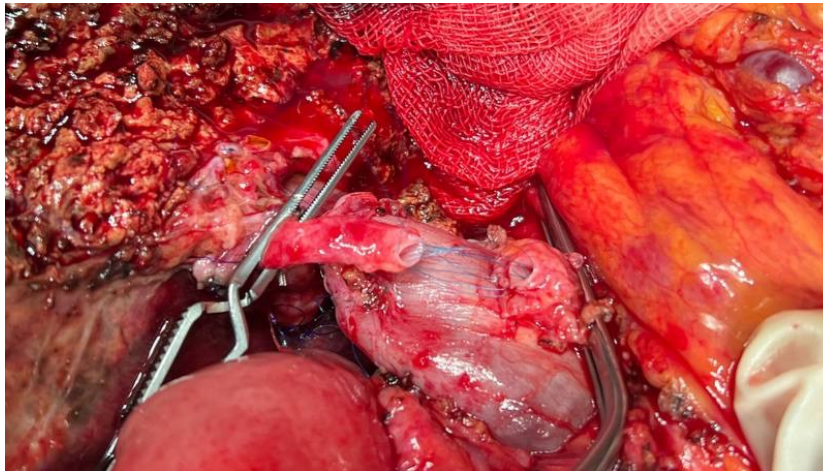
Background

Observation period: October 2021 to December 2023

Object: to evaluate the results of treatment of patients with arterial complications after living donor liver transplantation and assess short-term and long-term outcomes in these patients.

Materials and Methods

40 adult patients with various types of liver cirrhosis underwent right lobe living donor liver transplantation procedure since October 2021 to September 2023 in our center. We assessed vascular complications related to hepatic artery in these patients and long-term outcomes of LDLT.



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Arterial Complications

Total complications, n	7 of 40 (17,5%)
Type of complication, n (%)	
Hepatic artery thrombosis	1 (14.4 %)
Hepatic artery stenosis	3 (42.9 %)
Steal syndrome	3 (42.9 %)
Post-operative day of complication development (range)	
Hepatic artery thrombosis	7 (7)
Hepatic artery stenosis	3 (3)
Steal syndrome	4 (0–7)

Biliary Complications in patients with arterial complications

Types of complications	Values, n (%)
Hepatic artery thrombosis	
Bile leak	1 (2.9%)
Anastomotic stricture	—
Hepatic artery stenosis	
Bile leak	1 (2.9%)
Anastomotic stricture	—
Steal syndrome	
Bile leak	2 (5.8%)
Anastomotic stricture	—
No vascular complications	
Bile leakage	8 (22.9 %)
Anastomotic stricture (late)	2 (5.8 %)

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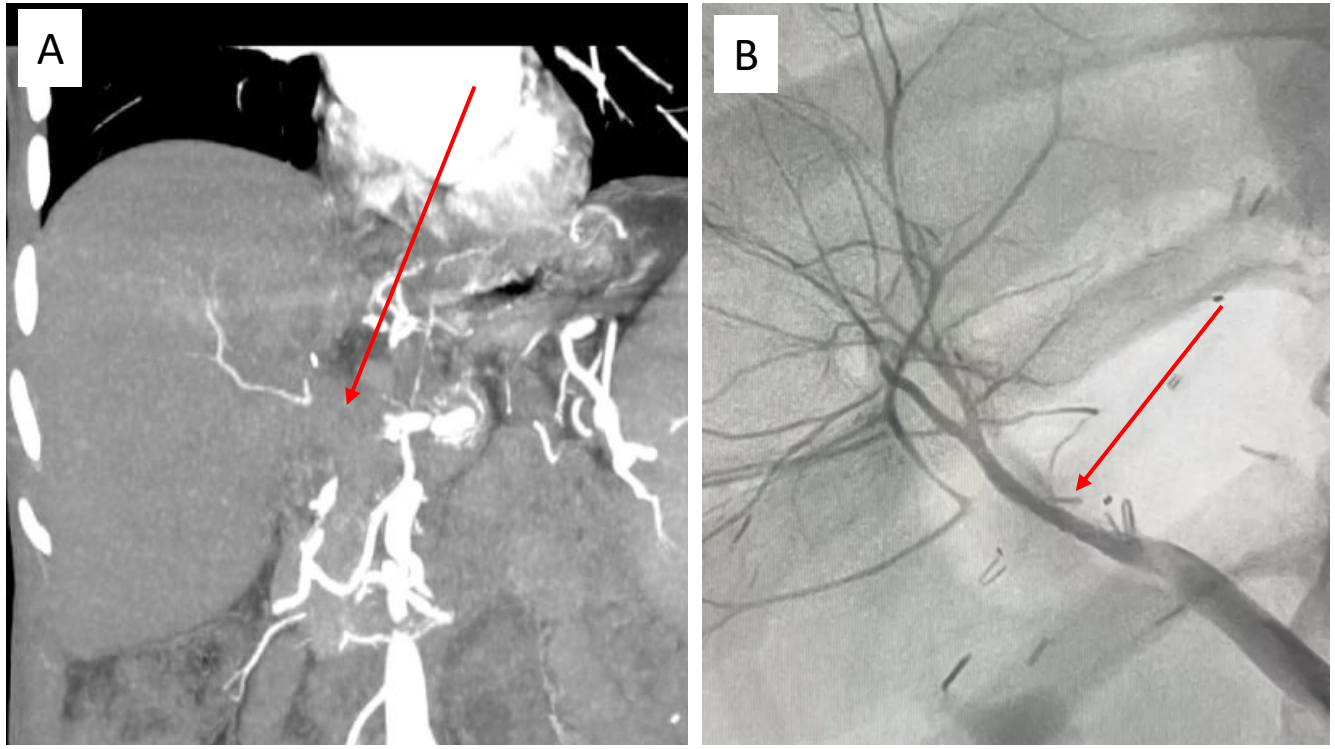
Treatment of arterial complications

Treatment option	Hepatic artery thrombosis	Hepatic artery stenosis	Steal syndrome
Open surgery, n			
SA ligation			1
Endovascular correction			
Balloon angioplasty		3	
Stenting	1		
SA embolization			2



A – arrow indicates the site of hepatic artery thromposis
B – arrow indicates the site of the stent placement

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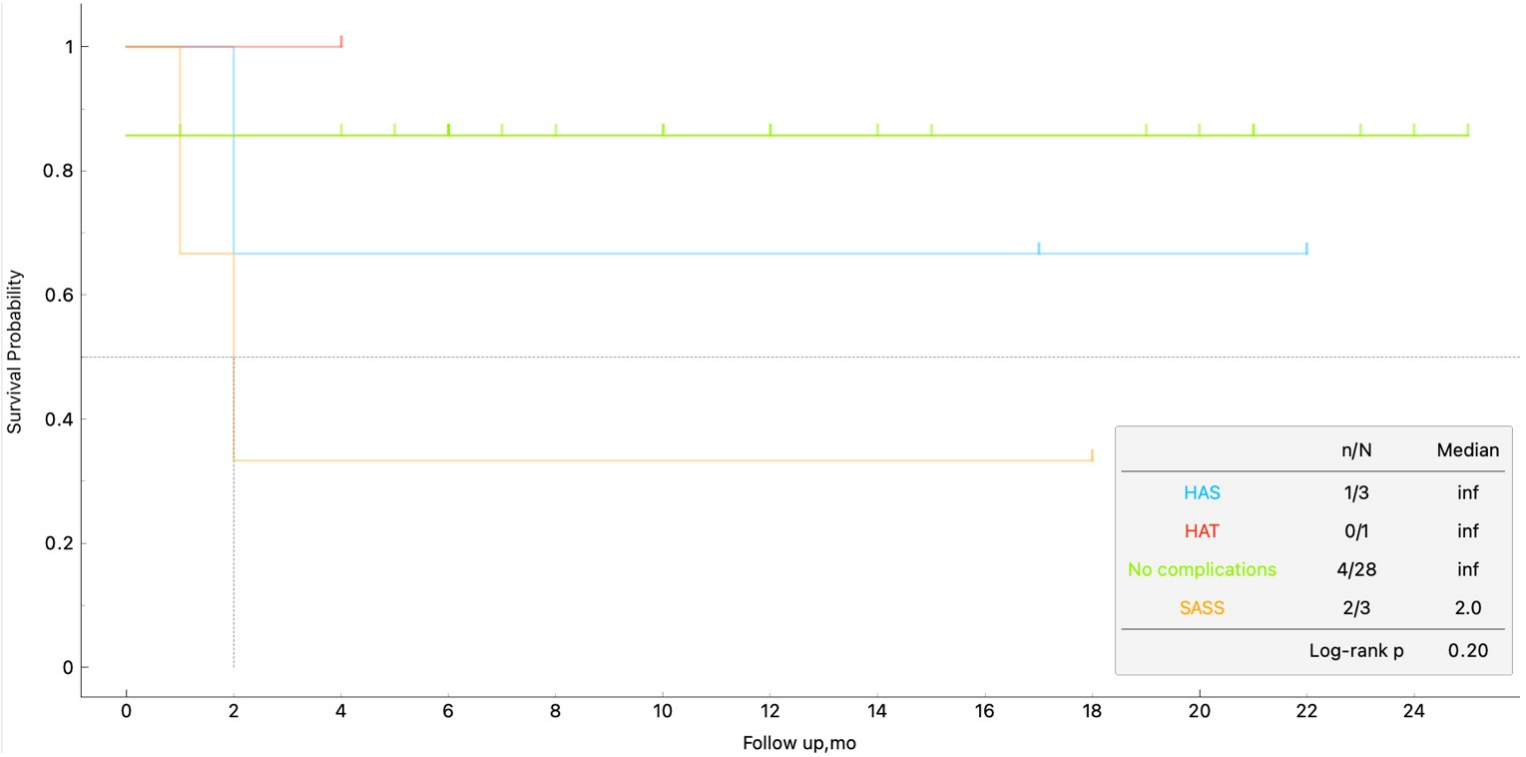
Patients survival



Overall survival was 80% at 25 months of follow-up. In the group of patients with liver graft artery stenosis, the survival rate was 66.7%, and in the group of patients with steal syndrome - 33.3%. No deaths were observed among patients with liver graft arterial thrombosis. The survival rate of patients without arterial complications was 85.7%.

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Results

7 of 40 patients (17,5%) had vascular complications related to the hepatic artery. Of them, there was 1 (14.4%) case of hepatic artery thrombosis, 3 cases of hepatic artery stenosis (42.8%) and 3 cases (42.8%) of splenic artery steal syndrome. In 6 cases we performed endovascular treatment. 1 patient required open surgery. The observation period was 25 months. During the observation period, 3 patients who had arterial complications died. Cases of death were not related to vascular complications. Survival in group of patients without arterial complications was 86.2%.

Conclusion

Arterial complications can lead to severe graft dysfunction and even graft loss. Major tools for early detection and rapid restoration of arterial flow are DUS and endovascular intervention with good long-term results.