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Migration of a transjugular intrahepatic portosystemic shunt stent towards the pulmonary artery

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- Alberto Gómez Gómez: conceptualization and writing of the original draft.
- Cristina Espuche Jiménez: conceptualization and writing of the original draft.
- Manuel Romero Martínez: conceptualization and writing of the original draft.
- Germán Morales López: Resources (provision of imaging tests and editing).
- Lorena Tudela Quiñonero: Resources (provision of imaging tests and editing).

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Keywords: Transjugular intrahepatic portosystemic shunt. Stents. Pulmonary artery.

Abbreviations list:

- TIPS: Transjugular Intrahepatic Portosystemic Shunt.
- CT: Computed Tomography.

Abstract: We present the case of a 73-year-old male, recipient of a liver transplant a year ago, with migration of a "Be-Graft" stent used in a pre-transplant transjugular intrahepatic portosystemic shunt towards the pulmonary artery. The stent was incidentally discovered via imaging tests during hospitalization due to acute cholangitis.

Clinical Case Report:

We present the case of a 73-year-old male, with liver cirrhosis secondary to alcohol consumption, who received a transjugular intrahepatic portosystemic shunt (TIPS) in June 2023 due to a variceal bleeding refractory to endoscopic treatment. A "Viatorr" stent extended with a "Be-Graft" was implanted. On February 2024, he received a liver transplant.

In June 2024, the patient was hospitalized due to acute cholangitis, and the "Be-graft" stent was discovered incidentally via X-ray image of the thorax. Reflectively, the stent was present in the right hemithorax following the day the TIPS was placed, probably in the inferior vena cava (Figure 1.1). Two days later, another X-ray showed the stent in the left hemithorax (Figure 1.2) and, via CT, its location was verified to be the left pulmonary artery, without any signs of thrombosis present. (Figure 1.3 and 1.4).

Discussion:

The treatment of choice for upper gastrointestinal bleeding due to esophageal varices is the administration of vasoactive drugs such as somatostatin or terlipressin and endoscopic band ligation. In cases of persistent bleeding, TIPS should be considered as

rescue therapy [1].

Balloon tamponade and the endoscopic placement of a fully-covered self-expanding metal esophageal stent are alternative therapeutic options in case of severe variceal bleeding if failure banding application and the usage of vasoactive drugs occurs [1, 2]. However, according to guidelines, the usage of TIPS should be considered as the first option [1].

TIPS stent migration is rare, but it can lead to arrhythmia, thrombosis, valvular injury or cardiac rupture in case of superior stent migration [3]. Furthermore, the migration of the device may complicate subsequent liver transplantation [3].
Regarding the management of the stent migration, while numerous techniques for endovascular salvage have been described, surgical removal of migrated stents remains a definitive treatment option. [3]. In this case, the conservative approach was taken, and the patient remains asymptomatic to this day.

There are few published cases of TIPS stent migration towards the pulmonary artery [4], and none whatsoever with “Be-Graft” stents placed as TIPS extensions. Its eventual treatment asks for benefits and risks balancing to prevent unnecessary damage.

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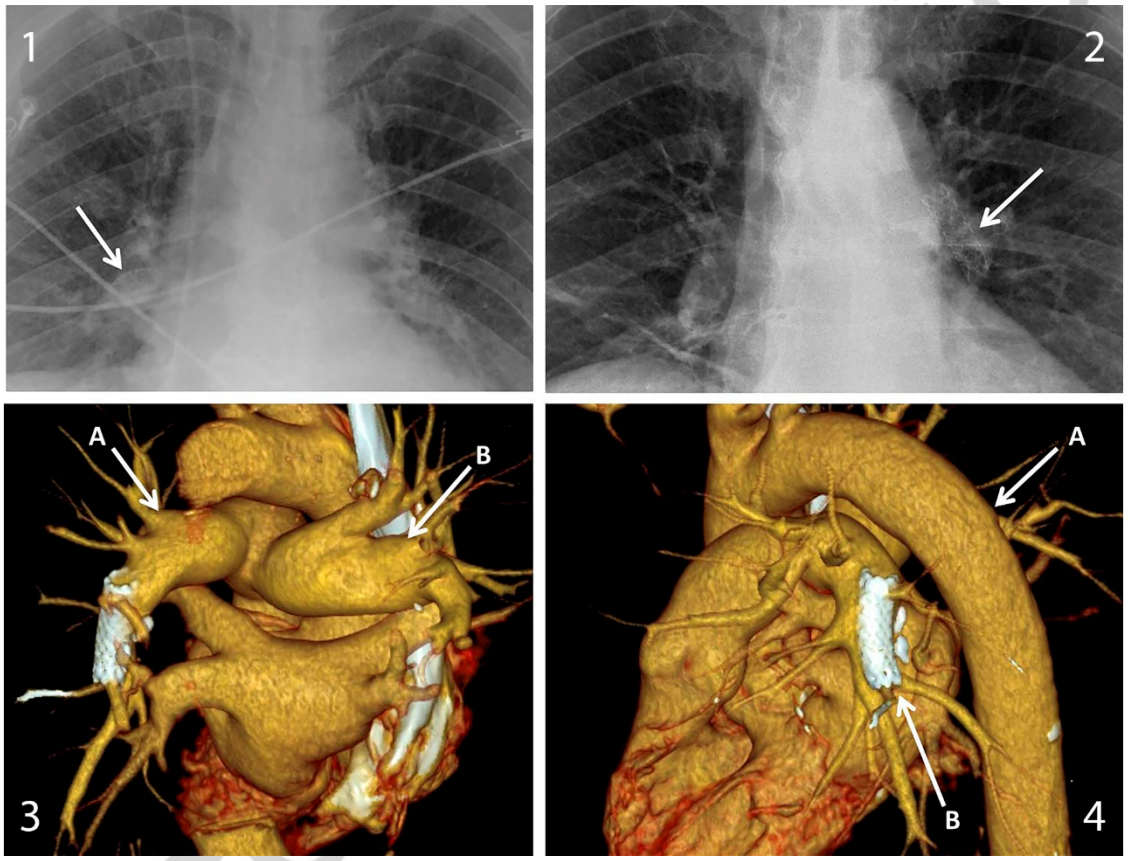

Figure 1:

1. Chest X-ray: Stent in the right hemithorax, probably in the inferior vena cava, 1 day after TIPS placement (arrow).

2. Chest X-ray: Stent in the left hemithorax, 2 days after TIPS placement (arrow).

3. CT with vascular reconstruction: Posterior image with aorta subtraction. A, right pulmonary artery; B, left pulmonary artery with displaced stent/prothesis.

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4. CT with vascular reconstruction: Left oblique image. A, aorta; B, stent in the left pulmonary artery.