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## Case Report

### COMMON BILE DUCT RECONSTRUCTION BY A GREAT SAPHENOUS VEIN GRAFT- CASE REPORT

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#### ABSTRACT

**Introduction:** The purpose of the report is to present a new, uncommon procedure for common bile duct reconstruction. **Presentation of the case:** The great saphenous vein was used for reconstruction as a venous graft. Also, we made a review of the available literature and found only a few similar case reports and several experimental studies on animals. **Discussion:** The reconstruction of the common bile duct had been rarely used. There are complications and benefits described. Making a reconstruction in this way often requires using an intraluminal stent. **Conclusion:** Venous graft reconstruction can be considered as a successful way for reconstruction when is performed with placing the removable or biodegradable stent.

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## INTRODUCTION

Reconstructive surgery of the extrahepatic biliary tree is often needed in patients with iatrogenic bile duct injury, strictures, or malignant or benign tumors.[1]

The ideal reconstruction procedure for traumatic defects of the bile duct should be technically simple and should preserve both the physiological passage of bile and the sphincter of Oddi.[2] In case of small biliary lesions repair combined with a T-tube placement is a possible solution. Also there has been described the primary laparoscopic repair, as well as gallbladder flap for reconstruction in a study on pigs. Otherwise, anastomosis between the biliary tree and the intestinal tract as a hepaticojejunostomy or choledochojejunostomy is a common procedure.[1]

There are reports about the successful use of the biosynthetic absorbable grafts and silicone tubes.

Since the year 1953. there have been experimental studies about the vascularized venous graft reconstructions of the common bile duct (CBD). Autologous jugular vein, great saphenous vein, femoral vein and cephalic antebrachial veins are used as grafts.

We report our experience with the common bile duct reconstruction with a great saphenous vein graft.

#### Presentation of case

A 51 year-old-women was admitted to the Department of Surgery, presenting with abdominal pain, nausea, and vomiting. Twenty days before admission she had pain in the upper right abdominal part and in last two days she presented with jaundice.

The patient had no other comorbidities or prior surgical procedures.

Laboratory blood tests showed hyperbilirubinemia with high levels of total bilirubin 199.30  $\mu\text{mol/l}$  (normal 0-14  $\mu\text{mol/l}$ ), direct bilirubin 156.30  $\mu\text{mol/l}$  (normal 0-5  $\mu\text{mol/l}$ ), and indirect bilirubin fraction 43.00  $\mu\text{mol/l}$  (0-14  $\mu\text{mol/l}$ ). Also the level of alkaline phosphatase was high as a sign of biliary tract obstruction 270 U/l (normal 50-136 U/l).

Abdominal computed tomography (CT) revealed a great calculus in the gallbladder fundus as well as dilatation of intrahepatic and proximal extrahepatic bile ducts. The CBD was without clear differentiation in the distal part.

After the initial diagnostic evaluation differential diagnosis of the CBD obstruction was set, so we performed a magnetic resonance cholangiopancreatography (MRCP) which confirmed the CBD calculosis.

**Surgical technique:** We performed the right subcostal incision to open the abdominal cavity. Exploration of the hepatoduodenal ligament revealed fibrosis and defect in the

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distal part of CBD due to great calculus incorporated in the CBD wall. We carried out the classical cholecystectomy and made access to the distal part of CBD. After the extraction of calculus we respected the distal part of the duct which had been destroyed.

The great saphenous vein was prepared and dissected from the left leg and used as a venous autologous graft. (Figure 1.) The reconstruction of the proximal and distal part of the CBD was addressed in one layer, with polypropylene 5-0 interrupted sutures, without invagination of the venous graft in the CBD. (Figure 2.)



**Figure 1** Preparation of the great saphenous vein graft



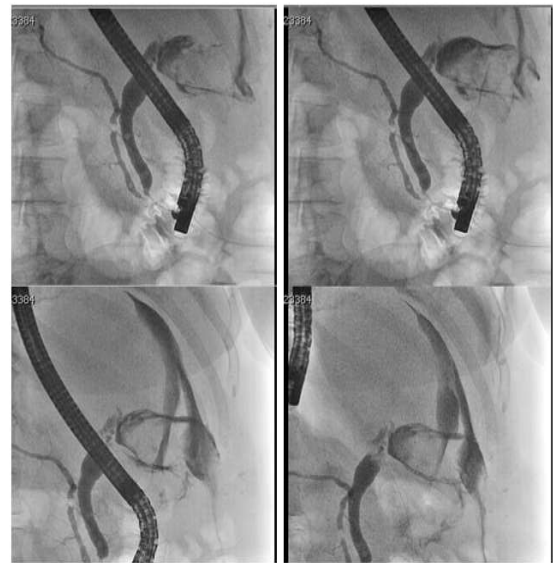
**Figure 2** Performing the common bile duct reconstruction with the venous graft

On the third postoperative day, laboratory tests revealed an increase of the serum bilirubin levels. Since the patient was with the well general condition and had no any symptoms we performed the endoscopic retrograde cholangiopancreatography (ERCP) which revealed stenosis of the venous graft. During the ERCP removable stent was placed into the stenosed graft. (Figure 3.)

On the thirteenth postoperative day, the patient had undergone the revision operative treatment due to fever, abdominal pain and intraabdominal fluid collection. Inflammation parameters, white blood cells level and C-reactive protein in laboratory tests were increased more than double.

During the revision operative procedure, we revealed the biliary fistula and complete stenosis of the proximal part of the

graft. The graft was extracted and biliary enteric drainage was addressed with choledochojejunal reconstruction. (Figure 4.)



**Figure 3** The ERCP with placing the intraluminal removable stent



**Figure 4** Choledochojejunal anastomosis performed during the revision operation

## DISCUSSION

Hepaticojejunostomy is the standard technique for the reconstruction of common bile duct lesions although the technique itself is major surgery with a complication rate up to 30%. [3]

Biliary-enteric drainage during the common bile duct reconstruction may lead to the reflux of pancreatic juice and intestinal contents, further to cholangitis and cholangiocarcinoma. [1]

Due to prior surgical procedures or present inflammation, a standard reconstruction is not always possible to perform so venous graft reconstruction was described as a successful solution. [3]

The authors report that an autologous vein graft can be successfully used to correct a CBD deficit contingent on accurate microsurgical technique, immediate stenting, and rapid graft vascularization. [4]

The study about the reconstruction of the common bile duct with a jugular venous graft was set on animal model. The study

showed that the group of animals with venous interponate which had been endoluminally stented all survived with a good general condition. The postoperative period in animals with venous graft without stent was complicated with biliary leakage and biliary peritonitis as well as high-grade stenosis of common bile duct and biliary cirrhosis.[5]

Bile does not have the capacity for clot formation so it is expected the bile leakage through the stitch canals.[1]

The use of the structures that are not prepared for the low pressure of the biliary tree such as vein grafts or vascular prostheses leads to narrowing due to fibrosis and a reduction in a diameter. Some authors try to resolve this situation with stent placement. Several cases have been reported with therapeutic success but even so, this technique requires later stent extraction when it is not absorbable and there is also the risk of stent migrations with later narrowing. [6]

In our case report, we placed the stent on the third postoperative day and had to perform the choledochojejunal anastomosis due to biliary leak. We believe that placing the intraluminal stent during the operative procedure is optimal solution.

## CONCLUSION

Venous graft can be a successful way for CBD reconstruction if it is performed with temporary removable intraluminal stent or stent which is bio-degradable. Even though it is rarely performed this can be an interesting alternative to the biliodigestive anastomosis. Further experimental studies are necessary for definitive long term results with regards to bile duct diameter and surrounding fibrosis.

## Conflict of interest

The authors declare that there is no conflict of interest for submitting or publishing the manuscript.

## References

1. Christensen M., Laursen HB., Rokkær M., *et al.*: Reconstruction of the common bile duct by a vascular prosthetic graft: an experimental study in pigs. *J Hepatobiliary Pancreat Surg.*, 2005, 12:231-234
2. Heistermann HP, Palmes D, Stratmann U., *et al.*: A new technique for reconstruction of the common bile duct by an autologous vein graft and a biodegradable endoluminal stent. *J Invest Surg.*, 2006, 19(1):57-60
3. Biglari M., Van der Bussche D., Vanlangenhove P.: Reconstruction of a common bile duct injury by venous bypass. *Acta Chir Belg.*, 2013, 113(4):308-10
4. Li JY., Zhang F., Moon W., *et al.*: Biliary tract reconstruction using an autologous vein graft in rats. *J Reconstr Microsurg.* 2000, 16(1):51-5
5. Heistermann HP., Palmes D., Hierlemann H., *et al.*: Reconstruction of bile duct lesions by an autologous vein graft and a bio-degradable endoluminal stent in an animal model: technique and clinical impact. *Zentralbl Chir.* 2003, 128(11):952-7
6. Napolitano DA., Xavier RB., Sambuelli GM., *et al.*: Temporary replacement of the common biliary duct by a silicone tube as an urgent repair of iatrogenic injury. Experimental study in pigs.

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