



CASE REPORT / ПРИКАЗ БОЛЕСНИКА

Migration of biliary endoprosthesis – case report and literature review

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SUMMARY

Introduction The most common indications for placing a biliary stent are benign and malignant diseases that interfere with the normal flow of bile through the extrahepatic bile ducts. This procedure carries the risk of developing early and late complications.

Case outline We present a case of a 63-year-old female patient admitted to our hospital for additional diagnostics and treatment. At admission the patient reported the onset of the following symptoms several days prior to hospitalization: severe abdominal pain, predominantly in the upper quadrants, nausea, vomiting, and icterus. With the initial idea of carrying out non-surgical treatment of this condition, the patient was referred for endoscopic retrograde cholangiopancreatography for the purpose of endoscopic calculi extraction. However, due to technical difficulties, the aforementioned procedure was not carried out. Instead, upon endoscopic papillotomy, a plastic biliary stent was placed. The second day after the procedure, the patient reported passing dark stools. After that, an esophagogastroduodenoscopy was performed, which revealed a biliary stent in the duodenum, but without active bleeding. As part of the same procedure, the biliary stent was removed, and the next day the patient underwent surgical treatment.

Conclusion In order to prevent and reduce the incidence of adverse effects and complications, special caution should be applied when performing the procedure. It is even more important to timely recognize the occurrence of complications and to treat them promptly, in order to achieve the best treatment outcomes possible.

Keywords: biliary stent; duodenum; procedure; complications

INTRODUCTION

One of the significant complications that may occur after endoscopic retrograde cholangiopancreatography (ERCP) and biliary stent (BS) placement, is stent migration. In current literature, this complication has been described in 5–10% of the cases [1]. The most common indications for the placement of the BS are benign and malignant diseases which obstruct the normal flow of bile through extrahepatic bile ducts. This procedure carries the risk of the development of early complications, such as bleeding, pancreatitis, cholangitis, and perforation, as well as the risk of the occurrence of delayed (late) complications, such as stent migration and late perforation [2, 3].

The aim of our study is to present a rare case of early BS migration. We also present the endoscopic resolution of the said complication, as well as the definitive treatment and the treatment outcome.

diagnostics and treatment. Her medical records showed that she had been surgically treated 15 years earlier, when cholecystectomy had been performed, as well as that she was being treated for hypertension. At admission, the patient reported the onset of the following symptoms several days prior to hospitalization: severe abdominal pain, predominantly in the upper quadrants, nausea, vomiting, and jaundice – icterus. Upon clinical examination and laboratory test analyses, which showed elevated inflammation markers (leukocytes: $14 \times 10^9/L$, C-reactive protein: 87 mg/L, as well as a total bilirubin level of 245), magnetic resonance imaging (MRI) of the abdomen with magnetic retrograde cholangiopancreatography (MRCP) was performed, which verified diffuse dilatation of the bile ducts, as well as calculi in the common bile duct (Figure 1).

With the initial idea of carrying out non-surgical treatment of this condition, the patient was referred for ERCP for the purpose of endoscopic calculi extraction. However, due to multiple large stones, the aforementioned procedure was attempted but not carried out. Instead, upon endoscopic papillotomy, a 10-French plastic BS was placed. A second ERCP attempt was planned within three months. After the procedure, the

CASE REPORT

We present the case of a 63-year-old female patient admitted to our hospital for additional

Received • Примљено:
November 13, 2022

Revised • Ревизија:
April 5, 2023

Accepted • Прихваћено:
April 6, 2023

Online first: May 3, 2023

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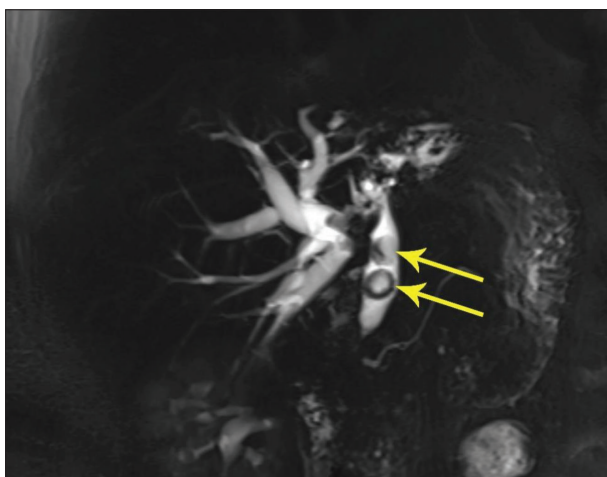


Figure 1. Preoperative magnetic resonance imaging of the abdomen; stones in the main bile duct are marked with yellow arrows



Figure 2. Esophagogastroduodenoscopy finding with a migrated biliary stent in the duodenum

patient was feeling well. However, on the second day after ERCP, the patient reported passing a dark stool, which had the hue of coffee dregs. Examination verified a dark stool, upon which esophagogastroduodenoscopy (EGD) was performed, which revealed the BS in the duodenum, however, without active bleeding (Figure 2). Within the same procedure, the BS was removed, while the patient was surgically treated on the following day, whereby a biliary bypass was performed, i.e., Roux-en-Y hepaticojejunostomy.

The patient was discharged from hospital to recover at home on the fifth postoperative day, while the follow-up MRI and MRCP, upon six months, showed a normal finding. The patient currently still comes in for regular follow-up.

All the procedures performed involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

DISCUSSION

It has been 40 years since Soehendra and Reynders-Frederix first described the placement of a BS into the common bile duct, which has become an alternative procedure for patients who are not eligible for surgical treatment, in many benign and malignant diseases. In most cases, the placement of the BS is free from complications; however, a certain percentage of complications is unavoidable. The most frequent complications range from stent migration, intestinal lesions, to complications with a lethal outcome [4, 5].

Distal migration of the BS represents the most frequent complication, as well as the most frequent cause of the development of further complications. According to the data from current literature, its incidence is around 6%. The duodenum is the localization with the highest incidence of lesions, although perforation occurs in only 1% of the cases [6, 7]. Extrahepatic stent migration is very

rare, but pleural effusion, bronchobiliary fistula, biliary pneumonitis, hepaticogastric fistula, and abdominal wall abscess have been reported after stent migration through the liver capsule [8, 9, 10].

In most documented cases, late BS migration was reported, and it usually occurred weeks or even months after the procedure. Early migration, such as the one we have presented in our case, is a rare occurrence [11].

In our patient, common bile duct was dilated, with a maximum diameter of 17 mm. In the current literature, possible risk factors for BS migration have been described, such as common bile duct diameter > 10 mm; time elapsed since stent placement > one month; stent of a greater diameter; performing endoscopic sphincterectomy prior to stent placement, etc. [12]. In our case, the patient had undergone endoscopic papillary sphincterotomy before the occurrence of bile duct stent migration. Endoscopic sphincterotomy before stent placement and a long BS are considered risk factors for migration of the distal part of the stent rather than its proximal part [13].

The most frequent signs and symptoms following BS migration and the possible development of further complications (such as intestine perforation and the like) include abdominal pain, the elevation of inflammation markers in laboratory test results, and the elevation of amylase levels. However, the elevation of inflammation markers in laboratory test results and the elevation of amylase levels may be evidence of acute pancreatitis, which is yet another possible complication [12, 14].

In the case report that we present, migration of the BS into the duodenum occurred within the first 48 hours of placement, with non-specific symptomatology. After the occurrence of a dark stool, EGD and stent removal was indicated.

The diagnostics, in such cases, comprises the analysis of laboratory parameters, the clinical presentation, the present symptomatology, the findings of abdominal computerized tomography, as well as repeated EGD [14].

In our case, the BS was not the option of first choice, i.e., it was placed as a temporary solution, upon unsuccessful

endoscopic treatment, whereby surgical treatment was the only remaining option for further treatment and resolution of the complications that had developed.

The treatment of complications can be surgical or non-surgical, depending on the previous indication for the placement of a BS, as well as on the degree of the complications that occur. Surgical treatment is performed when, even after the removal of the migrating stent, the status is such that it cannot be resolved endoscopically, or when the BS has previously been placed as a temporary solution. Non-surgical treatment involves endoscopic BS removal and further conservative treatment [14, 15].

The placement of a BS is a definitive or temporary treatment option for most benign and malignant diseases of the biliary tree. Although this is mostly an efficient and safe method, it still carries with it certain risk factors for the development of complications. In order to prevent and reduce the incidence of adverse effects and complications, special caution should be applied when performing the procedure. It is even more important to timely recognize the occurrence of complications and to treat them promptly, in order to achieve the best treatment outcomes possible.

Conflict of interest: None declared.

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Мигрирајућа билијарна ендопротеза – приказ болесника и преглед литературе

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САЖЕТАК

Увод Најчешће индикације за постављање билијарног стента су бенигне и малигне болести које ометају нормалан проток жучи кроз екстрахепатичне жучне канале. Ова процедура носи ризик од развоја раних и касних компликација.

Приказ болесника Представљамо случај 63-годишње болеснице која је примљена у нашу болницу због додатне дијагностике и лечења. На пријему је болесница навела тегобе које су почеле неколико дана пре хоспитализације: јак бол у стомаку, претежно у горњим партијама, мучнина, повраћање и иктерус. Првобитна идеја је била спровођење нехируршког лечења. Болесница је упућена на ендоскопску ретроградну холангиопанкреатографију ради ендоскопске екстракције камења из главног жучног вода. Међутим, због техничких потешкоћа, наведени поступак није спроведен.

Уместо тога, након ендоскопске папилотомије, постављен је пластични билијарни стент. Другог дана после процедуре, болесница је пријавила да има тамну столицу. Након тога је урађена езофагогастроуденоскопија, која је открила билијарни стент у дуоденуму, али без активног крварења. У оквиру истог поступка уклоњен је билијарни стент, а сутрадан је болесница подвргнута хируршком лечењу.

Закључак Да би се спречила и смањила инциденца нежељених ефеката и компликација, при извођењу процедуре пласирања билијарног стента потребан је посебан опрез. Још важније је благовремено препознати појаву компликација и благовремено их лечити, како би се постигао што бољи исход лечења.

Кључне речи: билијарни стент; дуоденум; процедура; компликације