COIL MIGRATION FOLLOWING INTRAVASCULAR EMBOLIZATION OF HEPATIC ARTERY ANEURYSM AS A CAUSE OF life-threatening OBSTRUCTIVE JAUNDICE – CASE REPORT

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Authors present a case of a 75-year old woman who developed obstructive jaundice caused by migration of an embolization coil. Following ERCP during which the coil and surrounding biliary deposits were removed, the patient was discharge home. 7 months earlier the patient had undergone an elective cholecystectomy. Immediately after the procedure the patient was diagnosed with hemobilia caused by an aneurysm of the right hepatic artery. Endovascular procedure was performed and 3 embolization coils were implanted into the right hepatic artery.

Key words: obstructive jaundice, embolization coils

Hemobilia, i.e. bleeding into biliary ducts, is a rare cause of gastrointestinal bleeding. Hemobilia was described for the first time in 1654 by Francis Glisson. In 1871 Quincke reported a characteristic triad of symptoms (pain, jaundice and gastrointestinal bleeding) thereafter referred to as Quincke’s triad. The term “hemobilia” was introduced by Sandblom in 1948 in a paper called “Bleeding into biliary ducts caused by injury – posttraumatic hemobilia”. In the 1970’s Walter used endovascular embolization. This method is currently widely used in the treatment of most cases of hemobilia (1).

The most common causes of hemobilia in developed countries include: hepatic injury, iatrogenic complications (liver biopsy, percutaneous cholangiography, percutaneous drainage of biliary ducts, endoscopic instrumentation of biliary ducts, complications of laparoscopic and open cholecystectomy), liver and biliary duct tumors, aneurysms of hepatic arteries, liver abscesses, bile duct lithiasis. Parasitic infections, e.g. ascaris infections, are common causes of biliary duct hemorrhage in Africa and Asia (2). Endovascular embolization of bleeding blood vessels is a safe and effective method of correction of bleeding into bile ducts.

Authors present a case of a 75-year old female patient who developed a severe obstructive jaundice 7 months after the procedure as a result of migration of platinum coils, used to embolize an aneurysm, to the common bile duct. We did not find such complication of endovascular obliteration of an aneurysm of hepatic artery in the international literature.

CASE REPORT

A 75-year old woman, MM, on 13.05.2009 underwent an elective open cholecystectomy and biliary duct revision with removal of concrements and Kehr’s drainage due to cholecystolithiasis and choledocholithiasis in one of the hospitals in Łódź. During the operation a marked bleeding occurred from the region of hepatic hilum and was controlled. After ap-
proximately one hour the patient underwent reoperation due to massive hemorrhage into the peritoneal cavity. Bleeding from the region of hepatic hilum was controlled once again. Further postoperative period was uncomplicated. The patient was discharged home on 27.05.2009. After 8 days the patient was readmitted to the department of surgery due to symptoms of massive upper gastrointestinal bleeding. Gastroscopy was performed but did not demonstrate any source of bleeding. The patient underwent an operation in an urgent setting. Gastroscopy was performed but did not demonstrate any source of bleeding. After the operation and transfusion of packed red blood cells, the patient developed pronounced skin yellowing. Due to recurrence of bleeding, on 15.06.2009 the patient was transferred to Clinic of Gastroenterological, Oncological and General Surgery, Medical University in Łódź where she underwent gastrofiberoscopy that demonstrated a blood clot in the papilla of Vater. No other source of bleeding was found in the upper gastrointestinal tract. Since hemobilia was suspected, angiography was performed, demonstrating contrast extravasation in the region of bifurcation of the right hepatic artery with very rapid flushing of the contrast agent from the forming pseudoaneurysm. Selective catheterization of the right hepatic artery was performed and an attempt was made to embolize the site of extravasation but only small decrease of contrast inflow to the aneurysm was achieved. Spasm of the right hepatic artery occurred immediately after the extravasation site during the procedure. Reinjection of a contrast agent demonstrated efficient collateral circulation – branches of the right hepatic artery above the aneurysm filled from the left hepatic artery above the aneurysm filled from the left hepatic artery. A decision was made to occlude the right hepatic artery with a coil MicroPlex 18 6 mm x 12 cm. Follow-up angiography performed after the procedure did not demonstrate any contrast inflow to the aneurysm and normal contrastation of branches of the right hepatic artery through the left hepatic artery. ERCP was performed on the next day and numerous blood clots were removed from the biliary ducts. The bleeding did not recur. During the subsequent months the patient was followed-up at Outpatient Clinic Department of Surgery. Her condition was considered good, she did not have any complaints, returned to normal activity, results of her laboratory tests were normal.

On 11.01.2010, seven months after endovascular embolization of the aneurysm, the patient was readmitted to Clinic of Surgery due to jaundice persisting for 5 days with accompanying slight abdominal discomfort in the right subcostal region. Bilirubin concentration was 25 mg%. Very high levels of transaminases and moderate increase of cholestatic enzyme levels were found. US imaging demonstrated biliary duct dilation to 13 mm and a dense mass inside biliary ducts. No blood flow was shown inside the embolized aneurysm. On day two of the hospitalization ERCP was performed. Retrograde contrasting of biliary ducts was performed but no blockade of bile outflow was found. Within 2 days bilirubin concentration increased to 40 mg%. The patient was referred for computed tomography imaging of abdominal cavity. Triphasic contrast enhanced CT imaging demonstrated dilatation of intrahepatic and extrahepatic bile ducts. Width of the common bile duct was 15 mm, its wall was thickened to 3 mm and at least three embolization coils were seen inside its lumen. Repeated endoscopic revision of biliary ducts was performed and three platinum coils were removed from the lumen of the common bile duct that had been used seven months before to embolize the aneurysm, as well as large amounts of biliary mud covering these coils. After the procedure the patient’s condition definitely improved and bilirubin concentration gradually decreased over the subsequent days of hospitalization. Currently the patient is followed-up at Outpatient Clinical Department, performs normal daily activities, her bilirubin is normal.

**DISCUSSION**

It is difficult to definitely point out a cause of an aneurysm of the right hepatic artery and resulting hemobilia in our patient. Massive bleeding from the region of the hepatic hilum during cholecystectomy and revision of biliary ducts and then hemorrhage from the same site during an early postoperative period suggest a preexisting vascular anomaly. On the other hand, the aneurysm may have resulted from intraoperative injury of the right hepatic artery and attempts to control the bleeding. This mechanism, often reported in the literature,
seems most probable. In this case endovascular embolization was a safe and effective procedure that saved the patient’s life. Possible surgical intervention and attempts to localize an aneurysm among adhesions and infiltrations after 3 recent operations in this region could have been unsuccessful. CT imaging of the abdominal cavity was the test that correctly indicated the cause of the jaundice that occurred 7 months after endovascular obliteration of the aneurysm. Very high activity of transaminases (AspAT 784 IU/l, ALAT 920 IU/l) and moderately increased cholestatic enzymes (GGTP 275 IU/l, ALP 298 IU/l) and first ERCP that did not demonstrate any blockade of the bile outflow, could have resulted in diagnosis of parenchymal jaundice which consequences could have been fatal. Results of these tests prompted us to refer the patient to angio-CT imaging to assess hepatic blood vessels that could have been impaired following the embolization of the right hepatic artery resulting in severe, life threatening jaundice. Results of this imaging study, demonstrating embolization coils inside the lumen of the biliary duct and was a surprise for the whole therapeutic team and prompted another, this time successful endoscopic revision of biliary ducts.

A difficult, correct diagnosis of hemobilia predominantly requires inclusion of this rare disorder in the differential diagnosis of upper gastrointestinal bleeding. Its typical clinical symptoms occur only in approximately 40% of cases. An estimated diagnostic efficacy of Doppler US imaging is approximately 33%, computed tomography – 67% and selective angiography – almost 100% (3). Currently endovascular embolization of the bleeding blood vessel is a first line method of treatment of bleeding into biliary ducts, irrespective of its cause. Very good results were obtained in posttraumatic bleedings //most often blunt liver injuries//, iatrogenic complications, bleeding liver tumors, vascular anomalies, aneurysms of hepatic arteries. Numerous reports indicate high success rate and safety of this treatment method (3-8). Patients in whom endovascular embolization was unsuccessful, require surgical treatment. Aneurysm ligation or liver resection procedures can be performed (9, 10).

We did not find such complication of endovascular obliteration of an aneurysm of hepatic artery as migration of embolization coils into the lumen of the bile ducts, in the international literature. Surprising diagnosis and successful treatment was possible due to close interdisciplinary cooperation between a surgeon, radiologist and an interventional endoscopist.

REFERENCES


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