

## CASE REPORT

# Successful laparoscopic cholecystectomy in a severe type A hemophiliac patient: A case report and review of the literature

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**Abstract**

A 37-year-old hemophiliac patient with chronic cholecystitis had a successful laparoscopic cholecystectomy (LC). With the prescription of 1500 cc of factor VIII concentrate BID, 24 h before the surgery, and 4 days after the surgery, he received an uncomplicated LC and was discharged 48 h after the surgery.

**KEYWORDS**

case report, hemophilia, laparoscopic cholecystectomy

## 1 | INTRODUCTION

Laparoscopic surgery (LS) has revolutionized minimally invasive surgery methods. In fact, this type of surgery is the intervention of the choice in many diseases.<sup>1,2</sup> However, there may be some contraindications for this surgery method including adhesion formation due to preoperative abdomens, aberrant anatomy, small bowel obstruction, third-trimester pregnancy, cirrhosis, disseminated abdominal cancer, reduced pulmonary compliance, cardiovascular problems, intracranial diseases, and coagulopathies.<sup>1,3</sup>

As a coagulopathy, hemophilia is considered a relative contraindication for LS. However, it is reported that LS can reduce hospital stay time and complications in hemophiliac cases.<sup>4</sup> One of the most commonly used LS approaches is laparoscopic cholecystectomy (LC). LC is associated with less surgery trauma, faster recovery, and better cosmetic results.<sup>1,5</sup>

The first LC in a hemophiliac patient was conducted on a type B case by Mätzsch et al. in 1992.<sup>6</sup> The report was

successful with no major bleeding or other complications and a good outcome. This positive experience further occurred in another report on a type A patient in 1993 by Mallen et al.<sup>7</sup> The most recently published case of LC in a type A hemophiliac patient is proposed by Giacometto et al. in 2021.<sup>8</sup> All the reports proposed that with some precaution and in a specialized center, LC can be conducted in a hemophiliac patient.<sup>6,8</sup> Here, we report another case of LC in a 37-year-old type A hemophiliac case.

## 2 | CASE PRESENTATION

A 37-year-old severe hemophilia type A patient presented with chronic right upper quadrant (RUQ) pain along with nausea and vomiting and shortness of breathing. He reported similar episodes of pain around 2 months ago; but denied fever, nausea, or diarrhea. Moreover, a history of recurrent hemarthrosis, 15 years ago, leads to the fixation of the right knee. In the case of drug history, he received 1000 cc

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of factor VIII, whenever, bleeding occurred. Moreover, he was an opium abuser. Physical examination revealed that vital signs were within normal ranges. Furthermore, there was no icterus sign. The abdominal examination showed that it was soft and had mild tenderness in RUQ. There was no guarding or distention in the abdominal examination.

The patient underwent abdominal sonography. The result showed that there were several stones with around 10 mm diameter in the gallbladder along with some degrees of inflammation and thickening in the gall bladder wall. There was no abnormality in the bile duct. Moreover, sonography showed no abnormality in the liver, kidneys, and appendix. All these along with clinical signs and symptoms were indicative of a chronic cholecystitis diagnosis.

With this regard, the patient received hydration and antibiotic therapy and was planned for a cholecystectomy. Therefore, laboratory examinations were conducted for the patient. The results showed a hemoglobin of 14.5 g/dl, white blood cell count of 7700 per mm<sup>3</sup> of blood with 28.1% lymphocytes, and platelet count of 197,000 per microliter of blood. Also, the blood sugar was 110 mg/dl, urea was 16 mg/dl, and creatinine was 1.1 mg/dl. In the case of liver profile examination, an aspartate aminotransferase (AST) level of 12 U/L, alanine aminotransferase (ALT) level of 24 U/L, alkaline phosphatase (ALP) of 322 U/L, total bilirubin of 0.9 mg/dl, and direct bilirubin of 0.4 mg/dl were detected. Furthermore, coagulation tests showed a partial thromboplastin ratio (PTT) of 57.4 seconds, prothrombin time (PT) of 13.7 s, mixed PTT of 37.5 s, and international normalized ratio (INR) of 1.23. The patient had a factor VIII level of less than 1% of normal.

A hematologic consultation was asked to manage the underlying disease of the patient. Accordingly, the patient received 1500 cc of factor VIII concentrate, every 12 h, 24 h before the surgery, and 4 days after the surgery. Taking into consideration this prescription, the patient underwent laparoscopic cholecystectomy with no complication. The gallbladder had no gross abnormality, and there was no internal bleeding and trocar insertion site ecchymosis or hematoma. Moreover, pathology assessment of gall bladder was indicative of nondysplastic gall bladder with chronic inflammatory condition. Also, several calculi with blackish color were reported. The patient was discharged with a good condition, 2 days after the surgery.

### 3 | DISCUSSION

LC is the treatment of choice in a patient with cholelithiasis and cholecystitis; however, patients with coagulopathy are preferred to undergo open surgery.<sup>9,10</sup> Still, there are some successful reports about LC in patients, who are prone to excessive bleeding. The first LC on a hemophiliac

patient was conducted by Dr. Mätzsch.<sup>6</sup> They reported that although due to the presence of a partially intrahepatic gallbladder, the operation time was longer than usual; but still, there was no major bleeding or other complications. They reported that LC can be considered as the treatment of the choice in hemophiliac patients with cholelithiasis. They also emphasized that this surgery should be conducted with team management of hematologists and general surgeons, and thus, needs to be conducted in a specialized center.

Recently, Poon et al.<sup>11</sup> reported two cases of non-urgent elective cholecystectomy in a non-severe hemophilia type A patient. However, they reported the use of rituximab, as a long-term suppression of inhibitors of hemophilia A. They proposed that the use of recombinant human factor VIII is less effective in surgery for hemophilia A cases. Still, we only used recombinant human factor VIII and unlike the above-mentioned patient, our case was severe and received LC with no complication. With this regard, this point is considered controversial.

Another case was reported in a 32-year-old male patient of chronic cholecystitis, who underwent LC. To manage this case, the patient received 93 mg/kg of intravenous recombinant FVIIa and 1 gram of tranexamic acid, preoperatively. Moreover, the amount of bleeding was reported to be as high as 500 ml. With this regard, recombinant FVIIa 77 mg/kg was scattered on a daily basis, every 2 h until every 12 h along 1 week (total 2400 mg/kg). Furthermore, the dose of 1 g of tranexamic acid every 8 h was continued during this period. Finally, 1 week after the surgery, the patient was discharged with a good status.<sup>8</sup> Our case only received 1500 cc of factor VIII concentrate, every 12 h, 24 h before the surgery, and 4 days after the surgery, and was discharged with a good condition 48 h after the LC. It seems that the surgeon's expertise in LC has an impact on the outcome and hospitalization duration of the patient.

Lingohr et al.<sup>12</sup> conducted a comparative study on hemophiliac patients who underwent open or laparoscopic surgery. They enrolled 109 hemophiliacs including 21 LS cases. Among these, 15 patients underwent LC, and 9 cases received open surgery. They reported that there is no difference between LS and open surgery in terms of hospitalization and drainage lengths; moreover, complications showed no significant difference between the two study groups in these patients. Similar to our finding, Lingohr et al.<sup>12</sup> proposed LC as a safe method in hemophiliacs.

Successful laparoscopic cholecystectomy is not confined to the hemophiliac patients and there are other reports in other coagulopathy disorders. Yoshimura et al.<sup>13</sup> reported a 70-year-old male cholecystitis case with factor VII (FVII) deficiency. The patient underwent successful laparoscopic cholecystectomy with no complication, with the infusion of 1 mg of recombinant factor VIIa. Another successful laparoscopic cholecystectomy was reported in a

29-year-old man with a history of factor V deficiency. The patient first received 1000 mg of FFP at admission and then received another 1000 mg dose of FFP 6 hour before surgery. LC was conducted with no major or minor post-operative complication.<sup>14</sup>

## 4 | CONCLUSION

Taking into consideration, all these reports with an exact provision of safe bleeding management and considering hematologists' prescription, LC can be used as the treatment of the choice in hemophiliac cholecystitis or cholelithiasis cases. Still, further studies are needed to have a thorough approach to these patients.

## AUTHOR CONTRIBUTIONS

All authors contributed to the study's conception and design. FZ, SR, and KRM performed material preparation, data collection, and acquisition. FZ and SR involved in writing the first draft of the manuscript. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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## CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest.

## DATA AVAILABILITY STATEMENT

The data are also available on request.



## ETHICAL APPROVAL

This study was approved by the Ethics Committee of Mashhad University of Medical Sciences, Mashhad, Iran. All tests were carried out in compliance with the institution's specified rules and regulations. Furthermore, the patient's written informed consent was acquired for the publishing of this case report.

## CONSENT

The patient's written informed consent was acquired for the publishing of this case report.

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