Is Extracorporeal Shockwave Lithotripsy Safe in Patients With Chronic Bleeding Tendency?

Seyed Alaeddin Asgari, Majid Kazemzadeh, Afshin Safaee Asl, Mandana Mansour Ghanaei

Keywords: kidney calculi, extracorporeal shockwave lithotripsy, blood coagulation disorder, hemorrhage

INTRODUCTION
Since 1980, the extracorporeal shockwave lithotripsy (SWL) has become the gold standard option for treatment of renal and ureteral calculi. But SWL is not without complication and has its own contraindications. Of absolute contraindication for SWL is bleeding tendency. Here, we report a case with bleeding diathesis who underwent SWL without bleeding tendency correction.

CASE REPORT
A 40-year-old active stone former woman with a 7-year history of autoimmune hepatitis and cirrhosis was found to have multiple kidney and ureteral stones. Laboratory examination revealed thrombocytopenia and coagulopathy (prolonged PT and PTT), which are contraindications for SWL, but she had undergone two sessions of SWL, previously. Her physician was not aware of her bleeding tendency. Both SWLs have been performed without any complications.

DISCUSSION
Extracorporeal shockwave lithotripsy has its own complications in a small percentage of patients, even though serious complications are unusual. Since its introduction by Chaussy and Schmiedt in 1980, SWL has been proven to be a safe, effective, non-invasive, and preferred method of treatment for patients with the upper tract urolithiasis.

Although the risks of this procedure are relatively low, the risk for perirenal or intrarenal hemorrhage is well known. Routine post-SWL imaging by computed tomography imaging

Urology Research Center, Guilan University of Medical Sciences, Rasht, Iran
Corresponding Author: Seyed Alaeddin Asgari, MD
Urology Research Center, Razi Hospital, Rasht, Iran
Tel/Fax: +98 131 552 5259
E-mail: s_a_asgari@gums.ac.ir
Received November 2009
Accepted July 2010
and magnetic resonance imaging has revealed perirenal or intrarenal hemorrhage in 20% to 25% of cases.\(^6,7\) Hence, in the setting of deranged bleeding parameters, SWL has been considered to be an absolute contraindication. Acute urinary tract infection, uncorrected bleeding disorders, pregnancy, sepsis, and uncorrected obstruction distal to the stone, all are considered absolute contraindications for SWL. Development of perirenal or intrarenal hemorrhage following SWL is a frequent observation in those with normal bleeding parameters.\(^4\) The incidence of clinically significant bleeding is less than 1%.\(^3,4\) These reports taken together support the concept that SWL is potentially risky in the setting of bleeding diathesis. On the contrary, there are reports of successful use of SWL in known hemophilia after specific therapy with infusion of anti-hemophilic factor.\(^9,10\) Ruiz Marcellan and colleagues have reported successful use of SWL in 17 patients with coagulation disorders, after instituting hemotherapy for blood factor deficiencies.\(^11\)

Data support the use of SWL in selected patients with correctable bleeding diathesis, but all the subjects were managed with collaboration of the hematology department. Depending on the nature of the disorder, we suggest the following guidelines for treatment: In patients with von Willebrand disease, factor VIII level of > 70%; in those with hemophilia A, the factor VIII level 80% to 100%; in idiopathic thrombocytopenic purpura, a platelet count of 60 000 μL; and for oral anticoagulant, international normalized ratio < 1/5 should be safe.

There is no overall or complete consensus about the appropriate management of bleeding tendency disorders and anticoagulation therapy for patients receiving long-term warfarin and/or antiplatelet drugs (Lip, 2005; VAMC, 2001).

Samiran and coworkers performed a total of 27 SWL sessions in 7 patients, including 1) von Willebrand disease; 2) idiopathic thrombocytopenic purpura and solitary right kidney; 3) mitral valve replacement on warfarin; 4) ischemic heart disease on aspirin; 5) cirrhosis and portal hypertension; and 6) hemophilia A. Deficient coagulation factors were administered.

Two out of seven patients developed mild hematuria, which settled within 48 hours. None of them required blood transfusion. All, except 1 patient (case 3), were stone-free at one month. None of them required a secondary procedure. Case 1 had post procedure magnetic resonance imaging, which did not show any collection or perinephric hematoma. Other patients were observed clinically and did not undergo post procedure imaging. Therefore, SWL is a safe method of treatment of urolithiasis in patients with bleeding diathesis, provided that bleeding diathesis is corrected. These procedures should be undertaken in the setting of a tertiary care institution with hematological facilities.\(^12\)

Tsuboi and associates reported two cases of idiopathic thrombocytopenic purpura in which ureteral stones were successfully extracted by transurethral ureterolithotripsy and SWL after high-dose gamma-globulin therapy and platelet transfusion with no bleeding complications.\(^13\) In literature, all of the SWL procedures in patients who had contraindication for SWL, such as pregnancy, have been performed inadvertently. But we were aware of it.\(^14\)

According to literature, in patients with bleeding tendency, SWL should be performed after necessary corrections. Our patients with coagulopathy did not develop bleeding following 5 SWL sessions.

CONFLICT OF INTEREST
None declared.

REFERENCES


