Objective

We experienced a case in which a giant uterine myoma caused acute phlebothrombosis and report a rare case in which a surgical thrombectomy and a total hysterectomy were simultaneously performed.

Case report

A 42-year-old woman presented in the morning with sudden-onset of swelling and pain in her left lower extremity. She had no past medical history, and no coagulation abnormality was detected by the preoperative blood examination. She was diagnosed as having deep vein thrombosis at a local hospital the following day. The cause of the thrombosis was thought to be the compression of the inferior vena cava (IVC) by a giant uterine myoma. An IVC filter (Tempofilter II, B. Brown, PA, USA) was inserted from the right internal jugular vein, and a continuous infusion of 15,000 units of heparin/24 hours was started. She was then transferred to our institute for the treatment of acute thrombosis. Upon arrival, her vital signs were relatively stable except for sinus tachycardia (120 bpm). Phlegmasia cerulea dolens was observed in the infra-inguinal region of the left leg, and the patient complained of severe pain and exhibited cyanopathy. Her chest X-ray findings were clear. A preoperative venography revealed excellent recanalization of iliofemoral vein and she was subsequently discharged from hospital. Her clinical course has been extremely good, with no symptoms of post-thrombotic syndrome for two years.

Key words: uterine myoma, acute iliofemoral venous thrombosis, venous thrombectomy, hysterectomy

A Case of Successful Treatment of Acute Iliofemoral Venous Thrombosis Caused by Giant Myoma Through Combination of Simultaneous Hysterectomy and Thrombectomy

Noriyoshi Kutsukata, MD,1 Kunihiro Mashiko, MD,1 Hisashi Matsumoto, MD,1 Yoshiaki Hara, MD,1 Yuichiro Sakamoto, MD,1 and Hiroyuki Yokota, MD2

A 42-year-old woman complained of a sudden swelling and pain in her left lower extremity. Her lower abdomen was distended, and the thrombosis of iliac vein caused by giant myoma was detected by magnetic resonance imaging. A laparotomy was performed under general anesthesia with positive-pressure ventilation, anterior total hysterectomy and thrombectomy of iliofemoral vein simultaneously were performed. A postoperative venography revealed excellent recanalization of iliofemoral vein and she was subsequently discharged from hospital. Her clinical course has been extremely good, with no symptoms of post-thrombotic syndrome for two years.

Key words: uterine myoma, acute iliofemoral venous thrombosis, venous thrombectomy, hysterectomy

1Nippon Medical School Chibahokusoh Hospital, Shock and Trauma Center, Chiba, Japan
2Nippon Medical School Main Hospital, Emergency and Critical Care Medicine, Tokyo, Japan

Received: May 8, 2008   Accepted: November 4, 2009
Address for reprint requests to Noriyoshi Kutsukata: Nippon Medical School Chibahokusoh Hospital, Shock and Trauma Center, 1715 Kamagari, Inba, Inba, Chiba 270-1694, Japan
Tel: +81-476-99-1111 EXT:3111, Fax: +81-476-99-1904
E-mail: moonsong@nms.ac.jp
oma had compressed the left iliofemoral vein (Fig. 2). Severe skin turgescence and painful swelling were present and the duration from the onset to the surgery was three days. We decided that a thrombectomy was indicated and performed this procedure with a simultaneous hysterectomy. The cause of the thrombosis was confirmed to be compression by a giant hysteromyoma.

We utilized the surgical procedure proposed by Heberer and van Dongen in 1989. The prevention of pulmonary thromboembolism (PTE) is an important part of intraoperative management. We also performed intratra-

cheal intubation under a general anesthesia and applied a positive pressure ventilation of below PEEP 10 cmHg. The patient was placed on the surgical bed in an anti-Trendelenburg supine position. We thought that this operation required the preparation of a cell separator device (Cell Saver 5+, Haemonetics, MA, USA) for autologous blood transfusion, because of previously iron deficiency anemia due to uterine myoma. First, an anterior total hysterectomy was performed through a median laparotomy, and after careful hemostasis in the abdominal cavity, the abdomen was closed. Next, a 5 cm femoral skin
incision was made, exposing the common femoral vein (CFV). Systemic heparinization was started with an intravenous bolus injection and continued by controlled infusion to adjust an activated whole blood clotting time (ACT) of between 200 and 250 seconds. We inserted an 8-French size block balloon catheter about 35 cm from the femoral vein using a cut-down technique and occluded blood flow through the inferior vena cava (IVC) using an isotonic sodium chloride solution of 20–30 cc. For the thrombectomy, we used a 7-French size Fogarty catheter toward the proximal direction parallel with the first IVC block balloon catheter. For thrombus at of the distal site, a 4-French size Fogarty catheter used while compressing the leg tightly with an Esmarch bandage and using a ‘milking’ maneuver. Together with the positive pressure ventilation and anti-Trendelenburg position, this procedure created a favorable venous backflow from the right extremity and a large amount of thrombi were removed. An intraoperative venography was then performed to confirm that the iliofemoral vein was patent. On the third postoperative day, the continuous infusion of heparin was gradually to replaced with warfarin and the patient was then weaned from heparinization. Prophylaxis with warfarin and the use of Grade 2 elasticity stockings for six months was recommended. A postoperative venography showed good recanalization of the deep veins (Fig. 3) and the restoration of venous return from distal veins to the IVC. The shapes of the deep vein valves were depicted, and it was hoped that valvular function had been preserved. The resected uterus contained a pathologically benign uterine myoma, and a postoperative RI scintigram showed the pulmonary artery blood flow and the venous flow from the lower limbs were not compromised. The postoperative function of the deep veins was evaluated by duplex scanning of the lower limbs three months postoperatively. The deep veins were patent, and there was no evidence of insufficiency of the deep vein valves and saphenofemoral junction. Deep vein thrombosis has not recurred in two postoperative years.

**DISCUSSION**

The 42-year-old woman in this case report developed phlegmasia cerulea dolens on the second day of onset and underwent surgery. Complete occlusion of the common iliac vein was shown by a preoperative venography, and an MRI examination showed a giant uterine myoma. A few previous reports of a simultaneous thrombectomy and hysterectomy have been made, and this case seems very rare. A surgical thrombectomy of the iliofemoral vein enabled a dramatic improvement.

Heberer and van Dongen first introduced this procedure in 1989, and this surgery has been frequently performed in Europe since then. Stiegler and Sunder-Plassmann introduced several technical components related to the performance of a thrombectomy for acute deep vein thrombosis. These technical components included general anesthesia with positive-pressure ventilation, an anti-
Trendelenburg supine position, the use of an IVC block balloon catheter, and the construction of an arteriovenous fistula.1) We believe that these technical components were important for the success of the procedure. The authors reported that intraoperative pulmonary embolus and vascular perforation, postoperative bleeding, and recurrent thrombosis were the most important complications.1) They noted that the possibility of an intraoperative pulmonary embolus should always be taken into consideration and that 3 intraoperative emboli occurred in a series of 234 operations. On the other hand, vein perforation is a very rare complication and postoperative bleeding, usually occurs in the region of the skin incision, is minor. Nevertheless, diligent hemostasis and a controlled heparin dose are necessary.

Several therapeutic strategies for acute thrombosis are available, including conservative anticoagulation, thrombolytic therapy and surgical treatment. Aspiration and fibrinolysis therapy via a catheter, and an endovascular technique using a stent have also been recently reported. However, we cannot ignore the adverse effects of urokinase, and long-term results have not yet been reported. The endovascular technique, in particular, has recently received attention. Kölbl reported mid-term results for thrombolytic therapy and stent placement, and the further advancement of this technique is anticipated.4) However, this operation is difficult to perform and urokinase or t-PA can have undesired adverse effects. A combination of thrombolytic therapy and some form of endovascular technique using urokinase or t-PA would likely be difficult, because of the risk of postoperative bleeding after laparotomy. The original operative procedure for an iliocaval occlusion requires the construction of an arteriovenous fistula (A-V fistula) via the femoral artery to vein. An A-V fistula may reduce the incidence of recurrent thrombosis and increase collateralization by altering the flow velocity. However, we did not construct an A-V fistula in the present case. Because the compression has been caused by the giant uterine myoma and an intraoperative venography confirmed the complete removal of all thrombi.

We performed this traditional European surgical thrombectomy for iliofemoral compression caused by a giant uterine myoma and obtained a favorable clinical course.

REFERENCES